

Occupational therapy students' perceptions and experiences of learning
through images: Role-emerging practice placement case studies

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Abstract

Title

Occupational therapy students' perceptions of learning and experiences through images:
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Introduction

There is limited research exploring occupational therapy students' learning experiences during role-emerging practice placements. In particular, there is a scarcity of studies researching pedagogic models or methods that can mediate students' reflection and learning in this setting. In this context, students can struggle to link key disciplinary concepts to practice (Hunter & Volkert, 2016). This thesis explores the application of an innovative pedagogy, an Inquiry Graphics (IG) learning design, with six occupational therapy (OT) students on a role-emerging practice placement (REP). The IG learning design aims to facilitate the application of theory to practice, placement learning outcomes and related threshold concepts. This was achieved by students creating or selecting images to represent their placement experiences, writing reflective narratives about the images concerning key OT concepts, and discussing their creations with their OT educators.

Methods

A hermeneutic phenomenology approach was adopted to explore the experiences of 6 students through case studies. An IG learning design was implemented as part of the students' weekly reflective logs. Data constituted analyses of reflective logs, images, interviews and conversations with OT educators

Findings

Key findings suggest that the student-created artefacts and the IG design reinforced the personalisation of their reflections through creating a weekly IG. Incorporating photos or digital imagery and text to reflect and explore their individual placement experiences, concept understanding and feelings associated with learning resulted in a deeper, more personal reflection. In particular, an exploration of their feelings about placement learning and associated threshold concepts was essential for progression.

The IG that students created reinforced an understanding of learning as socio-material, situated, affective and metaphorical. These findings contribute to our understanding of

student learning on REP and introduce an innovative, creative multimodal learning design, along with its preliminary evaluation and characteristics.

Conclusion & Implications for practice

Using an IG learning design provided an effective, personalised, multimodal method for students to reflect on and explore learning on a REP. Further application and research are warranted within role-emerging and other occupational therapy placements.

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Authors Declaration

I hereby declare that the thesis was entirely my own work and not part of joint research.

It has also not been submitted in substantially the same form for publication, nor for a higher degree elsewhere.

Parts of the work had been shared at Occupational Therapy conferences. Please refer to the next section for details of the conference sharing and publications.

The word length of this thesis (excluding abstract and references) is 44,993, and within the permitted maximum word limit of 45,000 set by Lancaster University for a doctoral thesis for this programme.

Signature ...*Susie Wilson*.....

Publications derived from work on the Doctoral Programme

Wilson, S (2021) "Occupational therapy students learning related to threshold concepts on Technology Enabled Care Services (TECS) practice placements during the COVID-19 pandemic in the UK" Poster. Royal College of Occupational Therapists 44th Annual Conference, 30th June & 1st July 2021. Virtual Online Event

Wilson, S (2021) "Threshold graphics in occupational therapy: student learning in-between threshold concepts and inquiry graphics" Presentation TC2020: 8th Biennial Threshold Concepts Conference, 2021, July 7-9, 2021. London & the World. Virtual Event

Wilson, S (2022) "A realist evaluation of role-emerging occupational therapy practice placements", Poster. 18th International Congress of the World Federation of Occupational Therapists, 27-30 March 2022. Paris, France

Wilson, S (2024) "Students' perceptions of learning about occupational therapy threshold concepts through images on role-emerging practice placements: a qualitative study", Presentation, Royal College of Occupational Therapists 47th Annual Conference, 12th & 13th June 2024, Virtual Online Event.

Chapter 1 – Introduction

1.1 Introduction & Outline of the Chapter

This thesis presents research on the development of an Inquiry Graphics (IG) learning design to support the reflections of six occupational therapy (OT) students on learning related to threshold concepts (TC) during role-emerging practice placements. The research includes the IG learning design, along with the students' reflections on their placement learning experiences related to threshold concepts. This research is presented through six case studies. This unique research presents a multimodal exploration of OT students' experiences in reflecting on applying learning related to threshold concepts in role-emerging placements (REP), drawing on OT theory, inquiry graphics, semiotics, threshold concepts, and an interdisciplinary method of inquiry through graphics.

In this opening chapter, I outline the background and rationale for this qualitative study, the context within which it is situated, key terms used, and the structure of the thesis. My intention is for the reader to clearly understand my motivations as the researcher, the study background, and the research aims by the end of the chapter.

1.2 Context of the Study and Background of the Researcher

1.2.1 My motivation

I am an experienced occupational therapist (OT) and academic with a broad range of clinical and academic interests. As an occupational therapist in practice, I specialised in working with people with brain injury and stroke. This is where my interest in working with people in their own contexts, alongside support groups and charities, began to develop. I could see the value of OT input in settings where no occupational therapist was employed. The professional disciplinary knowledge, skills, and behaviours of OTs enabled us to contribute to supporting health and wellbeing, as well as addressing occupational needs. As an occupational therapist working with people with brain injuries, when I visited a day centre or care farm where there was no occupational therapist employed, I recognised the role for OTs in these settings.

In 2006, I moved to academia to become a lecturer. I began supporting OT students who were going on placements to these settings, referred to as role-emerging placements, where there is no occupational therapist in post (College of Occupational Therapists, 2006; Thew, 2011). I became one of the lecturers who provided weekly supervision to students, supporting OT students in maintaining their 'occupation' focus to address the health and wellbeing needs of those in their service. What I noticed over time was the range of learning, challenge, benefit and emotions that these role-emerging settings provided for OT

students, with some singing the praises of an excellent role-emerging placement (REP) learning experience and others experiencing emotions and struggles with reflecting and applying theory to practice, their professional identity and understanding the value of the REP to their learning (Clarke, De-Visser, Martin & Sadlo, 2014; Hunter & Volkert, 2017; Lau & Ravenek, 2019; Overton, Clark & Thomas, 2009). Students received preparation for these placements in taught university sessions and had weekly supervision from a member of the OT academic team. All this support followed research and guidance from the College of Occupational Therapists (now Royal College of Occupational Therapists) (College of Occupational Therapists, 2006; Thew, 2011)

In noting the range of student responses in my university setting, I reviewed the literature and research associated with occupational therapy (OT) students' reflecting on learning experiences on REP. I could see that this was an evolving practice placement area, with research mainly conducted in Canada, UK, United States, Australia and Ireland (Boehm et al, 2015; Cooper & Raine, 2009; Clarke, De-Visser, Martin & Sadlo, 2014; Dancza, 2015; Dancza et al, 2013; 2016; 2019; Taylor, 2019; Fieldhouse & Feddon, 2009; Hunter & Volkert, 2017; Lau & Ravenek, 2019; Mattila, Deluliis & Cook, 2018; Overton, Clark & Thomas, 2009; Thew, Hargreaves & Cronin-Davis, 2009; Thew, 2011; Thew, Thomas & Briggs, 2018; Thew, Cezar de Cruz & Thomas, 2023). Whilst this research includes students' learning experiences and outcomes, it is limited in its approaches to supporting reflection on learning about key disciplinary concepts. Therefore, when I started my PhD in Educational Research at Lancaster University, I focussed my PhD studies on OT students' learning during role-emerging practice placements and how to support it in this digital era, recognising that digital technologies are embedded in all parts of our lives.

1.3 Rationale for the Study

Practice placements are a key component of learning for all health students, including those in the fourteen allied health professions to which OT belongs (RCOT, 2019; St John-Matthews & Hobbs, 2020; WFOT, 2016). Innovation in health professions practice placement education is being encouraged, with increasing emphasis on promoting active learning where students create meaning and understanding of their experiences. Adopting a constructivist approach where students engage in active reflection and learning is seen as necessary for today's health learners (Nyoni, Hugo-Van Dyk & Botma, 2021)

Occupational Therapy can be defined as;

‘Occupational therapy promotes health, well-being, and quality of life by supporting access to, initiation of, and sustained participation in the things that clients want and need to do in their daily life, with the people and in the places that they want to participate in these occupations.’ (Egan & Restall, 2022, p190)

A professional frustration throughout my career, as both a clinician and academic, has been people’s lack of understanding of how OT’s unique perspective can support recovery or maintain health and well-being (Turner & Alsop, 2015). To counter this challenge, OT academics and practitioners recognise the importance of promoting our profession through developing a secure professional identity (Binyamin, 2018; 2021; Cade, 2023; Clarke, Martin, Sadlo & De-Visser, 2014; French & Clarke, 2024; Walder, Bissett, Molineux & Whiteford, 2022; Turner & Alsop, 2015). Knowledge of key professional concepts is central to this ability to promote and advocate for OT. Educational research increasingly discusses these concepts as important graduate attributes that encourage and sustain the profession and an individual’s resilience and well-being as an Occupational Therapist (OT) practitioner (Brown et al., 2020; 2022; Cade, 2023; Mak et al., 2023).

Within the literature, occupational therapy’s struggles with its professional identity with other health care practitioners and the broader population are well documented (Ashby, Adler & Herbert, 2016; Clarke, Martin, De Visser, & Sadlo, 2015; Turner & Knight, 2015; Walder et al, 2022). Supporting OT students to be confident in their identity, able to articulate and define OT, and demonstrate the discipline-specific knowledge, skills, and behaviours that show its value and contribution in role-emerging and all settings are essential for the progression of the OT profession (Ashby, Adler & Herbert, 2016; Turner & Knight, 2015). Role-emerging placements (REP) have continued to be part of the OT pre-registration programmes’ curriculum nationally and globally (RCOT, 2019; WFOT, 2016). REP are developing and expanding as the value of occupational therapists’ and their unique contributions to health and wellbeing grow and spread (Cooper & Raine, 2009; Hunter & Volkert, 2017).

OT’s strength is our person-centred wholistic viewpoint, seeing a person as an ‘occupational being’ where the everyday occupations, i.e. activities someone engages in across their 24-hour day in their environment, contribute positively or negatively to their identity, health and wellbeing (Christiansen & Haertl, 2024; Duncan, 2021; Pentland, 2018). Occupational Therapists are dual-trained health professionals with key disciplinary knowledge and skills linked to using occupation (Christiansen & Haertl, 2024; Duncan, 2021; RCOT, 2019). This unique set of knowledge, skills and behaviours means OTs are well placed to support current population health needs (Pentland, 2018; RCOT, 2021;).

The UK is experiencing a shift in healthcare and population health needs. The recent Darzi Report (2024) into the NHS and broader health needs of people in the UK identified that not only are there issues in the way the NHS is delivered, but life expectancy and the 'health of the nation' are going in the 'wrong direction' (Darzi, 2024, p. 2). This report builds upon previous reports and work by individuals such as Michael Marmot, who have found that life expectancy for specific groups is declining rather than increasing (Marmot et al., 2010, 2020). In response to these changing health, social and population needs and the recognition of occupational therapy, as a profession with knowledge and skills to work across physical and mental health, in traditional NHS and non-traditional community settings, there is a move within the OT workforce to working in these contemporary settings supporting health and wellbeing through the use of occupation (McKinstrey & Fortune, 2014; RCOT, 2024).

The Royal College of Occupational Therapists (RCOT) new Workforce Strategy 2024-2035 promotes the value and contribution OTs can make to resolve some of the current and expected health and care challenges (RCOT, 2024). The strategy aims to gradually position the OT workforce closer to populations by being primarily based in communities and services such as GP practices and schools, with an increasing focus on prevention and early interventions (RCOT, 2024). To create contemporary OT practitioners able to work in new and role-emerging settings, addressing health and wellbeing needs closer to home, there is increased emphasis on developing OT curricula content and providing role emerging or diverse role OT student placement experience as part of the 1000 hours of practice placement (Pollard, 2014; RCOT, 2019; Thew, Thomas & Briggs, 2018). These contemporary drivers emphasise the role and value of OT in community and emerging practice areas. This means that higher education institutes (HEIs), as providers of OT pre-registration education, require learning pedagogy and curriculum design that can support OT students in role-emerging practice contexts (Ashby, Adler & Herbert, 2016; Moores et al, 2022)

Supporting students in engaging and learning in these contemporary placement settings is, therefore, essential. Research related to methods, pedagogies or learning designs applied to mediate students' reflections on their learning during these REP is limited in OT and central to this research (Clarke et al, 2014; Dancza, Copley & Moran, 2019). Incorporating digital methods, including images, is a contemporary approach to engaging and exploring learning, yet it remains limited in higher education (Lackovic, Olteanu & Campbell, 2024). Students' placement experiences are particularly embodied, where new skills, knowledge and behaviours are developed not just through cognitive processes but through the students own sensory and physical responses. This can be emotionally challenging;

therefore, this thesis adopts a learning design that incorporates images and offers opportunities for multimodal, student-focussed expression, acknowledging that students' learning is not a unidimensional cognitive experience (Clarke et al., 2014; Lackovic, Olteanu, & Campbell, 2024). This approach recognises that meaning making is not solely about cognitive change but also includes multimodal sensory and physical experiences

Images have been successfully used in research to access subconsciously held beliefs and feelings, as well as prior knowledge, and have evidenced value in providing new ways of understanding and expressing learning experiences (Lackovic, 2020; Reed, 2022; Taylor & Marienau, 2016). The pedagogical value of thinking and reflecting with images and artefacts is receiving increasing attention within the literature (Corrie, Lawson & Rowland, 2020; Lackovic, 2020; Reed, 2022). Inquiry graphics is a visual creative method, used in this research, that has been shown to support reflective practice and knowledge development in multiple ways, such as 'challenging stereotypes', 'initiating new ways of seeing things', 'exercising student's creativity', 'showing multiple concept perspectives via representations', 'acting as discussion and presentation scaffolding', 'supporting personalised learning', 'acting as a memory prompt', 'developing concept understanding', 'supporting students with dyslexia' and being 'engaging and thought-provoking' (Lackovic, 2020, p269; Mac Giolla Ri, 2020; 2022) In an inquiry graphics pedagogy, images are acting as a reference point for students to develop, critically explore, reflect upon and apply their learning (Lackovic, 2020)

This study aims to contribute to OT pedagogies and learning design for REP by applying and evaluating a multimodal method using images and narratives to facilitate OT students' reflection on learning related to threshold concepts.

1.4 Description of the Study Development

With these personal and evolving educational and professional drivers, I began to ask myself how we might connect key professional concepts for students on REP to promote learning and professional identity development in a contemporary educational way. The development of the final study went through several stages; I will now discuss these.

1.4.1 Review of OT Educational Research and Role-Emerging Placement Research

My early explorations of the evidence about students' experiences and learning on role-emerging placements found research about their experience and the value they place on these non-traditional placements; however, there was less discussion about specific pedagogy or learning designs (Boehm et al, 2015; Cooper & Raine, 2009; Clarke, De-Visser, Martin & Sadlo, 2014; Dancza, 2015; Dancza et al, 2013; 2016; 2019; Taylor, 2019; Fieldhouse & Feddon, 2009; Hunter & Volkert, 2017; Lau & Ravenek, 2019; Mattila, Deluliis & Cook, 2018; Overton, Clark & Thomas, 2009; Thew, Hargreaves & Cronin-Davis, 2009;

Thew, 2011; Thew, Thomas & Briggs, 2018; Thew, Cezar de Cruz & Thomas, 2023). This can also be seen in OT educational research, with studies exploring the efficiency, effectiveness, or experience of teaching and learning. Whilst this is important, Hooper et al. (2018) suggest that research, including our philosophy and history, which builds theory and conceptual frameworks, is crucial in enhancing and enriching OT education (Hooper et al, 2018). There are limited learning designs or approaches to support the development of disciplinary knowledge in OT students during role-emerging practice placements (Clarke et al, 2014; Dancza, 2016).

Learning theories or frameworks that have been applied to REP research include Situated Learning theory, Transformative Learning theory and Threshold Concepts theory (Dancza et al, 2013; Dancza, Copley, Rodger & Moran, 2016; Dancza, Copley & Moran, 2019; Kaelin & Dancza, 2019 and Matilla & Dolhi, 2016). Reviewing this research re-introduced me to Threshold Concepts (TC) and how utilising this framework can support students to focus on their key disciplinary learning (Meyer & Land, 2006)

1.4.2 Early Pilot Studies

With this additional learning, in September 2020, I designed a small-scale pilot study titled, 'OT students learning related to threshold concepts on Technology Enabled Care (TEC) practice placements during the COVID-19 pandemic in the UK' as part of my Researching in Learning, Teaching & Assessment module. This study was conducted during the COVID-19 pandemic, when online and virtual clinics were rapidly implemented. As a result, some student placements were moved online to meet the practice needs and ensure that students completed their programme on time, allowing them to transition into practice. Findings from this small study, with six BSc (Hons) OT students, suggested that the threshold concepts theory was a valuable framework for focussing students' learning on key disciplinary concepts, contributing to knowledge about using threshold concepts in OT. This study was presented as a poster at the RCOT conference in June 2021 (Wilson, 2021).

A second pilot study was conducted for the '*Evaluating Cultures in Higher Education*' module. Here, I adopted a realist evaluation framework to evaluate the learning experience of six OT undergraduate students participating in non-traditional REP. Pawson and Tilley (1997) developed the realist evaluation framework to better understand 'what works for whom, in what circumstances, in what respects and how' (Pawson and Tilley, 1997; 2013). Findings from this pilot study suggested that students found the opportunity to learn about service users' lived experiences of long-term conditions to be valuable, as was collaborative team learning. It was also identified that an important mechanism to support student learning was the onsite staff, and that the right learning conditions within the settings needed

to be created (Wilson, 2022). This study was presented as a poster at the 18th World Federation of Occupational Therapists conference in Paris in August 2022.

Both pilot studies helped develop my thinking and ideas for my thesis, using a threshold concepts framework identified as a valuable way of signposting students to key disciplinary learning; however, the lens and research design for incorporating threshold concepts required further exploration. My desire to include a digital platform and images continued, leading to an exploration of semiotics and inquiry graphics images (Lackovic, 2020). As an OT with experience in using multimodal creative methods to assess and treat patients in practice and an increasing interest in creating the right conditions for learning for OT students on REP, I became interested in semiotics and inquiry graphics. Research has demonstrated strengths in supporting students' reflections, critical thinking, and a more nuanced understanding of concepts they are expected to learn, including the role of emotions and environment via inquiry graphics (Lackovic, 2020). This contemporary practice aligns with new learning designs in higher education when compared to more traditional, verbal-centric methods.

1.4.3 New Learning Designs: Applying Visual Methods, Semiotics and Inquiry Graphics

Visual media and images are an increasingly significant part of our daily lives and communication methods in the advancing digital era (Lackovic, 2018). I was interested to learn how they can represent learning and the connections a learner makes with key concepts and transitions (Lackovic & Olteanu, 2021; Mannay, 2016; Rose, 2012).

Multiple terms are associated with using visuals and images in research and education, but what is at the core of any such process is *image interpretation* and/or *creation* by students, teachers or both. This interpretation and meaning making is primarily tackled through the field of semiotics. Semiotics is a broad discipline that encompasses the science and philosophy of signs, defined as the study of signs (Lackovic & Olteanu, 2021). Every communication we interact with in education are signs of different character and complexity – written articles, videos, photographs, gestures, body language, Within semiotics, the growing field of '*Edu semiotics*' is referred to as the 'semiotic theory of learning', it is based on the idea that meaning is constructed between the signs and the learning concepts they present (Hallewell & Lackovic, 2010; Lackovic, 2020, p ix).

Inquiry Graphics (IG) pedagogy is a relatively new branch of applied semiotics or Edu semiotics, developed by Natasa Lackovic. Inquiry Graphics '*are graphics integrated within concepts or thematic units in educational domains*' (Lackovic, 2020, pix). Inquiry graphics could, therefore, be used to represent learning related to threshold concepts or any concept or theory in any discipline, as their primary role is to connect learning concepts with images

for deep reflection or inquiry (Mac Giolla Ri, 2020). As creativity and multimodality are integral to OT practice, incorporating a creative, multimodal approach within this PhD was exciting. It felt aligned with both my roles as an occupational therapist and an academic. Furthermore, the characteristics and impact of this method appear to align well with the needs of OT student reflection.

1.4.4 Developing Inquiry Graphics Learning Design for Occupational Therapy

My earlier pilot studies, discussed previously in this chapter, explored the experiences of OT students using threshold concepts as a framework and found that it helped focus students' reflections on key aspects of professional learning. They identified that the learning conditions for REP fluctuated according to the context and people involved. These findings were consistent with other research in this area (Clarke et al, 2014; Hunter & Volkert, 2017; Overton, Clark, & Thomas, 2009). Supporting OT students to reflect on key disciplinary learning with OT threshold concepts by using an Inquiry Graphics learning design as a creative, multimodal means of supporting this disciplinary learning seems appropriate (Lackovic, 2020; Meyers & Land, 2006). Through discussion with my supervisor, Natasa Lackovic, I adapted Natasa's previously described applications of learning designs using Inquiry Graphics to meet the reflection and learning needs of OT students on role-emerging placements. The first Inquiry Graphics Learning Design for OT students on REP was piloted, with some changes made. Once the pilot and adjustments to the learning design had taken place, this research study commenced, with six OT students recruited as case studies.

1.4.5 Research Aim, Design and Methodology

The modules and preliminary studies I carried out as part of the taught part of my PhD introduced me to different research approaches and methodologies. As an occupational therapist, my approaches in practice were influenced by a phenomenological approach, as I sought to explore and interpret people's lived experiences (Finlay, 2011). As this research aimed to establish lived experiences, I chose to adopt this theoretical approach within the research design. Identifying the branch of phenomenology took some time; I considered interpretative phenomenological analysis (IPA), descriptive and interpretative phenomenology and hermeneutic phenomenology. I decided that hermeneutic phenomenology was the most suitable for this research given my "insider" position and knowledge about role emerging placements (Finlay, 2011; Dibley et al., 2020). Because this is a new creative method of collecting and evaluating OT student learning on REP and students were on placement in a range of contexts, I wanted to achieve an in-depth

understanding of their individual experiences; therefore, I chose a case study approach (Hamilton & Coebett -Whittier, 2013; Yazan, 2015; Yin, 2014).

Main Research Questions

Research Question 1 - What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their learning and knowledge development of threshold concepts on a role-emerging practice placement?

Sub Questions

1. What are the students' stories around the use of IG images as data collection tools to inform their learning and knowledge development around occupational therapy threshold concepts?
2. How do artefacts/graphics support students' reflections and discussions about threshold concepts during role-emerging practice placement learning?

Research Question 2 - What are occupational therapy students' learning experiences related to threshold concepts on role-emerging placements?

Sub Questions

1. What are their narratives around these learning experiences?
2. What experiences, interactions and concepts do they find troublesome?
3. What do they find transformative?

1.4.6 Being an Insider Researcher

I recognised my "insider" status as lecturer on the MSc and BSc (Hons) Occupational Therapy programmes, where students were recruited, and used a gatekeeper, supervision and a reflective and reflexive approach to manage my position (Etherington, 2004; Olukotun, 2021). The added value of having established connections with the students and an understanding of their role-emerging settings meant that the students involved in the pilot study felt keen to contribute to the developing inquiry graphics Padlet, feeding in essential details and suggesting changes to reflective questions and layout.

The power of my position was regularly reviewed throughout the design, collection, analysis, and writing of this PhD, and the words of Victoria Braun and Victoria Clarke acknowledged the power and responsibility of my role.

'You are the director of your analytic journey, the author of your analytic story' Braun and Clarke, 2022, p10 & 11). Acknowledging my position and ability to shape and influence data

analysis and interpretation challenges the notion of my neutrality as a researcher and emphasises the importance of reflexivity throughout the research process. I did this by engaging in reflexive practices, such as maintaining a pebble pad journal (see example in Appendix 1), regular supervision and seeking alternative interpretations of my analysis. I have aimed for my analysis to be transparent so that the participant voices are clear whilst also acknowledging my influence in constructing meaning.

1.5 Structure of the Thesis

Following this introductory chapter, Chapters 2 and 3 will examine the literature and provide a thematic narrative overview of current research and evidence related to the key terms and research topic, aiming to critically evaluate and situate this PhD study within the existing evidence. This is followed by the research methods chapter, Chapter 4, which explores and justifies my research design, methodology and methods used to carry out the research. This chapter includes discussion about data collection and analysis, ethics, trustworthiness and my position in the study as an 'insider researcher'. Data analysis was an iterative process where data from each case study was initially analysed. Then, in part two, data analysis was conducted across the six case studies, yielding overarching themes and subthemes. The findings in Chapter 5 are presented for each Case Study, using the overarching themes and subthemes to show and explain the results.

Next, in the discussion chapter of Chapter 6, the findings are critically explored in relation to the literature, as well as the study's limitations and implications for Occupational Therapy education and research. Finally, the concluding chapter in Chapter 7 provides a summary of the study, contribution to knowledge, and tentative recommendations for occupational therapy education and future research.

1.6 Chapter Summary

This introduction has presented the context of this study and the researcher's background. Details of earlier pilot studies and the development of the research aims and design have been explored. Finally, a summary of the thesis outline has been provided. The narrative review of the literature will be presented in Chapters 2 and 3.

Chapter 2 – Literature Review

How Occupational Therapy links to Inquiry Graphics

2.1 Introduction

Chapter 2 is the first of two literature review chapters that critically explore and define the key terms and concepts of this research. The first chapter will discuss key terms related to occupational therapy philosophy, theory, and practice, as well as inquiry graphics, threshold concepts, and how they are linked through relevant philosophy and background. OT practice placements, role-emerging placements, and threshold concepts will also be explored to provide context for this study. In addition to providing a literature review for context, the first of the two chapters draws on key evidence threads to establish a pedagogy, conceptual framework and learning design for occupational therapy students on REP.

This chapter is followed by Chapter 3, which will discuss the development of the conceptual framework (Figure 1). It includes a review of the research in occupational therapy education, and how an Inquiry Graphics framework embeds adult learning theories, inquiry-based learning, multimodality and semiotics (Lackovic, 2020; Laurillard, 2012; Meyer & Land, 2003; Mezirow, 2012).

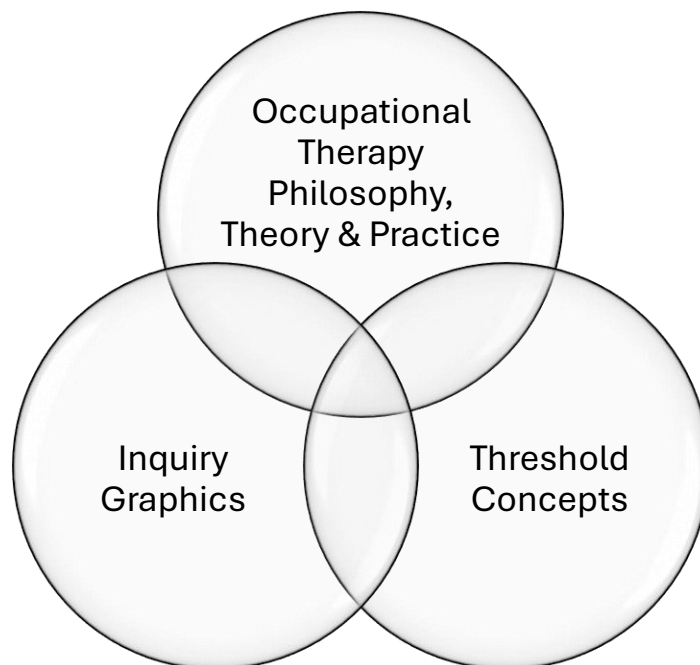


Figure 1 The theories that informed the research and created the Conceptual Framework

2.2 Occupational Therapy Philosophy, Theory and Practice

Occupational therapists (OTs) are dual trained allied health professionals who work across multiple physical and mental health settings (Scott, 2020). OTs use everyday activities or occupations as their therapeutic tool, recognising that every person has a unique perspective on personally meaningful activities and occupations (Pentland, 2015; Turner & Alsop, 2015).

The term 'occupation' can often be confusing to those outside the profession, with many people associating it with employment rather than how we view it, as all activities or 'things' a person needs or wants to do across their 24-hour day, as an individual, family or community, to create meaning and purpose for them in their lives (Turner & Alsop, 2015; Wilcock & Hocking, 2015; World Federation of Occupational Therapists (WFOT), 2019). A person's engagement in their personally meaningful occupations supports roles and routines, as well as their health and well-being (RCOT, 2021; Wilcock & Hocking, 2015). The power of occupation in promoting, improving, and transforming the occupational lives, health, and well-being of individuals, families, and communities is well documented within occupational therapy research and literature (RCOT, 2019).

For OT learners, understanding the theory and application of occupation in professional practice is key to developing a strong professional identity (Clarke, Martin & De-Visser, 2015; Walder et al., 2020). Practice placements, including REP, offer students the opportunity to apply theory to practice, thereby contributing to their professional identity development (Dancza et al, 2016; Walder et al, 2022). Active, engaged reflection in and on action during placement supports students in developing this knowledge and identity (Dancza & Rodger, 2018). This commonly occurs informally in conversation with their practice educator or more formally in weekly supervision through discussion or sharing of verbal and written reflections. The supervisory relationship, along with the ability to share reflective discussions where exploration and professional reasoning about placement and learning experiences can take place, is essential (Rankine & Thompson, 2015; Guy et al, 2020). Unfortunately, this key OT student 'occupation' on placement may not take place consistently (Guy et al, 2020)

Over the past few decades, theoretical developments in occupational science, which is the study of human occupation and how occupations contribute to health and wellbeing, have been significant in providing a foundation for practice in OT (Pollard, 2014; Taff et al, 2018) Occupational Science is a key theory for students to use and understand in REP, where the charities, settings and groups of people they may be working with may be experiencing injustice and deprivation, therefore disrupting or depriving them of engaging in meaningful, purposeful occupations (Durocher, Rappolt & Gibson, 2014; Pollard, 2014; Taff et al, 2018)

2.2.1 Occupation – doing, being, becoming & belonging

Occupational therapy has a complex history influenced by people, environments and contexts. In the early 1900s, the value of 'curative occupations and recreations' came to the fore in psychiatry (Christiansen & Haertl, 2024). At this time, creative occupations, such as arts and crafts, were the central occupational therapy interventions (Hansen, Erlandsson, & Leufstadius, 2021). Adolf Meyer, a psychiatrist, emphasised the value of occupation and the productive use of time, working alongside early occupational therapy pioneers (Christiansen & Haertl, 2024; Duncan, 2021). Initially, occupational therapy was influenced by a humanistic, phenomenological approach that focused on the value and use of occupation (Reid, Hocking, & Smythe, 2024). Since then, the profession has been through different paradigms; of particular note was the move away from the focus on occupation to a more reductionist medical approach, influenced by a drive to establish the profession, develop an evidence base and gain credibility and better alignment with the positivist scientific approach of medicine (Hooper et al, 2018; Reid, Hocking & Smythe, 2024). During this paradigm, occupational therapists tended to adopt an impairment focussed, reductionist approach to better fit the hegemony of the healthcare environment (Taff, 2021). Whilst there has been a move away from the medical model approach philosophically, in some areas of practice it remains today, particularly in more acute hospital settings

The most recent paradigm shift, beginning in the 1960s, saw OT return to its roots of 'occupation' with a more contemporary, person-centred focus, recognising that people are 'occupational' with a drive to engage and participate in occupations, which may be influenced by individual factors related to the person, their environment and the occupation (Murray et al, 2021). In this contemporary paradigm, the transformational power of occupation has become central to occupational therapy philosophy and practice and further reinforced by the development of Occupational Science in the 1990s with its focus on the meaning and experience of occupations and the value they have for individuals, groups, and communities (Christiansen & Haertl, 2024; Duncan, 2021).

This central concept of occupation is a crucial aspect of professional disciplinary learning for all students, with practice placements seen as the ideal interface between theory and practice (Roberts et al, 2015), which is the context explored in this research. In recognition of the importance of 'occupation' for the occupational therapy profession, research has identified it as one of the twelve threshold concepts for occupational therapy (Fortune & Kennedy-Jones, 2014).

One of the frameworks created to explain human occupation is Wilcock's 1999 Occupational Perspective of Health (OPH), with 'doing,' 'being,' 'becoming', and 'belonging' representing

the core concepts of occupation. This framework was further developed by Hitch et al in 2014, with figure 2 below representing the evolving framework and proposed interconnections (Hitch, Pepin & Stagnitti, 2014b; Wilcock, 2006, see Figure 2).

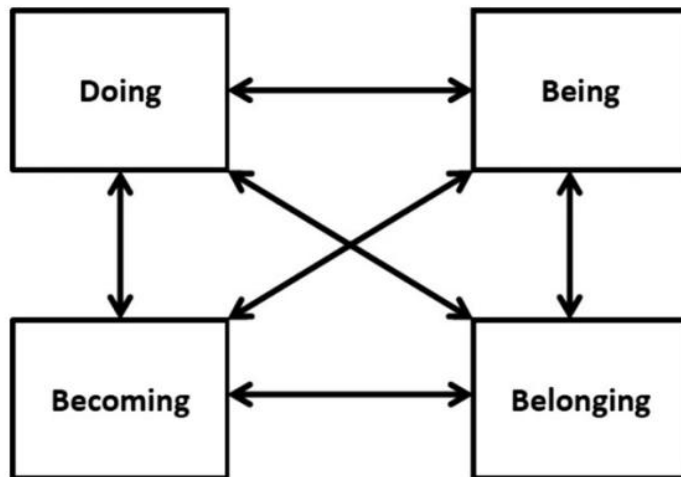


Figure 2 Dyads Between Doing, Being, Becoming and Belonging, source: Hitch, Pepin & Stagnitti (2014b)

Defining these concepts of human occupation has evolved, so “doing” broadly refers to “doing something for oneself” (Hitch, Pepin & Stagnitti, 2014a, p. 236). ‘Being’ has three different interpretations across the occupational therapy field, with the first interpretation referring to “being as essence”, which is about how people feel about doing their occupations. The second interpretation is about who a person is and “who we understand ourselves to be”, and the third interpretation is about ‘being’ as ‘existing’, how we use our time and space and links to our lived experiences, roles and culture (Hitch, Pepin & Stagnitti, 2014a, pp. 236 & 237).

The third core concept of occupation is ‘Becoming’, which implies change and progression over time. “Becoming is a process”, which describes a “perpetual process of change driven by goals that inspire, guide and assist occupational engagement” (Hitch, Pepin & Stagnitti, 2014a, p238). Time, transition and transformation are part of this third concept, for example, as a person moves to ‘becoming’ their new self after illness or disruptions to their health or wellbeing. The fourth core concept of occupation is ‘Belonging’, which has been less researched but is seen as relating to interpersonal relationships and feelings of connectedness (Hitch, Pepin & Stagnitti, 2014a, p. 239). These concepts have strong mental processes in three of the constructs, ‘being’, ‘becoming’ and ‘belonging’, with, for example, ‘being’ defined as ‘contemplation about the self’ connecting the individual with the

mental parts of an occupation (Taff, 2021; Wilcock & Hocking, 2015, p. 135). Whilst 'doing' the occupation has both physical and mental components, when a person is 'doing' an occupation, this leads them to the mental processes of 'being', 'becoming' and 'belonging' (Taff, 2021, p. 27). These are essential learning constructs for occupational therapy students to understand and explain how occupation supports health and wellbeing when working with their service users and clients on practice placements.

Wilcock's framework can also be translated to how students are using the 'macro' occupation of practice placements, with its micro-occupations embedded to transform and progress, their professional learning and identity through the process of 'doing', 'being', 'becoming' and 'belonging' within occupational therapy (French & Clarke, 2024; Taff, 2021; Taylor, 2021). Understanding, discussing, and applying this theory to practice is crucial, whether the OT student is on a traditional, hospital, community, or role-emerging placement.

2.2.2 Links between education philosophy, occupational therapy and inquiry graphics

It can be suggested that Wilcocks' framework is philosophically informed by Martin Heidegger's (1889-1976) work, as his existentialist philosophy of '*Dasein*' shares some alignment with occupational science, where humans understand themselves through doing and engagement (Lariviere & Quintin, 2023). By the German word '*Dasein*', Heidegger means 'Being', referring to the embodied human experience of existence, so the world and humans are together and cannot be separated. So, as we progress through life, human 'Being' means that we open up and experience the world, which gives meaning and purpose to our lives (Lariviere & Quintin, 2023; Wilding & Whiteford, 2005). Heidegger's core ideas relating to 'Being' aligned with occupational scientists and, therefore, occupational therapists' understanding of human occupation (Lariviere & Quintin, 2023). Occupational therapy has had a varied history and issues with its identity; therefore, aligning more with existential philosophy, such as Martin Heidegger's, may help maintain its identity and credibility (Lariviere & Quintin, 2023; Taff, 2018). To achieve this, occupational therapy education needs to ensure that OT students are guided to identify and reflect on their occupational experiences as human beings in the world, which is what the pedagogy and learning design within this research aims to facilitate in role-emerging placements (REP).

This ability to evaluate and reflect on their experiences in REP may better prepare OT students for working with service users and patients in the future (Taff, 2018). Further questions can be raised about how we reflect and explore learning experiences, including role-emerging placement learning, to maximise students' disciplinary knowledge creation and competence. From my perspective as an academic and occupational therapist, I think, too often, reflection and learning in Higher Education are associated with a cognitive process

rather than an embodied, relational process involving not only language but also feelings and contextual factors (Lackovic & Olteanu, 2024; Taylor & Marienau, 2016; Taylor, 2024). Wilcock's Occupational Perspective of Health (1999; 2006) confirms this thinking about occupation, and reflection is part of a student's occupational routine on placement. Therefore, it can be suggested that reflection should be a more thoughtful, embodied process that connects language and words with sensory experiences, such as visual media and a range of embodied experiences, drawing on emotional, relational, and contextual aspects of the learning experience. Inquiry Graphics pedagogy and learning design can deliver the idea of reflection as a multimodal experience, which extends beyond a cognitive process (Lackovic, 2020; Lackovic & Olteanu, 2024).

Inquiry Graphics, as evidenced in empirical research with students in Education, can capture multiple aspects of a student's learning experiences (Lackovic, 2020). Inquiry graphics engage students to reflect on their learning and practical experiences by choosing or creating images, as well as reflective narratives, about how those images relate to their experiences, practices, concepts, or theories they are learning about. These Inquiry Graphics (IG) then serve as vehicles for reflection, critical thinking and analysis. Students can write reflective narratives that accompany images in their own time and then participate in dialogues with peers and/or tutors about their image choices and reflections (which jointly review and develop inquiry graphics). As defined by the students in Lackovic's (2020, p 269) study and based on an analysis of students' inquiry graphics in relation to learning goals, the "*pedagogical value of an Inquiry Graphics (IG) Practice*" lies in the following characteristics of the IG:

"IG Supports Criticality and Transformative Ways of Thinking, through:

- Challenging stereotypes
- Initiating a novel way of seeing things
- Exercising students' creativity
- Showing multiple concept perspectives via representations
- Considering taken-for-granted concept aspects

IG Supports Learning and Knowledge Development through:

- Acting as a discussion and presentation scaffolding
- Learning from comparison
- Supporting personalised learning

- Acting as a memory prompt
- Developing concept understanding” (Lackovic, 2020, p. 269)

Other characteristics of IG include supporting the creative exploration of threshold concepts, treating images as rich, semiotic inquiry tools, and the learning of concepts as complex engagements that develop between disciplinary writing and students’ interpretations of concepts (Lackovic, 2020; MacGiolla Ri, 2020; 2022). For example:

“Inquiry graphics offers a pedagogical inquiry framework for the creative connection of abstract definitions of critical disciplinary concepts for transformative learning to help a student move from the periphery toward belonging to a disciplinary community—threshold concepts—to their concrete life-examples, as instantiated in images.” (Lackovic, 2020, p367)

John Dewey, an Educational Philosopher and Pragmatist (1859–1952), is a theorist whose ideas have been drawn upon in occupational therapy literature (Coppola, 2013). His work also aligns well with the inquiry graphics’ main proposal to apply images as inquiry tools for learning. While Martin Heidegger and John Dewey came from different philosophical backgrounds, they shared similar beliefs about learning, emphasising an active rather than passive process. Heidegger theorised that “being” is tied to lived experiences; therefore, learning is an active lived experience. Similarly, Dewey theorised that learning was an active, social, engaged process rather than the traditional information transference approach (Dewey, 1938/1963).

Dewey put forward a view of education as an art and a science...’(Coppola, 2013, p. 200). Dewey’s pragmatic approach to education and Heidegger’s views on how humans experience the world align well with the worldview of occupational therapy and inquiry graphics; they have, therefore, been influential in developing the conceptual framework and methodology for this PhD study. Additionally, both IG and OT view their philosophy and practice as bridging the gap between art and science; therefore, OT and IG have a compatibility that supports their integration in a conceptual framework for this research.

2.2.3 Creativity, Occupational Therapy and Inquiry Graphics

Similar to Deweyan philosophy, occupational therapy has long been defined as both an art and science because of its past and active person-centred practice, its use of both personal activities of daily living, such as washing and cooking, but also its use of creativity and arts occupations to elicit a person-centred approach to best meet an individual’s needs (Coppola et al, 2017; Zemke, 2004) Therefore, occupations can range from everyday living activities such as washing, cooking, or working to more creative occupations such as craft or arts-

based occupations depending on the person, context, and aims of the intervention (Duncan, 2021; Tubbs & Drake, 2024).

Creativity is a vital aspect of OT practice, whether through creative occupations or the creative problem-solving involved in addressing the occupational needs of individuals, groups, or communities (Coppola et al, 2017). Creativity is defined by Schmid (2005, p. 6), as

'as an innate capacity to think and act in original ways, to be inventive, to be imaginative and to find new and original solutions to needs, problems, and forms of expression.'

Due to the complexity and scope of OT practice, person-focused, creative care can involve working across multiple modalities, such as using touch or visual prompts, such as images or signs, to meet a person's occupational needs (Schaber, Marsh, & Wilcox, 2012). This aligns well with the creative character of an inquiry graphics pedagogy. In essence, practice placements where OT students can develop professional confidence, knowledge, and skills in creating and implementing occupation-focused, person-centred interventions across various modes are paramount (Holland, 2012; Mattila, Deluliis, & Cook, 2018). Such features of occupational therapy (OT) also mean that relational and multimodal thinking and practising are integral to students' occupational therapy education (Bimyamin, 2021; Schaber, Marsh, & Wilcox, 2012). In OT, relational learning in occupational therapy means students' developing mutually enriching and caring relationships. It refers to students developing their knowledge, skills and behaviours to be thoughtful, caring, and respectful practitioners and colleagues (Konrad & Browning, 2012; Schaber, Marsh & Wilcox, 2021). Relational learning and active engagement have been the cornerstones of occupational therapy education since the profession's inception (Schaber, Marsh, & Wilcox, 2012). Equally, inquiry graphics pedagogy is a relational practice because it helps students understand that knowledge relates to theory, the environment and technologies used to communicate, as well as our relationships with others – human, and more-than human. In other words, the way a student relates to or is affected by physical or technological materials or environments also influences learning and knowledge creation (Lackovic, 2020; Lackovic & Olteanu, 2024; MacGiolla Ri, 2022).

As an occupational therapist and academic experienced in practice and the education of OT students, I value our many perspectives, our education draws upon a range of human sciences across physical and mental health, and our breadth of practice, drawing on science and arts using multimodal approaches and relational thinking and working (Schaber, Marsh

& Wilcox, 2012). By this, I mean that in an occupational therapy intervention with a person who has had a stroke, we may focus on critical personal care occupations such as washing and dressing. However, my scope of practice, supported by the philosophy and theory of occupational therapy, means I may also use creative crafts or art occupations with the same person if they are meaningful and valuable to that individual to promote recovery, health, and well-being, all the time working alongside other disciplines. This occupation-focused lens, with the potential to engage in a wide range of occupations across modalities, is meaningful learning related to our scope of practice in OT. Therefore, incorporating ways to enable students to engage in and reflect on key learning related to occupation and all aspects of 'doing' and 'being' an occupational therapist is an important part of pre-registration OT education and professional identity development (French & Clarke, 2024; Taylor, 2023).

Occupational therapy has much to offer in today's rapidly evolving health and social care landscape. Discussions about health and well-being increasingly recognise that everyday life activities and occupations give people meaning and purpose, and for some people, they become a determinant of their life and health (Schiller et al., 2022; Marmot, 2020). Contemporary OT practitioners need to have knowledge, skills and behaviours grounded in OT and occupational science theory and evidence, along with the professional confidence, resilience and occupation-centred practice skills to work in all traditional and non-traditional emerging settings (Ford, Tommaso, Molineux & Gustafsson, 2022; Christiansen & Haertl, 2024).

With practice environments increasing in complexity, occupational therapists need to be able to assess, create and deliver services that meet the occupational needs of their service users (Bannigan & Moores, 2009; Walder et al, 2022). Professional thinking and reasoning are key disciplinary skills in delivering person-centred, occupation-centred practice (Bannigan & Moores, 2009). To develop these clinical /professional reasoning skills, students and practitioners must be reflective practitioners, building and maintaining their higher-level critical thinking skills (Schell & Schell, 2017).

2.3 Key concepts in the development of occupational therapists

In addition to learning about OT theory and philosophy on their path to becoming qualified practitioners, OT students also need to acquire key disciplinary practice skills. Reflection involving critical thinking leads to professional reasoning and the delivery of effective, ethical practice. These professional practice skills are included throughout the occupational therapy literature, standards and guidance (HCPC,2023; RCOT, 2019; WFOT, 2016)

2.3.1 The Gap: OT Pedagogies for Reflection, Critical Thinking and Professional Reasoning

Higher-order thinking encompasses critical thinking and self-reflection as essential components of becoming a reflective and reflexive practitioner across various disciplines, including occupational therapy (OT) (Pitonyak et al, 2015). However, how they are taught and facilitated in occupational therapy education, including practice placements, has received limited attention in the literature (Berg, Philipp, & Taff, 2023; Thompson & Thompson, 2023). Developing occupational therapy students' critical thinking, reflection and reflective practice is essential in evolving professional reasoning skills and progressing towards being newly qualified occupational therapists (RCOT, 2019). These higher-order thinking skills and professional reasoning form part of reflective practice (Bannigan & Moore, 2009; Berg, Philipp & Taff, 2019; Pentland, 2015).

Discussion or dialogue is aligned with critical reflection. It can occur self-reflectively, with the student engaging in self-dialogue, and also through conversations with their peers, university academics, and OT placement educators (Berg, Philipp, & Taff, 2019; Iliff et al., 2019; Nelson et al, 2023). The creation of contemporary frameworks that support students in reflecting and thinking critically about their academic and placement experiences is needed, particularly as there is an increase in the amount of 'organisational noise' within healthcare settings, with fewer opportunities for one-to-one supervision (Berg, Philipp, & Taff, 2019; Pitonyak, 2015). Exploring and crafting a contemporary framework to support students in reflecting on their learning experiences and connecting them with key disciplinary concepts of OT during REP was a key driver in this research.

All occupational therapy academic curricula include reflective practice as part of the essential disciplinary knowledge and competency (Bannigan & Moore, 2009; HCPC, 2023; WFOT, 2016). Reflective practice encompasses multiple terms and definitions across the literature, with reflection, reflective learning, reflective writing, and reflective practice often used interchangeably (Moon, 2006). Moon (2006, p. 192) suggests that 'reflection' and 'reflective learning' describe internal cognitive processes, whilst 'reflective writing' may represent internal reflection with an additional external representation. This external representation of reflection may be done through written, language-based reflections or include drawings or graphics (Moon, 2006), such as the case with inquiry graphics.

The use of drawings or graphics as external representations to support reflections in OT is discussed but has received limited research (Keptner & Klein, 2019). For example, Keptner & Klein (2019) adopted photovoice as part of their 'collaborative learning model' for students on a REP in a preschool setting in America. Students chose a photo to represent, explore and reflect on their learning each week during their placement. Whilst this was part of the

reflective and placement learning process, it was not evaluated in Keptner and Klein's (2019) article. Using photos to support student reflection on placement fits well with occupational therapy's values, creative practice, and ethos (Coppola et al, 2017; Selingo et al, 2022). In the general literature, Moon (2006) and others describe alternative external representations of reflection, including graphics and drawings; however, language-centric methods remain dominant for healthcare practitioners, including occupational therapy students. This PhD study aims to contribute to the area of occupational therapy and health research by incorporating creative methods, including graphics such as photos, drawings, or other forms of visual media, as part of students' reflections on REP. This is based on the evidenced, reflective, and creative value of applying graphics as key parts of students' reflections through an IG pedagogy and learning design (Lackovic, 2020), which will be further discussed in Chapter 3.

It can be argued that there are similarities in the reflective practice, including critical thinking and reflection, described in the general and occupational therapy literature, as well as Transformational Learning theory (Berg, Philipp & Taff, 2019; Berg, Philipp & Taff, 2023). Both describe an active, structured process in which a particular practice or experience triggers a reflective process, requiring the health professional to intentionally process information to promote learning (Bannigan & Moore's, 2009). Kolb's Experiential Learning theory is also often presented pictorially as a process, suggesting a cyclical approach that aligns with Mezirow's Transformation Learning theory (Corrie, Lawson, & Rowland, 2020).

Corrie, Lawson & Rowland (2020) adopted Transformational Learning theory with Kolb's cycle in their 'healthcare leadership development' pilot study to support reflection and reflexivity using a transformative coaching approach (Kolb, 2015). The participants in this study were NHS leaders from across the health professions. Corrie et al.'s (2020) study enhanced participants' level of reflection by using an arts-based, storied approach to explore critical thinking, reflection, and reflexivity about participants' critical incident leadership experiences. Here, the use of storytelling and the creation of an artefact to represent their leadership experience was part of the critical self-reflection process, supporting reflection and reflexivity, which shares a close resemblance to an inquiry graphics pedagogy and learning design – a creation of artefacts for deep reflection. Discussions and considerations of alternative perspectives regarding the participant's leadership of the critical incident led students to a 'liminal' phase, where they transformed their identity into a new one (Corrie, Lawson, & Rowland, 2020). Corrie, Lawson, and Rowland's (2020) description of their pilot study to facilitate transformative reflection and learning concluded that participants were '*highly satisfied*' with this approach, suggesting that using an arts-based approach and creating an artefact is valued by health leaders as a way of critically reflecting on and

progressing learning in healthcare leadership. Corrie, Lawson, and Rowlands' (2020) research, along with the work of Keptner and Klein (2019), aligns with OT philosophy, theory, and practice, as well as inquiry graphics. Showing there is clear potential value in combining artefact or inquiry graphic creation to promote reflection on learning, in a conceptual framework and research design to support OT students. A difference in this PhD research is that the IG pedagogy and learning design includes questions, to drive curiosity and support student-driven investigation of key professional concepts whilst on their role-emerging placement. Therefore, an inquiry-based learning approach is the more dominant approach, though reflecting and thinking about experiences is similar to Kolb's Learning cycle and Inquiry-based learning (Lackovic, 2020; Laurillard, 2012). Inquiry-based learning and Kolb's will be discussed further in Chapter 3 with the conceptual framework.

2.3.2 Relational and affective learning

Reflection and critical thinking are integral to relational and affective learning, supporting the development of professional identity (Binyamin, 2018; Burke et al, 2024; Walder et al, 2022). Relational learning and professional socialisation are important in developing a professional identity and therapeutic practice skills (Schaber, Marsh, & Wilcox, 2012). Students' experiences of working with others, including their OT educator, are important in developing confidence and their sense of self as occupational therapists. As part of relational learning and developing confidence, students must learn to manage their feelings and reactions to challenges and new learning (Binyamin, 2021; Healey, 2017; Schaber, Marsh & Wilcox, 2012). This can be challenging, particularly on placement and potentially even more so when you do not have an occupational therapy educator on site to support and discuss your daily experiences (Kaelin & Dancza, 2019). Affective learning receives some attention in the OT literature. However, this may be less than might be expected, considering the amount of emotion-based therapeutic experiences and relational, multidisciplinary working that occupational therapy students and qualified therapists will undertake (Healey, 2017).

2.3.2.1 The importance of emotions for learning

Healey (2017) explored occupational therapy students' emotion management on placement. Healey (2017) employed creative writing, incorporating stories and poems about placement experiences, to investigate how students develop the ability to manage their emotions as future professionals. Healey's (2017) theoretical perspective in researching emotions was not focussed on an individual's emotion management or emotional intelligence, where the student demonstrates self-regulation about the situation, but rather on the 'social', 'discursive' and 'embodied' experiences of emotion. Findings suggested that students may experience a range of fluctuating emotions throughout their practice placements and that

emotion management is not just about developing individual skills, as indicated in other research, but also about discussing and exploring their embodied experiences (Healey, 2017).

Learning about emotions and the therapeutic use of self are two examples of affective, relational practices that belong to key disciplinary learning for professional practice (Duncan, 2021). Emotional Intelligence (EI) is the overarching term commonly used to explain a set of knowledge, skills and behaviours associated with the aspect of intelligence related to emotion management. EI behaviours are essential occupational therapy competencies for forming therapeutic relationships, self-management, and working as a therapist; therefore, they are necessary to nurture during practice placements (Gribble, Ladyshevsky, & Parsons, 2018; McKenna & Mellson, 2013). Within the OT research on this topic, emotional intelligence has been described as

“...abstract, invisible processes that people appear to use in their relationships with themselves, and as part of their relating effectively, meaningfully or helpfully with others” (Multi-Health Systems, 2011 in Gribble, Ladyshevsky and Parsons, 2019, p 1)

‘EI considers the extent to which individuals can recognise, understand, process, manage, monitor and utilise emotional information’ (McKenna, 2007, p. 551)

Successful occupational therapists can identify, interpret, understand, regulate, and develop their emotional response and EI. Therefore, an OT curriculum that fosters ways to support students' learning and development of this core competency is essential (Gribble, Ladyshevsky, and Parsons, 2018; McKenna, 2007). However, as discussed earlier by Healey (2017), emotions and emotion management should not have a sole focus on the development of individuals' knowledge, skills and behaviours but also include the constructionist perspective where emotions are discussed and explored whilst considering the influences of the social, cultural and political context (Healey, 2017)

Cousin (2006a) argues that emotions are also part of conceptual learning and suggests that learner engagement may depend on learner type and their capacity to engage and manage emotions. Cousins (2006a) explored the learning of ‘Cultural Studies’ students about the threshold concept of ‘Otherness’ and suggested four learner types that respond to learning according to their emotional and social makeup. Cousins (2006a) suggests that these responses to learning are associated with a student's emotional capital.

Emotional capital is defined by Cottingham (2016, p. 452) as

‘...a tripartite concept composed of emotion-based knowledge, management skills, and capacities to feel that links self-processes and resources to group membership and social location’

This concept of emotional capital emerged from Bourdieu’s theory of social practice and is a form of:

‘cultural capital that includes the emotion-specific, trans-situational resources that individuals activate and embody in distinct fields’
(Cottingham, 2016, p. 451)

Cottingham (2016) suggests that emotional capital can be ‘dynamic’ and developed through primary and secondary sources of capital linked to structured professional socialisation. Cottingham (2016, p. 451) described how a male nurse may experience primary emotional capital through primary professional socialisation in nursing and secondary emotional capital through specific work socialisation focussed on ‘empathy’ and ‘compassion’. Therefore, emotional capital links the macro structures, such as the context and environment, to a person’s micro resources and to their lived experiences and background (Cottingham, 2016).

Within occupational therapy, role-emerging placement contexts have been shown to support students’ flourishing (Cade, 2023; Thew et al., 2018). In these settings, emotional intelligence, emotional capital, emotional management, resilience and entrepreneurship are required to support continued professional identity development (Cade, 2023). Cade (2023) explored what traits and attributes support some students in managing well in role-emerging placements. Findings suggested that students on REP achieved higher resilience scores and displayed personality traits such as openness, conscientiousness, and agreeableness (Cade, 2023, p. 839). Cade (2023) proposes that students must understand their personality traits to prosper and succeed, and that curriculum design and activities can foster the development of capability and professional identity.

These findings from Cade (2023), Cottingham (2016), Healey (2017), and Cousins (2006) suggest that individual contextual, emotional, and relational experiences can influence how someone responds, engages, and develops from their learning experience. This further indicates that OT pedagogy, curriculum, and learning designs should include opportunities for students to reflect on and link their learning to these experiences.

2.3.2.2 Relational and multimodal learning as “the theatre of knowing”.

One way to understand multimodal and relational learning is by adopting a neuroscience perspective, which suggests that the brains response to learning can differ between learners

(Taylor & Marienau, 2016). Taylor & Marienau (2016) and Taylor (2024) have explored the 'language of the brain' and how it responds to learning experiences from a neuroscience perspective. This perspective is important to me, as the thinking and research align with my background in neuro-occupational therapy practice. Taylor & Marienau's (2016) clear descriptions of the neuroscience of learning highlight the brain's continual change and generation of new neural pathways as adult learners acquire and absorb new knowledge (Taylor, 2024). Taylor & Marienau (2016) describe how the brain responds to new information using images and metaphors in multimodal terms. Where language-centric learning may be predominantly facilitated in the left hemisphere of the brain, Taylor & Marienau (2016) describe that '*where learning occurs*' is in the right hemisphere, where the use of analogies, metaphors, emotions and thinking in images translates and facilitates sense-making of language, theories and concepts processed in the right hemisphere. The 'Theatre of Knowing' graphic in Taylor and Marienau's (2016) book visually represents this thinking (Taylor & Marienau, 2016, page 82, see figure 3).



Figure 3 The Theatre of Knowing (source Taylor & Marienau, 2016, p. 82)

Taylor and Marienau (2016, pp. 4-7) propose that there are two brain 'modes' which can impact learners' learning experience, referred to as the '*anxious brain*' and the '*curious*

brain'. For learners with the '*anxious brain*' mode, they are dominated by '*threat detection*', which operates under a mindset of '*I have to be right...I have to be certain*' (Taylor & Marienau, 2016, pp. 5-7). In contrast, for learners with a '*curious brain*', they are seeking new and novel experiences and have more of an '*I want to explore...I want to understand*' perspective (Taylor & Marienau, 2016, pp. 5-7). Therefore, Taylor & Marienau (2016), like Cade (2023), suggest that facilitating learning and reflection should involve an embodied approach where learners can think, explore their feelings and relate learning to their individual lived experiences. Such an affective neuroscience perspective offers new approaches to curriculum and learning design (Taylor, 2024).

The perspectives of Cade (2023) and Taylor & Marienau (2016) align with the goals of Inquiry Graphics as a pedagogic and teaching-learning method. Inquiry Graphics focuses on using students' created or collected images to connect their experiences, learning, and reflection with their knowledge (Lackovic, 2020). This connection between learning, emotions, and individuals' lived experiences supports the notion that learning is not just a cognitive process but also a multimodal and embodied one, further supporting a creative OT pedagogy and learning design, such as the IG pedagogy and learning design included in this study.

2.3.3 Professional Identity

Professional learning about key disciplinary concepts leads to the development of a professional identity (O'Mahony, Joosten & O'Brien, 2023). As discussed above, this professional learning for students is deeply influenced by social and relational practice on placement (Binyamin, 2021). Professional identity was the focus of Ann Turner's ElizaBella Casson Memorial lecture in 2011 titled, '*Occupational therapy – a profession in adolescence?*' when she explored professional identity, suggesting that there is a difference between an OT's understanding of occupational therapy and how it can be delivered in contemporary health care settings. Implying a conflict between the philosophy and the reality of practice. Turner (2011) and others have emphasised the importance of curriculum design and student education in building opportunities for developing confidence and identity (Ashby, Adler & Herbert, 2016; Clarke, Martin, De Visser, & Sadlo, 2015). Placement education and supporting the transition to practice are seen as key elements in creating confidence and identity (French & Clarke, 2024; Taylor, 2024; Walder et al., 2022). Having effective OT pedagogy and learning designs to support all aspects of professional learning in this contemporary digital age is essential; again, an IG pedagogy and learning design may afford OT students opportunities to use multimodal methods to explore professional learning (Ashby, Adler & Herbert, 2016; Lackovic, 2020)

Since Ann Turner's lecture in 2011, research on professional identity has continued to grow, as its value is recognised in maintaining and advancing the profession. Particularly while workforce roles are being challenged and blurred to accommodate the financial pressures and priorities within health and care, both nationally and globally (Walder et al., 2022). Developing occupational therapy practitioners who have a strong sense of identity about their unique professional offering is therefore essential (Binyamin, 2017, 2021; Clarke, Martin, De Visser, & Sadlo, 2015; French & Clarke, 2024; Tal-Saban, Zaguir-Vittenberg, & Weintraub, 2024; Walder et al., 2022).

A broad definition of professional identity which can be applied across the health and care professions, including occupational therapy, is;

‘the recognition of beliefs, attitudes, values, knowledge, skills and understanding of one’s role, within the context of the professional group to which you belong’ (Adams, Hean, Sturgis & Clark, 2006, p. 56).

This definition encompasses the multifaceted nature of professional identity, which evolves and changes over time (Adams, Hean, Sturgis, & Clark, 2006; Dancza, 2015). The continual development of identity is distinctive to the individual student or occupational therapy practitioner, with each person bringing their unique make-up and background to developing professional identity. Therefore, creating supporting curricula and learning designs on placements, including role-emerging placements, which encourage self-reflection and identity building, is crucial (Clarke et al, 2015). This study aims to contribute to this gap by utilising the IG pedagogy and learning design (Lackovic, 2020). Enhancing and supporting this identity construction is crucial for both the profession and the individual, as research suggests that occupational therapists with a strong professional identity are more resilient (Walder et al., 2022).

Research suggests that students with a stronger professional identity find the transition from student to qualified status less challenging, and that occupational therapists with a stronger professional identity are more resilient and are more likely to remain within the profession (Ashby, Adler, & Herbert, 2016; Walder et al., 2022). Ashby, Adler, and Herbert (2016) conducted an online cross-sectional survey of final-year students across five countries to determine what factors were most influential in supporting the development of identity. Out of the 319 respondents, 98% identified professional education and 92% identified professional socialisation on placement as the most influential part of the occupational therapy programme curriculum for developing professional identity. This finding is important for curriculum design, suggesting a need for pedagogy and tools that support students in connecting OT theory with placement experiences (Ashby, Adler, & Herbert, 2016). The

Inquiry Graphics pedagogy and learning design employed in this PhD aim to provide a platform and method for students to connect theory to practice through the lens of threshold concepts. Being able to make these connections between theory and practice, it is proposed, may then translate to developing identity, as suggested by Ashby, Adler, and Herbert (2016)

O'Mahony, Joosten, and O'Brien (2023) applied the use of threshold concepts to explore how they contribute to identity development. This exploratory study, which used a mixed-method survey of final year OT students, found that threshold concepts were not fully understood but were '*integral to occupational therapy students' descriptions of professional identity*' and '*practice education provides context for threshold concepts to be traversed*' (O'Mahony, Joosten & O'Brien, 2023, p382). Overall, O'Mahony et al.'s (2023) findings suggested that threshold concepts provided a shared language to support the development of understanding and associated professional identity growth. Threshold concepts (TC) will be explored further in Section 2.4. Practice Placement learning. A threshold concepts approach forms part of the IG pedagogy and learning design in this research.

It is suggested that role-emerging placements also provide an enhanced opportunity for professional identity development through the environment and contemporary context of these placements (Clarke, Martin, De Visser, & Sadlo, 2015). In contrast, however, other studies suggest that the challenge of being in a setting where the role of OT is not well understood can challenge the development of core skills, increase student stress, and undermine confidence and identity (Brown & Hart, 2012; MacIntyre & O'Keefe, 2013). Overall, there are mixed responses regarding how attending a role-emerging placement may impact professional identity development, with multiple reasons associated with the context, the learner, the educator supporting the weekly supervision, and the curriculum design (Hunter & Volkert, 2017; Nicola-Richmond, 2019; Tanner, 2011).

In sections 2.1, 2.2 and 2.3 of this chapter, I have critically explored the philosophy and theory of occupational therapy, followed by key professional skills and learning, such as creativity, reflection, critical thinking, and emotion management, which enable a developing student occupational therapist to apply occupational therapy theory to practice. Research and evidence from inside and outside occupational therapy suggest that reflection and learning this professional knowledge, skills and behaviours is more than a cognitive process; it is embodied and specific to the individual learner (Ashby, Adler, & Herbert, 2016; Cade, 2023; Lackovic, 2020; Lackovic & Olteanu, 2024; Taylor & Marienau, 2016; Walder et al, 2022).

In the next part of this Chapter, I will explore practice placement learning contexts and discuss the role educators and student peers play in supporting OT students' development and progression.

2.4 Practice Placements

In occupational therapy education, practice placements comprise approximately one-third of the pre-registration programme, equivalent to 1,000 hours of practice (RCOT, 2019).

Practice-based placements are essential contexts in which students can think critically and connect discipline-specific and related theoretical knowledge with occupational therapy practice (Dancza & Rodger, 2018). They are fundamental for students' exposure to the culture of occupational therapy and allow the development of professional identity and confidence, as well as students' learning linked to professional reasoning and practice skills (Dancza & Rodger, 2018; Golos & Tekuzener, 2019; Moore et al., 2022; Taylor, 2024).

Profession-specific standards require all occupational therapy students to complete a minimum of 1000 hours of practice placement in a range of practice settings across physical and mental health, community and hospital, established 'traditional' and 'emerging' role-emerging settings (RCOT, 2019; WFOT, 2016). Developing a strong professional identity and preparing students to be work-ready are essential parts of occupational therapy education and practice placements, with students' experiences, professional socialisation, and supervision shaping their identity construction and progression (Binyamin, 2018; Dancza & Rodger, 2018).

2.4.1 Placement supervision models, occupational therapy educators and collaborative peer learning

Preparing students for placement and the OT educator's ability to explain and link theory to practice, and fostering a positive student outlook on applying theory to practice, are central to placement success (Dancza & Rodger, 2018; Towns & Ashby, 2014). Before going on practice placements, students attend placement preparation sessions, which aim to introduce them to the specific learning outcomes of the placement and how these can be translated into knowledge, skills, and behaviours at the corresponding level (Dancza & Rodger, 2018). This is part of the essential groundwork to achieve a successful outcome (Dancza & Rodger, 2018)

Once on placement, various supervision models are associated with supporting students' learning on practice placements, which tend to vary according to the type of placement (Golos & Tekuzener, 2019). The most established is the 1:1 apprentice model on 'traditional' placements, where a student has an occupational therapist acting as their educator. Here,

the students observing their educator's practice gradually build their practice knowledge, skills and behaviours via modelling their 'expert' occupational therapy educator (Hanson & Deluliis, 2015; Martin et al., 2004). Whilst this was thought to be the 'gold' standard of supervision in the past, it can be argued that the didactic approach may not build autonomous, critical thinkers with the ability to adjust and adapt to the ever-changing health and care sector and can create a dependency on the educator (Hanson & Deluliis, 2015). Therefore, new models of supervision, as well as types of placements, are evolving where there are two students to one educator, using collaborative learning models, where students can share and learn together using peer-assisted learning approaches, capitalising on each other's strengths, exploring and learning using their placement experiences (Barker, Lencucha & Anderson, 2016; Hanson & Deluliis, 2015). This is the standard model of supervision for REP, designed to encourage autonomous and independent learners to critically explore topics and apply their learning to practice (Golos & Tekuzener, 2019).

Peer-assisted learning encourages students to support one another's educational progress through a 2:1 student-to-educator supervision model (Barker, Lencucha, & Anderson, 2016). Research has identified benefits and challenges to this supervision and learning approach for allied health students, including occupational therapy students (Barker, Lencucha & Anderson, 2016; Daniels, 2010; Dawes & Lambert, 2010; O'Connor, Cahill & McKay, 2012; Price & Whiteside, 2016; Taylor, 2024). Advantages for students on a 2:1 supervision model include collaboration, support, increased confidence, the ability to complete shared experiences and reflections and the opportunity for small team working (Daniels, 2010; Markowski, Bower, Essex & Yearley, 2021). In comparison, challenges from students' perspectives include fewer opportunities to practise 'doing' occupational therapy. Issues from an educator's point of view involve managing two students who may have different learning needs or may become dependent on each other, and difficulties in differentiating feedback for halfway and final placement reports (Price & Whiteside, 2016).

Constructing and 'scaffolding' students learning on traditional and role-emerging placements through interactions with fellow peer students and educators draws on theorists such as Vygotsky and Dewey, with increasing research examples described within the literature (Aguilar, Kaskutas & McAndrew, 2023; Daniels, 2010; Fieldhouse & Feddon, 2009; Keptner & Klein, 2019; Lackovic, 2010; Markowski, 2021; Vygotsky, 1978). Keptner & Klein (2019) applied a 'collaborative learning model (CLM), where 1st year MSc students worked together with a student partner to reflect and explore their learning, which included creating photovoice journal entries. Findings suggested that the peer relationship and collaboration were valuable for students to check their knowledge, rehearse and practice skills when they had less educator support in a role-emerging placement (Keptner & Klein, 2019).

Educators are essential experts in student placement and learning experiences who need qualities and skills, such as establishing supportive relationships and promoting the ‘just right challenge’ during tailored learning experiences, opportunities, and supervision (Rodger et al., 2014). Encouraging the development of autonomy is also seen as an essential attribute of educators (Rodger et al., 2014). Dancza, Volkert & Moran (2018) suggest that OT educators must provide strong yet flexible guidance to support students in applying theory to practice, thereby facilitating their professional identity development. They liken this student–educator relationship to a person (OT educator) flying a kite (OT student), see Figure 4 Metaphor for supervision (source: Dancza, Volkert & Moran, 2018, p 233

The educator allows the student ‘*freedom and flexibility to practice or draws the student if he/she is moving away from his/her core tasks*’. (Dancza, Volkert & Moran, 2019, p. 232).

Adjusting to meet each student’s learning needs is a crucial OT educator skill, particularly for educators involved in long-arm supervision on role-emerging placements (Dancza, Volkert & Moran, 2018)

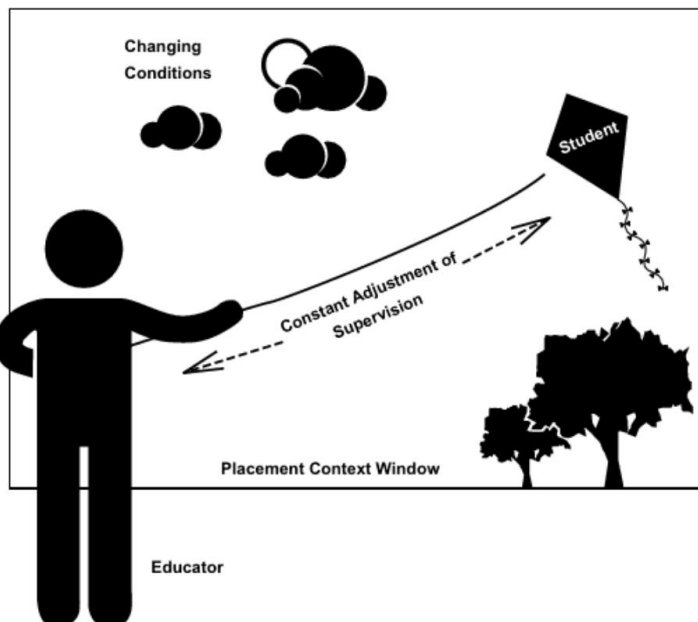


Figure 4 Metaphor for supervision (source: Dancza, Volkert & Moran, 2018, p 233

2.5 Role-emerging placements

Role-emerging placements (REP) are a type of practice placement offered to students as part of their 1000 hours of practice; they were first introduced in the 1990s, with a gradual increase in the range and type over the years (Hunter & Volkert, 2016). Initial motives for

this type of placement suggest that it was due to a shortfall in traditional placements following an increase in occupational therapy students (Craik & Turner, 2005; Hunter & Volkert, 2016). However, the value and contribution REP make to developing occupational therapists for contemporary practice, addressing the occupational needs associated with health and wellbeing outcomes of people, groups and communities in the modern world requires greater emphasis (Fortune, Farnworth & McKinstry, 2006; Thew, Cezar da Cruz & Thomas, 2023)

As the OT profession has developed and its evidence base has increased, OTs' value and contribution to people receiving care and support outside of traditional hospital and healthcare settings have been recognised (Hunter & Volkert, 2017). This has led to the further development of placements in REP settings such as care farms, mainstream schools and homeless charities, where the input of an occupational therapist would be valuable, but their role has not yet been fully established, and therefore, there is no OT in post. These settings include the state, the third sector, or non-governmental organisations (Hunter & Volkert, 2017). To create contemporary OT practitioners, the importance of experiencing and participating in one role-emerging practice placement during a student's education programme is now encouraged (RCOT, 2019).

Research related to REP for occupational therapy students is increasing. Still, it is not well established and would benefit from greater attention, particularly as our professional philosophy and workforce directions shift towards a more community- and health promotion-focused approach (RCOT, 2024; Thew, Cezar da Cruz & Thomas, 2023). In addition, the current health and social care crisis in the UK suggests a need for significant reform, including the creation of new models of health and care (Darzi, 2024). These new models may include contemporary practice settings like REP contexts, creating new opportunities for occupational therapy (Clarke et al., 2015; Dancza et al., 2013, 2019; Darzi, 2024). With this changing landscape, there are multiple research priorities in role-emerging placements, with research into occupational therapy students learning about key disciplinary concepts a priority to ensure students, who are the next generation of occupational therapy practitioners and leaders, are secure in their professional practice and identity in these contemporary settings (Clarke et al., 2014a; Hunter & Volkert, 2017).

Studies about REP contexts have identified that students can initially find the placement challenging as they are placed in settings with onsite staff who may not understand occupational therapy theory or its application (Thew et al., 2008; Cooper & Raine, 2009; Hunter & Volkert, 2016). It has been recognised that those initial contextual challenges can be more complex than on traditional occupational therapy practice placements in hospital

and community settings with an OT, but the outcomes of increased confidence and deeper professional learning experienced by some students are valuable on role-emerging practice placements (Overton, Clarke & Thomas, 2009; Dancza et al, 2013).

A range of learning theories has been applied in REP research to date. In Danza et al.'s (2013) qualitative study, 10 occupational therapy students from a university in England and another in Ireland participated in individual or paired semi-structured interviews. Findings suggested that situated learning took place, in which knowledge was co-constructed through engaging in everyday activities within the REP setting and reflecting on the application of theory to practice (Lave & Wenger, 1991; Wenger, 1998). In comparison, Matilla & Dolhi (2016) interviewed five occupational therapy students, and Dancza, Copley & Moran (2019) interviewed 14 students and 11 supervisors. Both found that learning was transformative, with Mezirow's (2000) transformative learning process being applied to understand students' learning stages on REP. These qualitative studies yield rich findings despite low participant numbers, reflecting research in this field.

2.5.1 Role-Emerging Placements and Threshold Concepts

All practice placements aim to help students learn how theory is relevant and applied in practice, which can be challenging due to frequent dissonance between theory and practice (Dancza et al., 2018). Finding pedagogy and practical methods, in addition to supervision approaches by educators, that can reduce this dissonance and facilitate connectedness is a priority (Dancza, Copley, Rodger & Moran, 2016). In the REP literature, there are limited examples of practical approaches to supporting student learning related to theory to practice outside supervision (Dancza, Copley, Rodger & Moran, 2016). Dancza et al. (2016) provide one example in which they developed and evaluated a 'theory-informed workbook' using the Occupational Therapy Process Intervention Model (OTPIM) to link theory to practice and provide additional support for students on REP outside their weekly supervision. The workbook evaluated well, suggesting that it provided a framework for students to link theory to practice (Dancza, Copley, Rodger & Moran, 2016). A further study, using the theory-informed workbook with the application of threshold concepts theory, was also carried out (Kaelin & Dancza, 2019). This study found that threshold concepts were a helpful tool and '*starting point*' for connecting learning experiences. Still, these needed to be supported by curriculum and other student connections in the placement context (Kaelin & Dancza, 2019, p 717). Kaelin and Dancza's study includes threshold concepts, almost as a reflective tool, similar to this study, with the difference that OT students could consider all threshold concepts. Further review of threshold concepts is included in Chapter 3, as part of the conceptual framework for this research.

2.6 Chapter summary

This chapter has reviewed literature to explore and connect occupational therapy philosophy, theory, and practice, and inquiry graphics, highlighting the dichotomy of being an art and a science. Key OT disciplinary concepts and priorities for learning, including the centrality of occupation and the importance of creativity, reflection, critical thinking and emotion management, have been discussed. It is suggested that student learning should be an active, creative, reflective process which draws on the work of the pragmatist philosopher, John Dewey and the lived experiences of the learner, as suggested by the interpretivist philosopher Martin Heidegger (Coppola, 2013; Lariviere & Quintin, 2023)

In the second part of the chapter, practice placement contexts, including REP, supervision models, and the role of placement educators, have been critically discussed. Finally, the chapter concluded by critically exploring some recent role-emerging research introducing the application of a threshold concepts framework and a workbook to support theory-to-practice learning (Dancza, Copley, Rodger & Moran, 2016; Kaelin & Dancza, 2019).

Chapter 3 – Literature Review Part 2 – Developing a Conceptual Framework

3.1 Introduction

In the previous chapter, I discussed the theory and philosophy of occupational therapy, followed by the professional practice knowledge, skills and behaviours essential to the OT practitioner. I finished the chapter by summarising the practice placement and role-emerging placement research, briefly introducing threshold concepts. Additionally, in Chapter 2, I discussed research related to the use of multimodal methods, including images and graphics. In this second literature review chapter, I will continue some of the discussions started in Chapter 2 about adult learning theories, focusing on inquiry-based, active learning influenced by the philosopher John Dewey. I will then discuss educational research in occupational therapy, threshold concepts, socio-materiality and multimodality, which are all distinct elements of an inquiry graphics pedagogy and learning design. The chapter concludes by discussing the theories of semiotics and inquiry graphics, as well as the development of the conceptual framework.

The conceptual framework created for this research underpins the Inquiry Graphics (IG) learning design for OT role-emerging placements, adapted from Lackovic's (2020) original version, see figure 5 below.

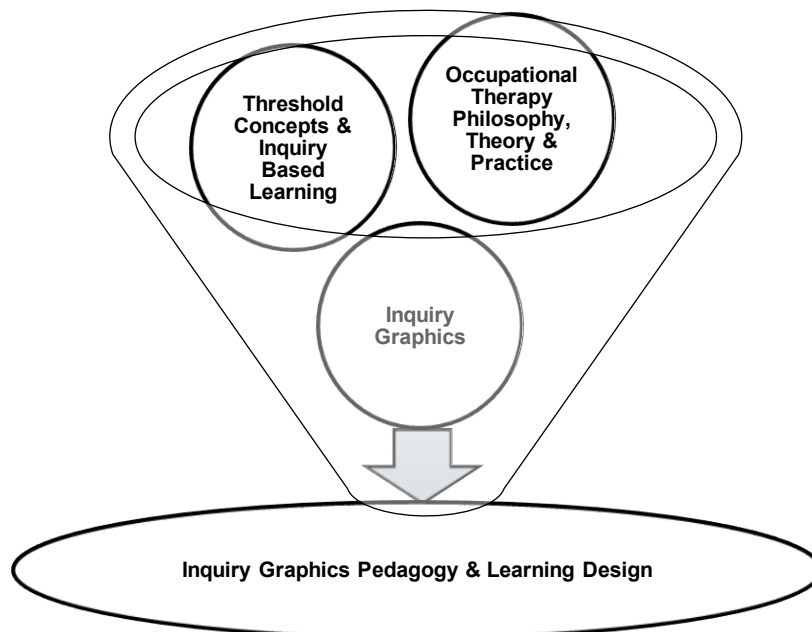


Figure 5 Towards a Conceptual Framework and Learning Design

3.2 Educational Research in Occupational Therapy

Occupational therapy education has much to live up to in meeting the diverse knowledge, skills and behaviours occupational therapists need to portray (Hooper, 2008). Questioning whether our current educational approaches and teaching methods are a good fit for the evolving needs of our profession is crucial if we are to continue growing in this changing health and care climate (Taff, 2018). Occupational therapy scholars within the field of educational research have explored the OT landscape and concluded that, whilst it is developing, most educational research is at the descriptive and exploratory level (Hooper et al, 2013; Hooper & Rodger, 2016). There is a tendency to focus on outcome focussed studies that explore the effectiveness of a teaching and learning situation. It is proposed that we need more research that incorporates occupational therapy philosophy and can develop professionally relevant educational theories and methods to meet our profession-specific educational needs (Hooper & Rodger, 2016; Hooper et al., 2018).

While there is debate within the literature about educational approaches and teaching methods, there is an appreciation that this division can be challenging to apply, as some teaching methods can be incorporated into various educational approaches. However, there is a consistent message from key OT researchers that conceptual frameworks in occupational therapy education are in their infancy (Hooper, 2018; Taff, 2018).

A conceptual framework can be defined as

‘showing the central concepts of a piece of research and their conceptual status with respect to each other’s’ (Berman & Smyth, 2015, p 126)

or in relation to a doctoral thesis,

‘a conceptual framework runs throughout the research as it identifies the key concepts and theories that inform and drive the research questions’ (Berman & Smyth, 2015, p 126)

Conceptual frameworks are often interchangeably referred to as theoretical frameworks in the literature (Berman & Smyth, 2016). In this PhD study, the term ‘conceptual framework’ describes the approaches, concepts, and/or key theoretical insights used as a foundation in the development of the Inquiry Graphic learning design, which provides a conceptual basis and also serves as a data collection tool.

In Chapter 2, the philosophy, theory, and practice of occupational therapy were explored, providing the OT foundations for the conceptual framework of this research. Pre-registration occupational therapy curricula serve as the foundation for creating newly qualified occupational therapists who can apply key professional concepts to deliver safe and

competent practice, addressing the occupational needs of individuals, groups, and communities (Giles, 2021). An occupational therapy programme's philosophy and vision of OT represent its values, role, and contribution to health and care across traditional, diverse and emerging settings (Giles, 2021; RCOT, 2019). Creating programmes that address the centrality of occupation and create occupational therapists who can work across physical and mental health in traditional and emerging practice contexts is challenging (Hooper et al., 2013).

Occupational therapy education, which encompasses both academic university-based learning and practice placement education, has several key areas to address to ensure that occupational therapy students receive appropriate learning opportunities and experiences. Educational learning theories and approaches used to support this key foundational learning, professional identity formation and transfer the OT student to a qualified competent occupational therapist during their occupational therapy education include experiential, problem-based learning, situated learning theory, transformational learning, inquiry-based learning and threshold concepts theory (Hooper et al., 2013; Roberts, Hooper, Wood & King, 2015; Laurillard, 2012). Some of these theories have already been explored in Chapter 2 in connection with learning on REP. One approach within these theories and frameworks that has received growing attention in occupational therapy educational research is threshold concepts (Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond, Pepin, & Larkin, 2016; Nicola-Richmond et al., 2019; O'Mahony, Joosten & O'Brien, 2023; Rodger, Turpin & O'Brien, 2015; Sadlo, 2016). This approach identifies concepts or 'fundamental constructs of a subject' that students need to understand to practice and master the discipline (Sadlo, 2016, p. 296). In this research, threshold concepts form part of the conceptual framework and are explored through students' interpretations and understanding of these concepts within the Inquiry Graphics (IG) learning design.

3.2.1 Threshold Concepts

Within higher education, Meyer and Land's (2003, 2005, 2006) threshold concepts have been accumulating evidence and popularity to describe key academic, professional, or disciplinary concepts important for inclusion in curriculum design and delivery (Meyer & Land, 2003, 2005; Rodger et al., 2015). In their seminal work, Meyer and Land defined a threshold concept as.

'A threshold concept can be considered as akin to a portal, opening up a new and previously inaccessible way of thinking about something. It represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress' (Meyer & Land, 2003, p. 1)

Meyer and Land's work aims to create effective learning and teaching environments by better understanding the transformational learning process when students learn their discipline's subject matter (Meyer & Land, 2003; Tanner, 2011). Cousin (2010) discusses Meyer and Land's initial five features of threshold concepts, which involve students working through difficult discipline learning that progresses them to another stage of their professional learning (Cousin, 2010; Meyer & Land, 2003, 2005). These original five features of threshold learning concepts are 'transformative', 'irreversible', 'integrative', 'troublesome' and 'bounded' (Meyer & Land, 2005). Since then, three other characteristics have been added, with threshold concepts being 'reconstitutive', leading to a change in the learner identity; 'discursive', as the learner acquires new language and meaning and finally, they result in 'liminality', where students move forward and display new discipline knowledge and understandings (Meyer & Land, 2003; 2006; Nicola-Richmond et al, 2019). Whilst these eight features of threshold concepts are defined in the literature, there is criticism that the behaviours and practices used to measure their achievement still lack clarity and research evidence (Salwen, 2019).

When identifying threshold concepts, Meyer and Land (2003; 2006) make it clear that a distinction should be made between important learning and threshold concepts. Every discipline will have key learning concepts, which are important building blocks but not as crucial and fundamental as threshold concepts. Threshold concepts are conceptual gateways in a student's discipline journey that they must navigate and understand to progress (Meyer & Land, 2003, p. 2005; Barradell & Peseta, 2017). If students do not achieve these threshold concepts, they will likely have only a superficial understanding of their profession, which may affect their future practice (Kaelin & Dancza, 2019).

An example of a threshold concept in occupational therapy, which is crucial to practising as an occupational therapist, is 'occupation', as discussed in Chapter 2. It can be inferred that students who do not understand the concept of 'occupation' will struggle to practise OT, as it is a central concept in the profession (Fortune & Kennedy-Jones, 2014; Sadlo, 2016). Within OT threshold concepts research, there is an increase in studies focusing on identifying discipline-specific threshold concepts, while fewer studies examine how threshold concepts are acquired in practice, consistent with the broader research context on threshold concepts (Kaelin & Dancza, 2019; Nicola-Richmond et al., 2019; Salwen, 2019). To date, there is an increasing acceptance that the threshold concepts framework is a useful theoretical construct for occupational therapy educators to utilise in identifying conceptual transformative thresholds in students' academic and practice placement learning (Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond, Pepin & Larkin, 2018; Tanner, 2011).

Rodger, Turpin, and O'Brien (2015) discussed the value of threshold concepts in updating an occupational therapy curriculum. Their findings were largely positive, with key themes including the benefits of a threshold concept focus, staff finding it helpful to identify when thresholds were crossed, and suggestions that students' professional identity progressed. These findings are interesting and contribute to the value of incorporating threshold concepts into this research's conceptual framework. However, threshold concepts are not without their critics within the field of health education. Brown, Whybrow, and Finn (2021) outlined several areas where threshold concepts theory appears to be underdeveloped, in particular, the lack of definition and inconsistency in how they are defined and identified within the professions, as well as the 'power dynamics' created between the learner and the educator. Brown, Whybrow & Finn (2021) conclude that instead of using threshold concepts to structure curricula, they should be used.

'in a new way: as a reflective prompt to explore 'how and where students get stuck' (Brown, Whybrow & Finn, 2021, p 9).

This is how threshold concepts will be applied in this research. Within threshold concepts research, five threshold concepts have been linked to practice placement education, and a further five have been identified in other OT research. The threshold concepts linked to placements and REP are.

1. Applying occupational therapy theory to practice
2. Client-centred practice
3. Occupation
4. Practicing in the real world
5. The occupational therapy role (professional identity)

(Kaelin & Dancza, 2019; Nicola-Richmond, Pepin & Larkin, 2018; Tanner, 2011).

The other five threshold concepts, identified in other occupational therapy research, are;

6. Evidence-based practice
7. Clinical reasoning
8. Discipline-specific skills & knowledge
9. Reflective practice
10. Holistic approach

(Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond, Pepin & Larkin, 2018; Tanner, 2011).

Whilst these threshold concepts have not been linked explicitly to placement and role-emerging research, they are implied in all occupational therapy practice. Therefore, they are also included as threshold concepts in the reflective framework in this PhD study (Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond et al 2018; Tanner, 2011).

This research employs threshold concepts as a reflective tool to help students focus their reflections on learning during REP. However, this approach has not been used in occupational therapy research before, though the combination of inquiry graphics and threshold concepts has been utilised in other research designs. Mac Giolla Ri (2022) employed inquiry graphics to identify threshold concepts in Irish social care education, as perceived by educators, students, and graduates. Whilst Mac Giolla-Ri's (2022) method differed from this research, it adopted a similar multimodal approach, except here participants provided images to represent troublesome learning. In this 2022 study, the term 'threshold graphic' was used to describe the visual representation of troublesome learning and, therefore, a threshold concept (Mac Giolla-Ri, 2020; 2022). Both this PhD research and Mac Giolla-Ri's (2022) involve students and educators in an active, engaged learning approach to support knowledge development.

3.2.2 Experiential and Inquiry-based learning

Experiential learning theory is one of the most popular adult learning theories and approaches in occupational therapy education, with Kolb's Experiential Learning model probably the most cited (Ghanbari, Bayat & Kavousipor, 2024; Morris, 2020). Kolb emphasises the link between experience and knowledge development, whether that be an academic module experience or a practice placement experience, and argues that learning cannot take place without experience (Morris, 2020). Kolb's Experiential Learning Cycle involves four stages of learning: concrete experience, reflective observations, abstract conceptualisation and active experimentation, which work together to generate a learning experience.

Kolb suggests that experiential learning involves experience, reflection, thinking, and acting, making learning an active process (Kolb, 2015; Ghanbari, Bayat, & Kavousipor, 2024). It is a familiar process for occupational therapy learners and is often used to structure reflections and thinking related to placement experiences (De Vries, De Jongh & Wegner, 2024). However, the original 1984 theory has not been without its critics, which Kolb has acknowledged, resulting in the progression of his theory through the addition of four adaptive learning modes (Kolb, 2015; Morris, 2020). This developed version of Kolb's Experiential Learning theory remains popular among health and occupational therapy learners, focusing

on active learning and utilising reflection to engage, think, and act on the learning (Corrie, Lawson, & Rowland, 2020; Du Toit & Wilkinson, 2010).

Due to Kolb's active learning stance, which focusses on experience and reflection, and its application in occupational therapy education, this theory has been influential in developing the conceptual framework for this research. Kolb's theory is also influenced by the philosophy of the pragmatist John Dewey, as discussed in Chapter 2. Deweyan pragmatic philosophy emphasises practical problem solving in real-world situations through experience and reflection, which aligns well with occupational therapy education, and this proposed conceptual framework (Coppola, 2013; Dewey, 1938/63)

3.2.3 Inquiry-based learning and Inquiry Graphics

Inquiry-based learning is another learning approach closely aligned and influenced by Deweyan philosophy. Here, the emphasis is on the process of exploring and questioning as central to the active learning experience and reflection (Jaffe, Gibson & D'Amico, 2015). This learning approach aligns well with occupational therapy education and practice, where OTs explore and question service users about their lived experiences of occupation to identify their occupational needs and establish priorities for intervention. Jaffe, Gibson, and D'Amico (2015) based their Process-Oriented Guided-Inquiry Learning (POGIL) framework for occupational therapy students on an inquiry-based learning approach. The aim of using this approach was to promote the development of learning, thinking, communication, and assessment in OT students through an active, team-based approach. Findings from this initial study suggest that this active learning approach, while requiring extra setup by the lecturer, created an active learning environment (Jaffe, Gibson, & D'Amico, 2015).

Inquiry-based learning is also foundational within inquiry graphics, with the promotion of 'inquiry' encouraging students to take an active part in questioning and exploring key concepts related to their learning via the collection or creation of a graphic or photo to connect, represent and explore their learning (Lackovic, 2020; Mac Giolla Ri, 2022). Inquiry graphics are in their infancy, but early positive studies have demonstrated their value in the growing digital and visual world (Mac Giolla Ri, 2022). They also align with arts-informed or arts-based approaches, which are increasing in the health professions education literature (Kinsella & Bidinosti, 2016). Kinsella & Bidinosti's (2016) study collected data over 5 years. In this study, OT students created an artefact to represent what ethical practice means to them. They then wrote a reflection, which included details about the intended meaning of the artefact, a brief overview of the project, and a reflection on their learning and what they had learned during the project. Findings suggest that students found the active, creative

approach to deepen their reflections and transform their understandings (Kinsella & Bidinosti, 2016).

As well as creating an artefact as part of learning. Arts-based learning approaches may also include or be linked to social, relational, and material contexts, for example, where an arts-based approach is integrated into a class or group session, promoting social and relational interaction. Within the literature about arts-based approaches, the role of materials and environment appears less aligned. This, I would argue, is the difference between the art-based approach described above by Kinsella & Bidinosti (2016) and Inquiry Graphics, where a social, relational and material approach to learning is included (Fenwick, 2015).

3.3 Multimodality & Socio-materiality

For most people reflecting on teaching and learning in higher education, the dominant delivery approach typically involves language and text-centred discussion (Lackovic & Popova, 2021). The verbal communication of knowledge and professional practice theories has been seen as essential to developing students' knowledge and understanding (Fenwick, 2015). Whilst verbal communication and language-based lectures are indeed necessary, approaches other than verbal are being developed that are worthy of inclusion and exploration within higher education and health professionals' teaching and learning approaches moving forward (Fenwick, 2014; 2015). The socio-material perspective, which encompasses both multimodality and the socio-materiality of knowledge and communication, is a standpoint associated with multiple theories and approaches, such as semiotics and inquiry graphics (Lackovic & Popova, 2021; Sy et al., 2024).

Fenwick (2014; 2015), a key author in socio-material approaches in HE, also sees learning beyond a cognitive process, as influenced by social relational practices between people and materials, technologies, context and relationships, with these non-verbal and material modes contributing to knowledge creation and development, alongside the cognitive processes (Fenwick, 2015, 2016; Lackovic & Popova, 2021). Fenwick (2016, p. 250) defines socio-material as.

'Material' is the everyday stuff of our lives that is organic and inorganic, technological and natural: bodies, settings, substances and devices. 'Social' is our symbols and desires, human interactions and communication. It is in the relations and entanglings between material and social forces that everyday practices – including practitioners' activities, decisions, responsibilities, etc. – are produced'

This thinking aligns well with how occupational therapists professionally reason, assess and work with people. OTs value the unique person factors of an individual, including their

cognitive, physical, and emotional elements, but also recognise the impact of materials, technologies, environment, and context on how an individual engages and participates in their environment (Brown et al, 2025; Hitch & Pepin, 2021). The relationality between humans, their 'everyday stuff', and their occupations is central to occupational therapy philosophy and practice (Christiansen & Haertl, 2024; Duncan, 2020; Pentland, 2015). Therefore, adopting a socio-material perspective within learning and pedagogy for occupational therapy students feels philosophically and pedagogically appropriate (Kinsella & Bidinosti, 2016)

Socio-materiality is also closely aligned with multimodality, with the relationship between the human and inhuman artefacts, society and environments and professional knowledge seen as key to learning (Fenwick, 2014;2015). Both perspectives align with occupational therapy and inquiry graphics, but there is little research related to occupational therapy and student learning in this area. However, multimodal approaches are applied by occupational therapists when working with people who have cognitive change, such as dementia. In this situation, multimodal approaches that draw on alternative sensory and material modes of intervention can provide benefit (Ham et al., 2021). Whilst connecting the treatment of patients with socio-material and multimodal perspectives is novel, it is interesting to note that, as OT's, we have often adopted non-verbal modes to support recovery and learning; however, there is limited discussion relating to OT student learning via these modes (Kinsella & Bidinosti, 2016)

Socio-material and multimodal approaches to learning can expand and enhance students' discipline-specific knowledge growth, aligning with the evolving digital multimedia environment (Fenwick, Nerland & Jensen, 2012; Lackovic & Olteanu, 2024). The literature contains numerous definitions of multimodality. In this PhD study, multimodal learning means that:

'meaning making in human societies and natural environments is multimodal, enabled by different modalities, such as verbal, pictorial, tactile, auditory, atmospheric, affective, material, sensory, transient or tacit...'
(Lackovic & Olteanu, 2024, p12)

Multimodality emphasises different modes and ways of supporting teaching and learning than traditional language- and text-based methods. Multimodal approaches can, therefore, include a range of methods, such as semiotics and inquiry graphics, both of which use signs or graphics as ways of mean-making (Lackovic, 2020; Lackovic & Olteanu, 2021). Inquiry Graphics applies both socio-material and multimodal principles of learning to account for the materiality of learning through the materiality of visual representations and communication in learning beyond words.

3.3.1 Inquiry Graphics

Inquiry Graphics are complex learning signs that contribute to the development of semiotics in higher education research. Semiotics is widely recognised in disciplines such as languages, linguistics, the arts, media, and communication. It has been defined as '*exploring how images and other signs in communication make meaning, which can inform learning and knowledge*' (Lackovic, 2020, p. 7). Meaning is at the centre of learning, and the key point of applying inquiry graphics in the context of OT is to support students' exploration and advancement of OT-related meanings.

Adopting a multi-modal approach to learning and knowledge development in higher education, using non-verbal (signs) and verbal (language) modes, was progressed by Lackovic (2020) with their development of the term '*Inquiry Graphics*'. This was a response to the rise of infographics that emphasise a quick visual summary, whereas inquiry graphics highlighted the need to pause and reflect with and about images:

"Inquiry graphics can be understood as a response to the rise and widespread use of infographics (information graphics). Whereas infographics are used to summarise information visually for fast, impactful presentation and consumption of often large-scale data, inquiry graphics turn graphics into inquiry artefacts.....An inquiry graphics approach foregrounds slow, analytical and semiotic unpacking of visual information, and engagement via image-concept inquiry graphics artefact creation" (Lackovic, 2020, p. 16).

Inquiry graphics learning design is an example of a multimodal method, which involves a person collecting or creating an image or graphic to represent an educational concept or, in this study, a learning outcome and the associated threshold concepts (Lackovic, 2010; 2020).

Furthermore, inquiry graphics and multi-modal learning are part of Inquiry-based learning approaches (Laurillard, 2012). Since the millennium, there has been a significant acceleration in the use of digital technology and media to communicate and connect with all aspects of our lives, both as individuals and as part of groups and communities (Christiansen & Haertl, 2024). It would be hard to imagine life without smartphones, apps, and social media platforms; this increase in digital technology and media use is often referred to as the Fourth Industrial Revolution (Schwab, 2017). Schwab (2017) argues that the fourth revolution differs from previous revolutions because of the scale, range, and complexity of the developments that affect everyone everywhere. In occupational therapy education, these evolving digital technologies and multimodal literacies provide us with means of communication, collaboration, critical thinking, creativity, and new ways of learning

and being (Marchetti, 2021). Fundamentally, this new age means that learning and education in occupational therapy and for all learners can move beyond language- and text-based methods to include more digital and multimodal approaches (Lackovic & Olteanu, 2024). In occupational therapy education, the use of digital media, primarily in the form of digital simulations incorporating video and role-playing, is increasing to prepare students for effective communication and interactions with patients and service users (Marchetti, 2021). These methods are valuable in preparing students for practice and in imagining themselves in practice situations, which is suggested as a precondition for critical thinking and learning (Gee, 2007, in Marchetti, 2021).

Not only do inquiry graphics include a creative, multimodal way of recording and exploring learning, but it also facilitates students engaging and participating in an occupation that is innovative and multimodal, giving the option to use different graphics or artefacts within their Inquiry Graphic to maximise their own reflection on learning related to threshold concepts (Lackovic, 2020; Mac Giolla Ri, 2022).

Lackovic (2010) discusses the use of images and written narratives to explore students' understanding of core concepts, suggesting that this technique fosters a personal voice and perspective on learning. Here, Lackovic (2010) explains that thinking, including critical thinking, is most likely multimodal, meaning that when we think of a concept or topic, not only words but also images, sounds, smells, colours, and emotions form in our minds. Lackovic (2010, p. 124) illustrates this with an example.

'Each mode offers a possibility of transformation into another mode. For example emotion 'sad' could be represented through the colour blue, the smell of something through an image of something'.

Lackovic's illustration here aligns with the neuroscience perspective on adult learning, as discussed by Taylor & Marienau (2016) in Chapter 2, who describe how the brain uses images, metaphors, and analogies to engage with, interpret, and understand new learning.

This type of multimodal reflection employs a graphic and a written narrative for learning and reflection and shares similarities with Moon's (2006) suggestion to use different external representations of reflection. In describing and defining reflection, Moon (2006) distinguishes between the internal cognitive process that takes place and the external representations that can be produced. So, whilst reflection and reflective learning appear to be similar internal cognitive processes, Moon (2006) and others suggest that reflective writing or using other media, such as graphics, video or arts-based methods, are external representations of reflection that can expand the reflective process (Bentwich & Gilbey, 2017; Lackovic, 2010; 2020; Lackovic & Olteanu, 2021).

3.4 Towards a New OT Pedagogy and Conceptual Framework

To date, occupational therapy educational research has drawn on learning theory and frameworks external to our profession to explore the experience and effectiveness of educational approaches (Brown, 2023; Hooper et al, 2018; Lysaght et al., 2018).

Supporting learning via the use of learning theory and frameworks such as threshold concepts, which include our philosophy, history and theory, has been identified as a priority within the occupational therapy education literature (Hooper et al, 2018)

Hooper et al. (2018) propose that, to advance occupational therapy education and research, we must draw on our philosophical and historical backgrounds to develop theory-building studies and profession-specific conceptual frameworks. This study responds to this call by utilising contemporary educational theory and research to develop a profession-specific learning design and then applying and researching it through a case study approach to support occupational therapy students' learning during role-emerging placements.

A range of adult learning theories that adopt an active, experiential learning approach have been discussed earlier in this chapter. Inquiry-based learning is one of these active, experiential approaches that are foundational to inquiry graphics, alongside semiotics and multimodal learning. IG encourages the linking of graphics or photos to key learning concepts. It provides a creative, critical, pedagogical inquiry framework for exploring key disciplinary concepts through the creation of graphics and narratives. An IG can be defined as a contemporary approach that utilises thinking with images to explore experiences and promote knowledge creation and construction (Lackovic, 2020). Inquiry graphics incorporate definition and meaning-making in a multi-modal way. The IG learning design will be used with this research as a reflective learning tool to support students' learning through the lens of threshold concepts. The students' learning experiences, as informed by this learning design and the lens of threshold concepts, will be explored through the research questions below.

3.5 Research Questions

Research Question 1 - What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their learning and knowledge development of threshold concepts on a role-emerging practice placement?

Sub Questions

1. What are the students' stories around the use of IG images (as data collection tools) to inform their learning and knowledge development around occupational therapy threshold concepts?

2. How do artefacts/graphics support students' reflections and discussions about threshold concepts during role-emerging practice placement learning?

Research Question 2 - What are occupational therapy students' learning experiences related to threshold concepts on role-emerging placements?

Sub Questions

1. What are their narratives around these learning experiences?
2. What experiences, interactions and concepts do they find troublesome?
3. What do they find transformative?

3.5 Chapter summary

In this second literature review chapter, I have critically appraised occupational therapy educational research and explored learning theories and approaches. Finally, the chapter discussed the development of the conceptual framework, which underpins this research and concluded with the research questions.

Chapter 4 – Research Methodology

4.1 Introduction

This chapter presents the philosophical framework, research methodology, and methods employed in this study. The overarching aims are to evaluate the use of an Inquiry-Graphics learning design as a pedagogical approach in occupational therapy role-emerging placement learning and explore how occupational therapy students applied threshold concepts on REP using the IG learning design.

In this chapter, I examine the evolution of my research methodology. Discussions about my ontological and epistemological positions, which underpin the research, will be explored, linking this to my theoretical perspectives, methodology, and methods (Crotty, 1998). To enhance transparency, I will describe my theoretical and methodological debates, the methods employed, including the case study participants, research context, ethical considerations, my role in the research, and considerations of trustworthiness.

4.2 Philosophical considerations

As an occupational therapist and an academic who values people as individuals with individual lived experiences and individual realities, I believe that people create meaning and identity through the occupations (all daily activities) that they engage in, in their everyday lives, which are influenced by their personal factors and social and environmental contexts (Duncan, 2023). Therefore, there is not one reality or truth, but multiple realities that are personally meaningful in different ways to different people who may have shared experiences. This perspective has shaped my philosophical stance as a researcher, and consequently, my research methodology choices and design. Crotty (1998) described a four-stage framework when designing research, highlighting the importance of addressing four questions as part of the research process. I will discuss each part of my research design, shown in Figure 6 on page 49.

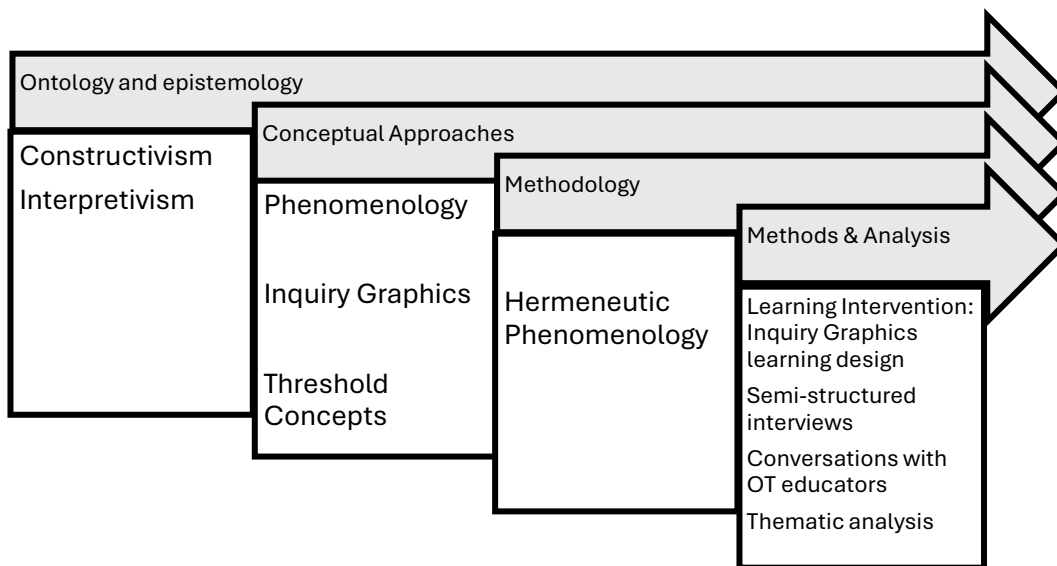


Figure 6 Research Design using adapted version of Crotty's Framework (1998)

4.3 Ontology and Epistemology

Ontology is a philosophical term that refers to theories related to reality and asks questions about the nature of reality or what it means to exist and be real (Braun & Clarke, 2022; Crotty, 1998). Epistemology is a term closely associated with ontology, referring to the nature of knowledge and how it is constructed, asking questions such as 'How do we know what we know?' (Crotty, 1998). From my discussions earlier in the chapter, my worldview suggests that I perceive reality as an individual experience shaped by the society and environment in which we live and engage, and that knowledge is constructed through the interpretations and experiences of different people's realities. Therefore, an ontology of constructivism and an epistemology of interpretivism align with my philosophical position as a researcher (Crotty, 1998; Nayar & Stanley, 2015).

However, as an occupational therapist in clinical practice, working in acute hospitals and healthcare settings, I have been influenced by objectivism within a positivist paradigm, which plays a large role in the philosophy and practice of medical and healthcare delivery. These positivist paradigms have dominated modern healthcare in the UK, influencing allied health professions, such as occupational therapy (Duncan, 2020). During my professional practice and PhD journey, I have regularly reflected on this dichotomy and the challenges it creates for the delivery of occupational therapy and other allied health services, where the professional practice lens has shifted to an alternative stance and perspective to the medical

model. These different philosophical perspectives can present challenges for health professionals involved in research and innovation (Clark et al., 2021; Duncan, 2020).

My understanding of the characteristics of knowledge leads me to adopt a constructivist ontology and an interpretivist epistemology (Clark et al, 2021; Crotty, 1998; Gaudet & Robert, 2018). I believe realities are multiple and contextually created through human engagement with the world. How individuals experience, interpret and make sense of everyday phenomena within their personal and professional contexts contributes to our understanding of the world. There is no single reality in the world; instead, multiple realities are socially, culturally, or professionally constructed by people interacting and creating various versions of reality. In this world, knowledge is constructed by people as they engage with it; this is how I view the world as an occupational therapist and researcher.

As an academic researching students' application of learning related to threshold concepts in REP, I believe that students have different 'constructed' meanings of what occupational therapy entails in these settings, shaped by their individual experiences and social interactions within their worlds, including their cultures and backgrounds. Therefore, there is not one truth of student learning in these settings, but multiple versions constructed by multiple individual occupational therapy students. These students interpret their own experiences of applying their learning related to threshold concepts in occupational therapy using an Inquiry Graphics pedagogy and learning design (Clark et al, 2021; Crotty, 1998; Gray, 2021; Lackovic, 2020).

This constructivist ontological position aligns with hermeneutic phenomenology and the work of Heidegger and Gadamer, who conceptualised human existence as 'being-in-the-world', where meaning cannot be separated from lived experiences, history, or interpretation (Crotty, 1998; Van Manen, 2014). In this study, alongside this ontological stance, an interpretivist epistemological position is adopted, which holds that knowledge is generated through interpretation rather than objective observation. Here, it is recognised that understanding individual students' experiences requires engagement with the meaning's students attribute to them. Hermeneutic philosophy, particularly the work of Heidegger and Gadamer, is seen as interpretive, unfolding through dialogue and reflection known as the 'hermeneutic circle' (Crotty, 1998; Dibley et al, 2020). In adopting a hermeneutic phenomenological approach, the researcher does not sit outside the phenomena but participates in the meaning-making process, drawing on their background and expertise, in this case, my experience of role-emerging placement experiences (Dibley, 2020; Van Manen, 2014). Reflexivity is therefore an important part of the process, as the researchers'

prior knowledge and understandings are recognised as informing interpretation. Reflexive processes and transparency are therefore important for credibility and trustworthiness (Dibley et al, 2020; Finlay, 2011)

This philosophical or 'big theory' background, as it has been referred to by Braun and Clarke (2022, p. 158), represents my ontological and epistemological position. These essential philosophical foundations informed the theoretical perspectives adopted and the blended hermeneutic-phenomenological methodology and case study approach used in the research design (Lala & Kinsella, 2011). I will now discuss phenomenology, inquiry graphics, and threshold concepts from theoretical perspectives.

4.4 Theoretical Perspectives

Crotty (1998) defines 'theoretical perspectives' as:

'a way of looking at the world and making sense of it' (Crotty, 1998, p 8)

To address the study's research aims, I adopted the theoretical perspectives of phenomenology, inquiry graphics, and threshold concepts to explore occupational therapy students' experiences of using an Inquiry Graphics Learning design and to examine their experiences of reflecting on learning through a threshold concepts lens in role-emerging placements. I will now discuss and justify my theoretical perspectives for this study, considering how they align with my methodological and methods choices.

4.4.1 Phenomenology

Phenomenology seeks to understand a person's or people's experience(s) of phenomena by seeking their descriptive feelings, perceptions, interpretations, and understandings of a phenomenon (Dibley et al, 2020). A phenomenological perspective acknowledges that there may be multiple realities from different people and, therefore, multiple meanings associated with phenomena (Finlay, 2011; Gaudet & Robert, 2018). This theory aligns well with constructivism and interpretivism; therefore, adopting phenomenology as a theoretical perspective and methodology is a suitable fit for the research aims (Finlay, 2011; Gaudet & Robert, 2018). This is particularly true because of the importance of phenomenology philosophy in 'intentionality' (Crotty, 1998). Edmund Husserl, the founder of the philosophy of phenomenology, made 'intentionality' its central concept. Husserl (1931, p. 245) describes 'intentionality' as

' a concept which at the threshold of phenomenology is quite indispensable as a starting point and basis'

Intentionality is evident in this study through the relationship between students and their application of learning related to threshold concepts in REP. Adopting this phenomenological stance means I cannot describe the 'object', in this case, the application of threshold concepts on role-emerging practice placements, without including the 'subject', the students and their lived experiences (Crotty, p. 79). This duality of thinking and exploration of the phenomenon's experiences is reflected in the research questions, which further support this choice of theory.

To a relative novice researcher, learning more about the philosophy of phenomenology and the view of experience was thought-provoking, particularly as the philosophy, theoretical perspectives and associated methodologies have been propagated by multiple philosophers since the pioneering work of Edmund Husserl, who is reputed to be the father of 'phenomenology' (Dibley et al., 2020). Edmund Husserl (1859-1938) was concerned with studying phenomena and people's lived experiences with a phenomenon of interest, aiming to uncover the meaning and complexity of the experience via descriptive phenomenology (Dibley et al., 2020).

Martin Heidegger (1889-1976), a student of Husserl's, had his own worldview and forged a new type of phenomenological philosophy with the development of Interpretative Phenomenology, also known as Hermeneutic Phenomenology. The term 'hermeneutics' comes from *the Greek word 'hermeneuein', meaning "to understand" or "to interpret"* (Patton, 2015, p. 136). Therefore, hermeneutic phenomenology aims to draw out lived experiences through the specific involvement of interpretation (Finlay, 2011; Gaudet & Robert, 2018). Heidegger proposed that researchers cannot separate their consciousness from the world and observe it objectively; instead, the two are inextricably connected. These separate theoretical perspectives have led to the evolution of different descriptive and interpretative phenomenological methodologies; these will be examined later in the chapter when I present the debates I had about my methodology choice.

4.4.2 Inquiry Graphics & Threshold Concepts

Inquiry graphics with threshold concepts are the other theories or perspectives within this research design. Both have been critically explored in earlier literature reviews, as presented in Chapters 2 and 3 (Lackovic, 2020; Meyer & Land, 2003;2005). What is novel about this research design is the way these theories are combined to create a multimodal IG learning design, utilising the 10 OT threshold concepts already identified within the literature, as a reflective tool for students to reflect and explore their learning through the creation of a weekly Inquiry Graphic (Brown, Whybrow & Finn, 2021; Kaelin & Dancza, 2019; Nicola-Richmond, Pepin & Larkin, 2016; Tanner, 2011).

These three theoretical perspectives fit with my philosophical views and research aims. They felt like a familiar milieu that, with appropriate methodological choices, would work well to address my research aims. I will discuss their application further in the methods section. I will now move on to discuss my methodology.

4.5 Exploring Methodologies

Reading and learning about methodologies and methods that might align with my theoretical perspectives was essential to my research design journey. As discussed earlier, I was drawn to phenomenology because of my professional background and previous research experience. In addition, my research questions, exploring students' experiences, are naturally inclined towards a phenomenological qualitative approach. However, a range of methodologies and methods within phenomenology may have been effective in addressing the research questions.

There are two main philosophical approaches within phenomenology: descriptive phenomenology and interpretative phenomenology (Finlay, 2011; Dibley et al, 2020; Smith, Flowers & Larkin, 2022). Edmund Husserl first described descriptive phenomenology and focussed on participants' lived experiences of phenomena. It aims to capture the 'essence' of the participant's experience by uncovering and carefully exploring the meaning of the phenomenon to achieve a deeper understanding (Dibley et al, 2020). Within this approach, the researcher is expected to use '*phenomenological reduction, epoche and bracketing*', which are interchangeable terms associated with the reflective process the researcher undergoes, to suspend their previous knowledge, understanding, and opinions, thereby reducing any prejudgement of the phenomenon of interest (Dibley et al, 2020). I did not feel I could '*bracket*' my background and knowledge from this research. As an academic with experience in students' learning on REP, I felt that my background could contribute to the study (Finlay, 2011).

In contrast to descriptive phenomenology, interpretative phenomenology, also known as hermeneutic phenomenology, as described by Martin Heidegger (1889-1976) and further developed by Hans-Georg Gadamer (1900-2002), does not involve 'bracketing' and instead suggests that the researcher cannot separate their past experiences and knowledge. Heidegger developed the interpretative approach and introduced the term '*Dasein*', which means

'Being there', or a way of being that relates to the human experience' (Dibley et al., 2020, p 20).

Therefore, as explored in the literature review in Chapter 2, Heidegger specified that meaningful experiences are an integral part of '*Dasein*' and phenomenology and if we are to examine these experiences, we need to interpret them and find the meaning of the experiences (Dibley et al., 2020; Kirillova, 2018). This more holistic methodology, known as interpretative phenomenology or hermeneutic phenomenology, extends beyond merely describing the phenomena and instead aims to interpret and understand the contextual factors that influence participants' experiences of them. As discussed in Chapter Two, this aligns with occupational science philosophy, and therefore, with the range of participants and contexts in this study, this methodology was the most appropriate choice (Bynum & Varpio, 2018; Lala & Kinsella, 2011)

4.5.1 Case Study Series with Hermeneutic Phenomenology

Hermeneutic phenomenology was established as the preferred methodology. Initially, I intended to adopt a single methodology based on the theoretical perspectives discussed. However, once recruitment and data collection commenced, it became clear that each participant was experiencing the application of threshold concepts and using the Role-Emerging Placement IG learning design, delivered to students as a portfolio, differently. Therefore, to capture each participant's unique experiences, adopting a case study approach alongside hermeneutic phenomenology methodology was appropriate (Dibley et al, 2020; Priya, 2021; Tight, 2017).

Case studies are a popular qualitative research design that aim to investigate a phenomenon in a real-life context using various data collection methods (Priya, 2021; Yin, 2014; Tight, 2017). These case studies are designed to be exploratory and employ a two-stage data analysis approach. In Stage One, each participant's experiences are interpreted, and in Stage Two, cross-case study analysis takes place, in which themes across case studies are identified and presented (Yin, 2014).

4.6 Methods

This research explored students' individual lived experiences of using an IG learning design via a Padlet portfolio to reflect on learning related to OT threshold concepts in role-emerging placements. The qualitative design employed data collection methods that allowed for analysis of the range of individual experiences and data items (Clark et al., 2021; Patton, 2015). I adopted an inductive approach to designing the method, which evolved as I explored the theory and previous research. I reflected on my knowledge and experience of supervising students on REP (Braun & Clarke, 2022; Patton, 2015).

I intended for my contribution to knowledge from this research to be twofold,

1. I aimed to research the use of an IG learning design developed to support students' reflections on learning related to threshold concepts. I adopted a multimodal approach to learning and knowledge development in occupational therapy, utilising both nonverbal (graphics and photos) and verbal (language) modes through a Padlet portfolio.
2. I wanted to add to previous research knowledge and understanding of students' experiences of applying learning related to threshold concepts (key disciplinary concepts) on role-emerging placements

Dancza et al. (2016) included a 'theory-informed workbook' as additional support for students on REP in school settings in England, which was received positively. With this evidence and my knowledge of inquiry graphics and threshold concepts theory, I aimed to provide students with a portfolio resource in which theory and practice were explicit, and key disciplinary concepts (threshold concepts) related to their placement were outlined for them. This portfolio adopted an Inquiry Graphics learning design (Lackovic, 2020)

In this study, the key disciplinary concepts (threshold concepts) were embedded in the learning outcomes of the placement. The placement learning outcomes for practice placement three, along with the threshold concepts identified by occupational therapy researchers in previous studies, are listed in Table 1 below (Kaelin & Dancza, 2019; Nicola-Richmond, Pepin, & Larkin, 2018; Tanner, 2011). Arrows are used to illustrate how placement learning outcomes incorporate threshold concepts.

Learning Outcomes - Practice Placement 3	Threshold Concepts for Occupational Therapy (established in research)
<ol style="list-style-type: none"> 1. Critically relate specific Occupational Therapy interventions to the best available practice 2. Take responsibility, with supervision, for agreed elements of a client caseload appropriate to the practice placement setting. 3. Critically reflect upon your own professional role and that of other professional groups within health and social care settings with the aim of evaluating the leadership and management of multidisciplinary care and service delivery (IPL Learning Outcome) 4. Critically evaluate the implementation of legislation, policies and guidelines in the practice placement setting 5. Analyse the importance of effective team working and communication relevant to the practice placement context 6. Demonstrate continuing professional development by reflecting on the learning opportunities provided 	<ol style="list-style-type: none"> 1. Applying occupational therapy theory to practice 2. Client-centred practice 3. Occupation 4. Practicing in the real world 5. Occupational therapy role (professional identity) <p>(Kaelin & Dancza, 2019; Nicola-Richmond et al, 2018; Tanner, 2011)</p>

Table 1- An interweaving of Practice Placement Learning Outcomes and Threshold Concepts in Occupational Therapy

As well as the threshold concepts identified in previous placement research, there are an additional five threshold concepts identified in other occupational therapy research; these are;

6. Evidence-based practice
7. Clinical reasoning
8. Discipline-specific skills & knowledge
9. Reflective practice
10. Holistic approach

Whilst these threshold concepts have not been linked explicitly to role-emerging placements in the research, they are stated or implied in the Practice Placement Learning outcomes.

Therefore, they have also been included as threshold concepts in this PhD study (Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond et al, 2018; Tanner, 2011).

4.7 Researcher's Role and Reflexivity

As a researcher conducting this study in my workplace, it was essential for me to remain continually reflective and reflexive about my position and role as an 'insider' (Creswell, 2023). For health professionals and researchers, reflection is crucial for learning and skill development (Schon, 2016). Early in the research design, I began journaling to record and reflect on my research journey; this helped me keep track of my decision-making and thinking and provided a focus for supervision sessions. Etherington (2004, p. 31) suggests that researchers should '*adopt an informed opinion about the role of reflexivity in their work*'. Reflexivity played a crucial role in my research, as it enabled me to reflect on my 'insider position' at the university and the potential power issues that arose between me and the student participants (Trowler, 2014). Etherington (2004, pp 31-32) defined reflexivity as:

'the capacity of the researcher to acknowledge how their own experiences and contexts (which might be fluid and changing) inform the process and outcomes of inquiry. If we can be aware of how our thoughts, feelings, culture, environment and social and personal history inform us as we dialogue with participants, transcribe their conversations with us and write our representations of the work, then perhaps we can come close to the rigour that is required of good qualitative research'.

This quote represents my perspective on reflexivity and the reflexive approach I aimed to incorporate during journaling, supervision, and the research process. Stepping back to reflect on my position and how my familiarity with occupational therapy education may lead me to ascribe meaning to words or behaviours that differ from those of the participant was

important. I attempted to maintain the '*hermeneutic alertness*' Van Manen (2021) described when a researcher steps back to reflect rather than immediately accepting their interpretations (Van Manen, 2021).

Subjectivity in hermeneutic phenomenological research must be managed. Still, it is essential to acknowledge that my subjectivity began and continues to drive the research process, adding value (Crowther, 2017; Crowther & Thomson, 2020; Dibley et al., 2020; Van Manen, 2021). My 'insider' status can lead to stronger connections with participants, increased trust, and the ability to uncover meaning that a researcher outside the setting may not have revealed. The reverse may also happen if my relationship with the participants means they fear judgement or don't feel they can speak freely. These strengths and weaknesses exemplify the researcher's regular reflection and reflexivity, which were carried out to maintain trustworthiness and quality within the qualitative research process (Dibley et al., 2020).

4.8 Development of Role-Emerging Placement IG learning portfolio

The first version of the Role-Emerging Placement IG learning portfolio, based on an IG learning design, was developed after reviewing Lackovic's (2020) examples and other relevant literature, and reflecting on the portfolios I had used as an academic. I had experience with both paper and digital portfolios in the past, but due to the digital nature of this portfolio, I needed it to be an e-portfolio. Various platforms, including the Blackboard Virtual Learning Environment, Pebble Pad, and Padlet, were considered. Initially, I looked at using Pebble Pad, which was already familiar to students and linked to their placement e-portfolios. However, student feedback about access and utility issues led me to move away from Pebble Pad and instead look at Padlet, the preferred platform. Padlet is an online visual noticeboard that students use during module delivery and placement discussions. I created an 8-week learning portfolio on Padlet, where students could add a weekly graphic or photo and answer eight reflective questions about their chosen graphic/image, the selected placement learning outcome(s), and the associated threshold concept learning.

4.8.1 Pilot study of Role-Emerging Placement IG learning portfolio

The 8-week Padlet was piloted with four third-year occupational therapy students who went out on their final elective practice placement to different role-emerging settings between February & April 2023. Students and their weekly occupational therapy educators were given information about the aims and use of the Padlet's. Most students engaged in collecting graphics and photos during the first few weeks of the placement to create their IGs, but some later stopped doing so. Feedback from students suggested that the Padlet was accessible and easy to use, and that the portfolio framework was working well; however,

some of the questions required adjustment, as they lacked clarity or duplicated others. It was perceived that providing additional guidance to students and educators on the purpose and use of the portfolio would also be helpful. Minor amendments were made to the Role-Emerging Placement IG learning portfolio to address the feedback and additional instructions created.

4.9 Participants, Recruitment and Research Context

This study involved occupational therapy students at a University in the North of England who undertook role-emerging placements, and OT educators who provided professional supervision to the students every week. Student participants were recruited from the BSc (Hons) and MSc Occupational Therapy programmes between September and October 2023. A purposive sampling strategy was adopted, with all OT students who went out on a role-emerging placement eligible to participate in this study (Priya, 2021). Potential participants were sent information about the study by the senior lecturer who leads practice placements. They were allowed to ask questions and made aware that they did not have to participate in the research. The placement lead acted as a gatekeeper for the study to distance the researcher from the recruitment process, therefore enhancing trustworthiness (Creswell, 2014)

Purposeful sampling was used to recruit six occupational therapy students: two from the second year of the MSc Occupational Therapy programme and four from the third year of the BSc (Hons) Occupational Therapy programme (Creswell, 2014; Patton, 2015). Practice placements on both these pre-registration occupational therapy programmes are at the same level, i.e., level 6 for Practice Placement 3. This is comparable to practice placements on other occupational therapy programmes in the UK, where students doing either a BSc (Hons) or an MSc programme are marked at the same level of study for each placement. Students complete placements at levels 4, 5 & 6 as they progress through their programmes. All these student participants were on their Practice Placement 3 (PP3), being assessed at level 6.

All six student participants were female, ranging in age from their 20s to 50 years. Each participant was given a pseudonym to protect their identity (Patton, 2015). The participants' pseudonyms are Bella, Jess, Laura, Paula, Helen, and Dawn.

Case Study	Participant name * (* a pseudonym)	Key Characteristics
1	Bella	Female, 3 rd year BSc OT student, no prior experience of working with children, on role-emerging placement for Practice Placement 3 (PP3) in a school with case study 2
2	Jess	Female, 3 rd year BSc student, some experience of working with children, on role-emerging placement for Practice Placement 3 (PP3) in a school with case study 1
3	Laura	Female, 3 rd year BSc OT student, no prior experience of working in adult education, on role-emerging placement for Practice Placement 3 (PP3) in a higher education setting with case study 4
4	Paula	Female, 3 rd year BSc OT student, no prior experience of working in adult education, on role-emerging placement for Practice Placement 3 (PP3) in a higher education setting with case study 3
5	Helen	Female, 2 nd year MSc OT student, no prior experience of working on a care farm, on role-emerging placement for Practice Placement 3 (PP3) on a care farm with case study 6
6	Dawn	Female, 2 nd year MSc OT, no prior experience of working on a care farm, on role-emerging placement for Practice Placement 3 (PP3) on a care farm with case study 5

Table 2 Participants Key Characteristics

As discussed in the literature review in Chapter 2, students participating in role-emerging placements typically go out in pairs, as was the case with these students. One pair of students went to a state primary school, another went to a care farm, and the final pair went to a well-being unit in a higher education setting.

Purposive sampling was also used to recruit two occupational therapy educators who supervised the student participants (Creswell, 2014; Patton, 2015). Both educators were specialist occupational therapists with experience in supervising students on REP once a week.

4.10 Preparation for role-emerging placement – Introduction to Role-Emerging Placement IG Portfolio & data collection

All students going on placement have preparation sessions before they go out on practice placement and evaluation sessions when they return to university at the end of the placement. These sessions involve rehearsing and practising skills, such as conducting assessments or interventions, learning to use equipment, and preparing to move and handle people, or manage risk or health emergencies. In addition to these ‘standard’ preparation sessions, students going out on REP had an additional placement preparation session with their placement pair. The Role-Emerging Placement IG Learning Design was described in the session, as detailed in Figure 7 below, and the Padlet Role-Emerging Placement (REP)

learning portfolio was introduced. Students were shown an example of a REP IG Learning Portfolio and given information about accessing their Padlet, uploading graphics or photos and completing the eight reflective narratives

4.10.1 Use of the Role-Emerging Placement IG Learning Portfolio on Placement

Each week, students chose to focus on one or more placement learning outcomes, which were linked to occupational therapy threshold concepts. Students then created or collected a graphic or photo representing reflections on their learning related to their chosen learning outcomes (LO) and saved it to their individual Padlet. For each graphic or photo, the students were asked to answer eight reflective questions on the Padlet. The process was repeated for each of the eight weeks of the placement. The reflective questions aimed first to explore the reasoning behind the choice of graphic/ image and second to examine the learning (threshold concepts, TC) it represented. Reflective questions 1-4 inquired about their choice of graphic/photo; these questions were adapted from an inquiry graphics (IG) schedule to deconstruct the images for learning and reflection purposes (Lackovic, 2020). Reflective questions 5-8 were associated with reflecting on professional practice learning and planning for further learning the following week (see Appendix 1 for the eight questions). The process is outlined in Figure 7 below.

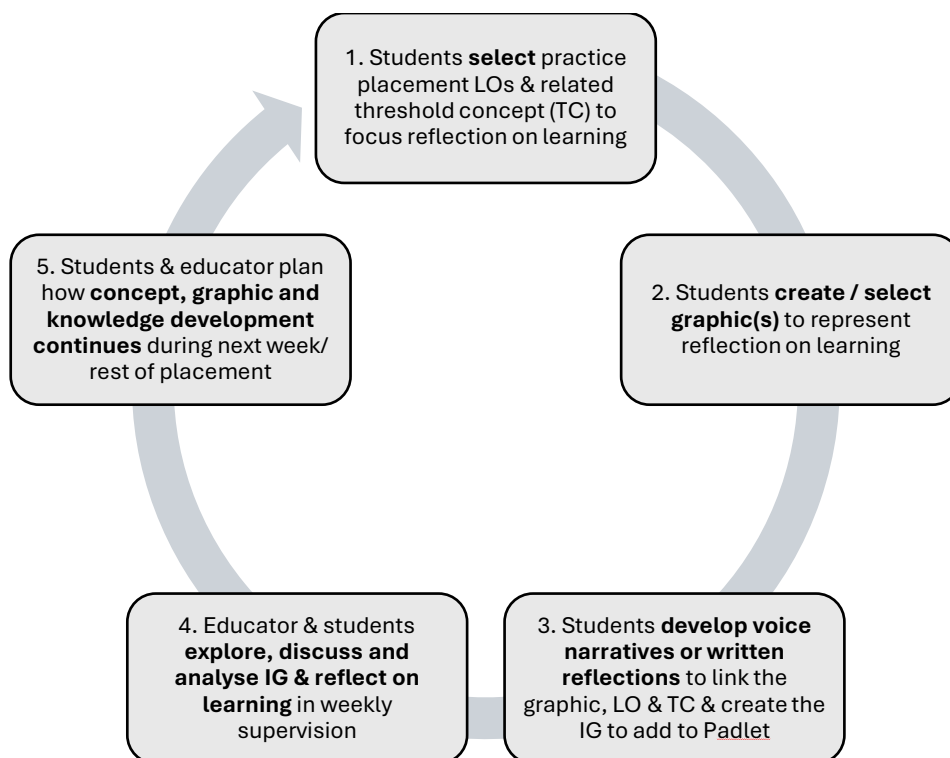


Figure 7 Role-Emerging Placement Inquiry Graphics Learning Design Process (adapted from Lackovic, 2020, pp 257)

4.11 Data Collection

To collect rich data congruent with a hermeneutic phenomenological approach, a multiple data collection design was employed to gather a range of interview and visual data (Dibley et al., 2020; Yin, 2014). Each data collection method provided a different vantage point for exploring the research questions. The study employed four data collection methods (see Figure 8).

1. Weekly graphics or photos with written reflective narratives, known as Inquiry Graphics (IG)
2. Audio recordings of weekly supervision sessions between the occupational therapy students and the practice educator
3. Individual semi-structured interviews between the researcher and the student participants, and
4. Themed notes from conversations between the researcher and the two OT practice educators,

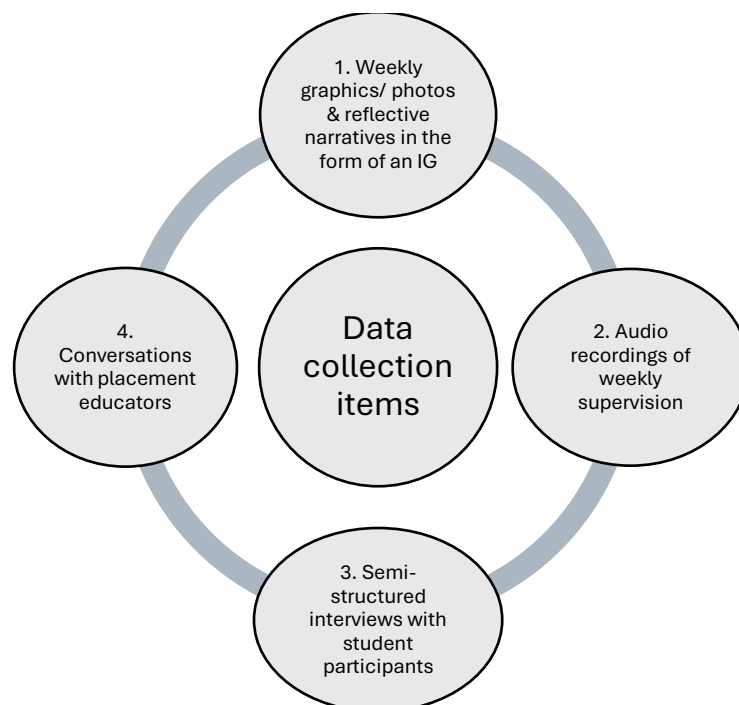


Figure 8 Data collection items

4.11.1 Data Collection 1: Weekly graphics/images and reflective narratives in the Role-Emerging Placement IG portfolio

Visual materials, i.e. graphics or photos, were created or collected each week to represent the student's reflections on learning related to occupational therapy placement learning

outcomes (aligned to threshold concepts). Below each graphic or photo were eight reflective questions for students to answer (see Appendix 1). Students answered these questions about selecting their graphic or photo and learning to create a narrative. The combined graphic and narrative was the inquiry graphic (IG). The weekly IG was used to facilitate dialogue between the supervisor and students about their learning experiences associated with threshold concepts. These discussions were conducted during supervision and are included in data collection item 2.

The data collected as part of Data Collection 1 was stored on each student's Padlet. Once the placement was completed, any identifying data was redacted, and the Padlet was copied and included in the research data. Four students completed 8 weeks of inquiry graphics, and two students on placement at the higher education setting completed 6 weeks of inquiry graphics.

4.11.2 Data Collection 2 - Audio recordings of weekly supervision sessions between student participants and their occupational therapy practice educator

Supervision between the occupational therapy placement educator and the student participants took place at the end of each week during the 8-week placement. In the first part of the supervision session, student participants discussed their selected learning outcomes (& related TC) and their weekly IG. These discussions were audio recorded on Microsoft Teams with the participants' consent and shared with the researcher for inclusion in the research. Audio recordings were transcribed and stored securely on the researcher's university OneDrive.

4.11.3 Data Collection 3 – Semi-structured interviews with student participants

Individual semi-structured interviews were conducted with each student participant at the end of their role-emerging placement. The interviews took place on Microsoft Teams and lasted 45-80 minutes. The interview had two parts. In part 1, participants' Padlet's were shared on the screen, and an adapted inquiry graphic question schedule was used to deconstruct the weekly graphics/photos. This interviewing style is familiar to inquiry graphics and helped stimulate recall of their experiences. It also fits well with hermeneutic phenomenological interviewing (Lauterbach, 2018). Online interviews worked well and were convenient for students living away from the university campus. However, there were connectivity issues with two participants that interrupted and temporarily halted the interviews and may have affected the flow of conversation (Keen, Lomeli-Rodriguez & Joffe, 2022).

In both Part 1 and Part 2 of the interview, open-ended questions were used to encourage a conversational approach, allowing participants to share their experiences with using the IG learning design to create their weekly IG and reflect on their learning related to threshold concepts (King, Horrocks & Brooks, 2018). Using follow-up paraphrasing and clarifying questions to gain meaning without leading participants was important for understanding participants' narratives and experiences (Dibley et al, 2020). This interviewing style was familiar to me; it is how I gathered information as a clinical occupational therapist. Therefore, I felt comfortable in the conversation, which hopefully helped establish rapport, facilitate discussion, and generate data.

In part 2 of the interview, participants were asked about their reflections on their learning experiences related to the placement learning outcomes and associated OT threshold concepts.

4.11.4 Data collection 4 - Individual conversations with occupational therapy educator

Individual conversations took place between the researcher and the two occupational therapy educators who provided weekly supervision to students. These conversations followed an iterative, conversational style, starting with participants discussing the supervision process in a 'think-aloud' process about how they experienced using the Role-Emerging Placement IG learning portfolio and students' application of their learning to threshold concepts (Rankine & Thompson, 2015). Again, this interview approach is discussed within the hermeneutic phenomenological literature and allows individual lived experiences to be explored (Lauterbach, 2018)

4.12 Data Analysis

Data analysis adopted a two-stage approach described by Morgan (2021) to begin with individual case study analysis of data items 1-4, followed by stage two, where analysis of themes across the case studies was conducted to identify the overarching themes (Dibley et al., 2020; Morgan, 2021).

In stage one of data analysis, data items for each participant were reviewed in a set order, with coding and themes identified for each data item and then across the data items in an iterative, cyclical process, described in hermeneutic phenomenological data analysis research (Dibley et al, 2020; Finlay, 2011). The process is described further below.

In the second analysis stage, Morgan's framework (2021), referred to as the 'modified phenomenological hermeneutical method of data analysis for multiple contexts', was adopted to facilitate cross-case study data analysis.

4.12.1 Data Analysis – Stage 1

Adopting a hermeneutic stance to analysis meant that I (the researcher) brought an openness to the interpretative process, aiming to think, question and reflect, with the goal.

1. To interpret the students' experiences of the Role-Emerging IG learning design via the Role-Emerging Placement IG learning portfolio in their contexts (Dibley et al., 2020).
2. To interpret students' learning experiences relating to their reflections on learning related to threshold concepts in role-emerging placements.

Data analysis employed a hermeneutic phenomenological approach informed by inquiry graphics visual analysis, as described by Lackovic (2020) and Dibley et al. (2020).

The process of analysis included -

1. Review the first participant's interview transcript (Data item 3), complete some initial coding, and then write an interpretative summary to summarise the participant's story and the critical points of the interview. An overview of initial themes was also created at this stage of analysis.
2. A similar process took place for all other data items associated with Participant 1, starting with weekly IG (data item 1), then the weekly supervision transcripts (data item 2) and finally, the conversations with occupational therapy placement educators (data item 4).
3. Once all data items for Participant 1 had had initial coding, an interpretative summary and initial themes identified, I took time to '*dwell*' on all the data items. '*Dwell*' is a term associated with Heidegger's hermeneutic phenomenology, where the researcher is thinking, asking questions of meanings that are identified and creating interpretations to uncover meaning and understanding of the phenomena experienced by the participant about the research questions (Dibley et al, 2020)
4. Analysis continues in a hermeneutic circle, where overarching themes emerge across the four data items, and then I return to the data to recheck and reread the items. Here, I examined the data and identified the overarching themes for the participants.
5. The researcher cross-checked the initial analysis and theme creation process with their supervisor for Participant 1 to maintain authenticity and ensure themes and findings were grounded in the data.
6. Steps 1 – 4 were repeated for each subsequent participant: 2, 3, 4, 5 & 6.

(Dibley et al, 2020)

4.12.2 Data Analysis 2 – Stage 2

In stage two of the data analysis, themes from each participant were reviewed, with the researcher dwelling in the data to explore themes across the participants. The researcher examined the parts (individual participant themes) and the whole (cross-cutting themes across the participants) to create a fusion of themes that represented all the cases (Morgan, 2021). Gadamer (2003) referred to a 'fusion of horizons' to synthesise meanings between participants and the researcher.

Morgan (2021) developed a modified phenomenological hermeneutical method for analysing data from multiple participants; Figure 9 illustrates the adapted analysis process I employed at this stage.

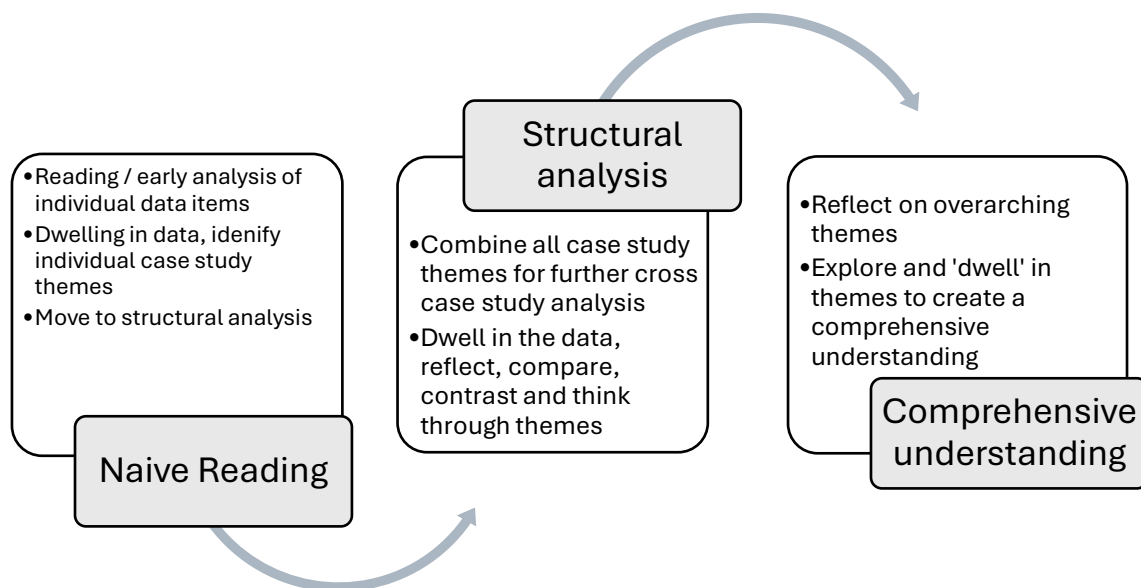


Figure 9 Adapted Analysis of Stage 2

4.12.13 Themes and Subthemes identified after data analysis 1 & 2

The themes and subthemes identified across the six case studies addressing the research questions are detailed in Tables 3 & 4 below. These will be discussed further in Chapter 5: Case Study findings.

Research Questions	Themes & subthemes
<p>Research Question 1</p> <p>What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their reflections on learning and knowledge development related to threshold concepts on a role-emerging practice placement?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 1. What are the students' stories around the use of weekly IG as a data collection tool to inform their learning and knowledge development around occupational therapy threshold concepts? 2. How does the use of artefacts/ graphics support students' reflections and discussions about threshold concepts during role-emerging placement learning? 	<p>Theme 1</p> <p>Use of Inquiry Graphics learning design increased focus on placement learning outcomes & associated threshold concepts connect (RQ1)</p> <p>Subtheme 1.1</p> <p>Personalised student learning was enhanced by choosing or creating the intended (imagined) graphic to represent their learning journey (RQ1 / SRQ 1)</p> <p>Theme 2</p> <p>Inquiry graphics enhanced student reflection & collaboration, and an appreciation of learning as multimodal (RQ1 / SRQ 1)</p> <p>Subtheme 2.1</p> <p>Images/graphics mainly act as metaphors of learning, feelings and/or confidence, which highlights this aspect of learning experiences (SRQ 1 & SRQ 3)</p>

Table 3 - Research Question 1 - Themes and Subthemes

Research Questions	Themes & subthemes
<p>Research Question 2</p> <p>What are the experiences of reflecting on learning related to threshold concepts, through inquiry graphics on role-emerging practice placement for occupational therapy students?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 1. What are the narratives around these learning experiences? 2. What learning experiences on role-emerging practice placements do occupational therapy students find troublesome? 3. What learning experiences on role-emerging practice placements do occupational therapy students find transformative? 	<p>Theme 3</p> <p>Professional identity and occupational therapy practice challenges and opportunities (RQ 2/ SRQ 1,2 &3)</p> <p>Theme 4</p> <p>The method supported the application of theory and 'doing' occupational therapy in practice, which in turn, built students' confidence and mediates transformational learning (RQ 2 / SRQ 1, 2 & 3)</p>

Table 4 - Research Question 2 - Themes

4.13 Ethical considerations

Ethical approval was gained from Lancaster University and the university where the research was conducted before the research began. Ethical considerations related to the protection of the participants included the student participants, their occupational therapy placement educators, the organisation where the study was conducted, their service users, and the researcher (Clark et al, 2021). All potential participants were given a Participant Information

sheet, which provided details of the study, a description of their participation, the possible risks, withdrawal information and measures in place to protect their identity (see Appendix 2). All potential participants were informed that their participation was voluntary and that they were under no obligation to participate in the research (Gaudet & Robert, 2018). If students or occupational therapy placement educators chose not to participate in the study, the participant information sheet clarified that participation would have no impact on their placements, occupational therapy programme, or employment (for occupational therapy educators).

Informed consent was obtained from participants at the beginning of the research, as evidenced by their return of the consent form (see Appendix 3). Consent was rechecked at the interview.

4.13.1 Ethics related to role-emerging placement organisations

Consent was obtained for the data collection at the role-emerging placement organisation for all involved organisations. An organisational information sheet was sent to organisations, and they were encouraged to ask any questions before consenting to students attending their organisation participating in placement activities that involved collecting or creating graphics or photos as part of their learning (see Appendix 4). If a role-emerging placement organisation agreed to allow students to collect or create graphics or photos during placement, they were required to sign a consent form and ensure that student participants were aware of the organisation's policies and procedures regarding the collection, creation, and storage of graphics or photos (see Appendix 5) (Gaudet & Robert, 2018).

4.13.2 Ethics related to the collection of graphics or photos on role-emerging practice placements

The collection or creation of graphics or photos by occupational therapy students in role-emerging placement settings posed potential risks that needed to be considered from the outset of the research design. However, students and occupational therapy placement educators already follow the Professional standards for occupational therapy practice, conduct and ethics (RCOT, 2021) and Standards of Conduct, Performance and Ethics related to their registration with the Health and Care Professions (HCPC, 2016; 2024) and practice as an occupational therapy student or occupational therapist. Therefore, the definition of what constitutes acceptable photographs or created graphics was already understood. Still, as part of the preparation for the placement session, participants were involved in discussions about acceptable and unacceptable graphics and photos, with particular emphasis on collecting or creating non-identifying graphics or photos and on protecting the identity of service users and organisations (Clarke et al., 2021; Rose, 2016).

4.14 Confidentiality

Maintaining participants', organisations', and service users' confidentiality and protecting their identity were essential to the ethical discussions and research design (Clarke et al., 2021; Rose, 2016). All data was redacted and cleansed to remove any identifying information that the participant might not have noticed. An open culture of discussion with participants via a Microsoft Teams chat allowed them to verify that the information was appropriate and within the scope of the research.

4.15 Trustworthiness

Trustworthiness is crucial in maintaining the quality of qualitative research. The discussion earlier in this chapter, relating to philosophy, theoretical considerations, methodology, and methods, aims to enhance the trustworthiness of this research (Dibley et al, 2020). Priya (2021) describes four components of trustworthiness, initially discussed by Lincoln and Guba in 1985, which are credibility, transferability, dependability, and conformity. I will address how these have been achieved in this research.

Credibility refers to “how congruent are the findings with reality?” (Stahl & King, 2020, p. 26). To enhance the credibility of my research, I employed multiple data collection methods and analysis techniques to achieve triangulation. Another approach could have been to include member checking, allowing participants to review their transcripts and data for accuracy. While this was considered, it was dismissed due to the researcher's 'insider' position and the timing of the research (Etheringham, 2004).

The second component of trustworthiness, transferability, can be challenging to achieve in qualitative research because it often relies on individual research designs, which can make them difficult to replicate. To address this, detailed descriptions with contextual information can help make research more relatable to other situations and contexts and therefore more applicable (Stahl & King, 2020). I have sought to include detailed descriptions and contextual details throughout this chapter, while protecting participants' identities and confidentiality, to achieve transferability.

The third component of trustworthiness is dependability. This can be achieved by building trust through the description of transparent processes, the use of supervision, and discussion with peers to sense check and monitor the researcher's influence. As discussed earlier in the chapter, regular reflection and the researcher's reflexive approach are crucial to establishing trust in the findings (Dibley et al, 2020; Etheringham, 2004). These activities were conducted during my research to ensure the dependability and trustworthiness of the findings.

Finally, conformity or confirmability is the fourth component of trustworthiness. This is trickier to articulate and overlaps with the other three elements. Additionally, it is more challenging to achieve in qualitative research due to its proximity to objectivity and a positivist stance (Stahl & Kings, 2020). However, following data analysis protocols and procedures and involving my supervisor in checking the codes and themes help demonstrate conformity.

4.16 Chapter Summary

This chapter has discussed and rationalised the philosophy and theory contributing to the research design and methods used to address the research aims. I have also explained how I applied theory in practice. The following chapter, Chapter 5, presents my findings.

Chapter 5: Case Study Findings



5.1 Introduction to the chapter

This chapter presents the findings from the six case studies. All six occupational therapy students were on their third practice placement, Practice Placement 3 (PP3). They had each completed a 5-week placement in the first year of their occupational therapy programme, followed by an 8-week placement at level 5. For the four BSc students, this level 5 placement occurred during the second year of their programme, and for the two MSc students, it was near the end of their first year of the MSc programme. All the students' previous placements had been in traditional health and social care settings where occupational therapists were working, and an established occupational therapy service was in place. In traditional placements, students have regular contact with their OT educator and daily interaction with occupational therapists.

All practice placements have learning outcomes derived from the Learning and Development Standards for pre-registration education (RCOT, 2019) and the HCPC Standards of Proficiency for Occupational Therapists (HCPC, 2023), which students are expected to work towards and attain to achieve newly qualified status on completion of their occupational therapy programme. Table 5 below lists the practice placement learning outcomes for PP3.

Practice Placement Learning Outcomes	
1	Critically relate specific Occupational Therapy interventions to the best available practice.
2	Take responsibility, with supervision, for agreed elements of a client case load; appropriate to the practice placement setting.
3	Critically reflect upon your own professional role and that of other professional groups within health and social care settings with the aim of evaluating the leadership and management of multidisciplinary care and service delivery. (IPL Learning Outcome)
4	Critically evaluate the implementation of legislation, policies and guidelines in the practice placement setting.
5	Analyse the importance of effective team working and communication relevant to the practice placement context.
6	Demonstrate continuing professional development by reflecting on the learning opportunities provided.

Table 3 Practice Placement 3 Learning Outcomes

As discussed in Chapter 4, these learning outcomes align with occupational therapy threshold concepts already identified in the occupational therapy research literature. Please refer to Table 2 in Chapter 4, which illustrates the alignment between placement learning outcomes and threshold concepts. Previously identified threshold concepts related to role-emerging placements are;

1. Applying occupational therapy theory to practice
2. Client-centred practice
3. Occupation
4. Practicing in the real world
5. The occupational therapy role (professional identity)

(Kaelin & Dancza, 2019; Nicola-Richmond et al, 2018; Tanner, 2011)

Additional OT threshold concepts, identified in other OT research,

6. Evidence-based practice
7. Clinical reasoning
8. Discipline-specific skills & knowledge
9. Reflective practice
10. Holistic approach

should also be stated, as they are implied or stated in the Practice Placement Learning outcomes (Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond et al, 2018; Tanner, 2011).

Therefore, all ten threshold concepts were taken into consideration during the analysis. All participants were familiar with Padlet from other modules in their programme. None of the participants had any experience creating inquiry graphics or using graphics or imagery as part of the reflection and learning process.

5.1.2 Research Questions

The multiple data items were analysed and interpreted to answer the research questions listed below.

Research Question 1

What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their reflections on learning and knowledge development related to threshold concepts on a role-emerging practice placement?

Sub Questions

1. What are the students' stories around the use of weekly IG as a data collection tool to inform their learning and knowledge development around occupational therapy threshold concepts?
2. How does the use of artefacts /graphics support students' reflections and discussions about threshold concepts during role-emerging practice placement learning?

Research Question 2

What are the experiences of reflecting on learning related to threshold concepts, through inquiry graphics, on role-emerging practice placement for occupational therapy students?

Sub Questions

1. What are the narratives around these learning experiences?
2. What learning experiences on role-emerging practice placements do occupational therapy students find troublesome?
3. What learning experiences on role-emerging practice placements do occupational therapy students find transformative?

5.2 Background context and key characteristics of case studies

The key characteristics of the case studies were presented in Table 2 in Chapter 4. The students were on REP in pairs. Bella (Case Study 1) and Jess (Case Study 2) were on placement in a school. Each week, they collected or created their own image and used it to create their Inquiry Graphic (IG) on their individual Padlet. They met together weekly with their OT educator for supervision. They began their supervision session by discussing their individual IG, with each student taking turns presenting.

Laura (Case Study 3) and Paula (Case Study 4) were on placement in a higher education setting. This was a well-established role-emerging placement with an experienced OT educator. Weekly supervision for Laura and Paula took place online via Microsoft Teams

with the OT educator, using a 'group' supervision model similar to Bella and Jess. Laura and Paula collected one weekly graphic between them to develop their individual inquiry graphic on the Padlet. Each IG represented their learning related to the placement learning outcomes. Supervision took a similar format each week, with the two students sending one graphic to the OT educator before the supervision. Then, during the first part of the supervision session, the students discussed their individually created inquiry graphics, which included narratives responding to the eight reflective questions (see Appendix 1) on the Padlet.

Supervision discussion developed from the initial response and prompted further exploration of related topics. While this method of collecting one graphic between two students was a variation, it yielded some interesting findings that will be explored as the themes are discussed. Another variance is that this pair of students received 6 weeks of supervision from the OT educator participating in the study and completed six inquiry graphics. When the OT educator was on leave, alternative supervision was provided, but no inquiry graphics were collected during those two weeks.

Helen (Case Study 5) and Dawn (Case Study 6) were on placement in a care farm. Each week, they collected or created their own image and used it to create their Inquiry Graphic on their individual Padlet. They met individually on Microsoft Teams with their OT educator for supervision weekly. They were the only pair with individual supervision rather than group supervision; this variance arose from their placement timetable, which meant they spent some days together on the farm and other days apart.

5.3 Overarching themes identified across the case studies

There were two stages to data analysis. In the first stage, the three data items for each participant were analysed; these items were;

- (1) Inquiry graphics on each student's Padlet
- (2) Semi-structured interview with the researcher
- (3) Supervision conversations between students and the OT educator

From this first analysis stage, adopting Braun and Clarke's reflexive thematic analysis approach, themes and subthemes were identified for each case study (Braun & Clarke, 2022). The graphics collected each week as part of the inquiry graphic were also analysed across the weeks for each participant, using an adapted version of the IG analysis framework created by Natasa Lackovic (Lackovic, 2020).

The second analysis stage, described in the methods in Chapter 4, involved cross-case analysis, where overarching themes and subthemes were identified from all the data items. This second analysis stage identified overarching themes and subthemes across all six case studies, with students' experiences related to the themes and subthemes described according to their backgrounds and contexts. See Tables 3 & 4 below for the overarching themes and subthemes for each research question and sub-questions.

Research Questions	Themes & subthemes
<p>Research Question 1</p> <p>What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their reflections on learning and knowledge development related to threshold concepts on a role-emerging practice placement?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 1. What are the students' stories around the use of weekly IG as a data collection tool to inform their learning and knowledge development around occupational therapy threshold concepts? 2. How does the use of artefacts/ graphics support students' reflections and discussions about threshold concepts during role-emerging placement learning? 	<p>Theme 1</p> <p>Use of Inquiry Graphics learning design increased focus on placement learning outcomes & associated threshold concepts connect (RQ1)</p> <p>Subtheme 1.1</p> <p>Personalised student learning was enhanced by choosing or creating the intended (imagined) graphic to represent their learning journey (RQ1 / SRQ 1)</p> <p>Theme 2</p> <p>Inquiry graphics enhanced student reflection & collaboration, and an appreciation of learning as multimodal (RQ1 / SRQ 1)</p> <p>Subtheme 2.1</p> <p>Images/graphics mainly act as metaphors of learning, feelings and/or confidence, which highlights this aspect of learning experiences (SRQ 1 & SRQ 3)</p>

Table 4 Research Question 1, Themes and subthemes

Research Questions	Themes & subthemes
<p>Research Question 2</p> <p>What are the experiences of reflecting on learning related to threshold concepts, through inquiry graphics on role-emerging practice placement for occupational therapy students?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 1. What are the narratives around these learning experiences? 2. What learning experiences on role-emerging practice placements do occupational therapy students find troublesome? 3. What learning experiences on role-emerging practice placements do occupational therapy students find transformative? 	<p>Theme 3</p> <p>Professional identity and occupational therapy practice challenges and opportunities (RQ 2/ SRQ 1,2 &3)</p> <p>Theme 4</p> <p>The method supported the application of theory and 'doing' occupational therapy in practice, which in turn, built students' confidence and mediates transformational learning (RQ 2 / SRQ 1, 2 & 3)</p>

Table 5 Research Question 2 – Themes

The findings for each case study, using the overarching themes and subthemes, will now be presented.

5.4 Case Study 1 – Bella

Theme 1 – Developing weekly Inquiry Graphics (IG) increased focus on key disciplinary learning.

Identifying, attending to, and connecting important disciplinary learning about key concepts is fundamental to professional practice learning on placement. This theme describes the students' experiences of using the IG learning design to focus on the placement learning outcomes and associated threshold concepts.

Bella described herself as a 'visual learner' and valued being able to link a range of learning to one image as part of her IG creation.

'... how much learning you can link to one picture.....and cover so many different perspectives....'

She also described how creating the Inquiry Graphic (IG) by choosing a graphic and then answering the eight questions in the narrative helped to link the learning outcomes and keep her focus.

' I think it linked with my learning with using the questions [8 reflective questions used to develop the narrative for the IG]...as initially I would have never linked them to the learning outcomes, so it actually made me think....I need to meet the learning outcomes...so I thought it was good that way it was nearly keeping you on track.....They tend to overlap [learning outcomes]...and you were [I was] maybe covering maybe three learning outcomes in one image'.

Additionally, in week 2, Bella's IG illustrated the overlapping nature of the learning outcomes and associated threshold concepts when she reflected on learning in her IG about occupational therapy's professional identity, occupation-centered practice, teamwork, and communication. She chose a graphic (see Figure 10 below) of an occupational therapist with children playing with toys. This IG represented Bella's learning about how occupational therapists work with children through the occupation of play. This image-concept narrative demonstrates the key disciplinary learning associated with threshold concepts that is taking place and suggests that Bella is thinking critically.

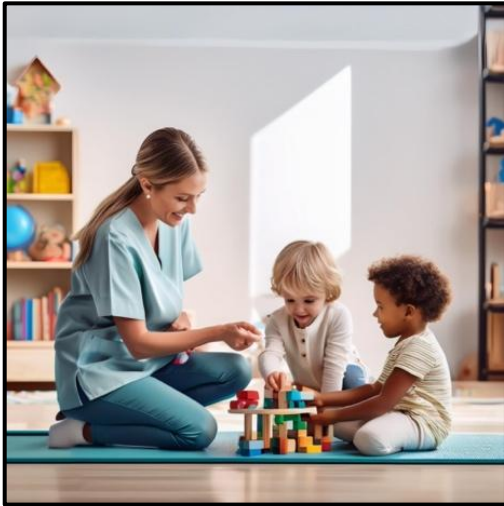


Figure 10 - AI-generated image to replicate a similar image Bella chose from the internet for IG in week 2

Subtheme 1.1 – Personalised student learning was enhanced

Choosing or creating the intended (imagined) graphic personalises the students' learning record each week, allowing them to develop IGs on their Padlet that represent their learning journey. From the beginning, Bella was looking for graphics and saving them in case they might help develop an Inquiry Graphic (IG). She valued the process of choosing and creating graphics to represent her learning,

‘ I loved seeing how I progressed because the first week was very like whoa, this is mind blowing....I have a long journey here, but it soon creeps up and then you can see how far you have come.....I valued it [creating or choosing a graphic for her IG each week]

Immersing herself in choosing or creating a graphic to represent her learning visually promoted her ownership of the learning. It strengthened the connection between the learning and Bellas's placement experiences each week. Being able to lead her learning by personalising her 'journey' adds richness and depth, making Bella an equal partner in her learning.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

Each week, Bella's supervision with the OT educator began with a collaborative discussion about the IG she had created that week, what it represented, which placement learning outcomes and associated threshold concepts it linked to, and any other aspects related to her learning and experiences on placement. In Week 3, Bella chose an image of a sapling with a hand and water droplets as her graphic on her IG (see Figure 11).



Figure 11 - AI-generated image to replicate a similar image Bella had included for week 3

Within the written text of her IG, the recorded supervision with her OT educator, and the interview with the researcher, Bella linked this image to three learning outcomes and the associated threshold concepts. She reflected on the role that other people, such as educational professionals in her placement setting, fellow students, and university academics, played in her learning. Bella felt the sapling represented her as a student, with the roots of the sapling representing

‘the knowledge that I already have from university’ [and the hand] ‘are people nurturing me’ [in the placement setting and] ‘the water was the knowledge that they were giving me.....and now I have some sunlight.....there’s more room for potential.....to blossom into a flower [student laughs].

The detailed reflective discussion Bella had with her educator and me as a researcher suggests an appreciation that learning is collaborative and multidimensional, created and embodied through various modalities. Also, the depth of self-reflection displayed by Bella implies that she is using reflection in an active way, which will be supportive towards becoming a ‘reflective practitioner’

Subtheme 2.1 – Images /graphics mainly act as metaphors

The graphics chosen for the case studies primarily represent metaphors of learning, feelings, and confidence, highlighting these aspects of learning. For Bella, this can be illustrated by her graphic choice for her IG in week 1 (see Figure 12). Bella described why she had chosen this image during her interview,

' I remember picking this one to make sure that there is no facial expression.....I didn't want a face to give away any clues.....happy, sad, worried or anything..... so nobody knew how I was feeling'.



Figure 12 - AI-generated image to replicate the graphic for Bella week 1

Bella's comments above, during the early part of her interview and in her IG narrative for week 1, describe how she found the first week '*overwhelming*' as she was unsure of what was expected of her in this role-emerging setting. Bella felt this image also represented

'all the busy thoughts going on in my head'

She linked her IG to the placement learning outcome about taking responsibility with supervision for elements of a client caseload, feeling that this was challenging due to the REP setting and her limited experience working with children. During my conversation with the OT educator, she thought that this IG helped to focus the supervision and discuss feelings related to learning early in the placement. This expression of the feelings associated with learning implies that feelings are an essential aspect of the learning process, particularly at this early stage in the placement, which is an unfamiliar learning environment with people unfamiliar with OT and Bella.

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

Bella described how she initially missed having an Occupational therapist on the placement site to observe or model her practice, such as carrying out assessments and interventions.

This contrasted with previous placements in traditional OT settings, where she had daily contact with her OT educator using an 'apprentice' supervision model. This new way of learning meant that Bella and the other student (Jess) spent more time preparing, reading and creating their OT approach to promote their professional role and potential contributions to the educational professionals in the setting.

'my skills developed greatly because we had to advocate for the OT profession from the beginning [of the placement]'

This collaborative model of peer working, where Bella worked with her student peers to promote and advocate for OT, mediated rich learning opportunities that appeared to contribute to the development of her sense of self and professional identity.

Theme 4 – The method supported transformational learning

Each week, Bella collected or created an image or graphic to represent her learning. She added the graphic to her IG Padlet and answered eight reflective questions to develop her IG. This process provided a framework for Bella to structure her thinking, reflections, and emotions and record her learning. The application of theory and 'doing' occupational therapy in practice, in turn, built Bella's confidence and transitional learning.

Bella described how she had progressed during her placement, from the first week, when she did not want to show her face on her graphic so as not to show her feelings, to the end of the placement, when she felt that doing a role-emerging placement had given her the confidence to practice at Band 5.

'I feel going forward into a Band 5 OT post [newly qualified entry post], I'll be able to find my feet faster..... I have that confidence now to use my core skills [OT skills] to collaborate with others, teamworking and promoting the OT profession cuz [because] I had to advocate for us [Occupational therapy profession] ...'

Transformation is implied in the way Bella reflects on the affective, cognitive, and professional practice skills she has developed during the placement. It is also implied in the image/graphic that Bella created for her final week (see Figure 13), which features smiling faces on the children and an image of her with a staircase and a person standing in a celebratory stance. With connections to threshold concepts, the IG learning design appears to support this transformational learning.

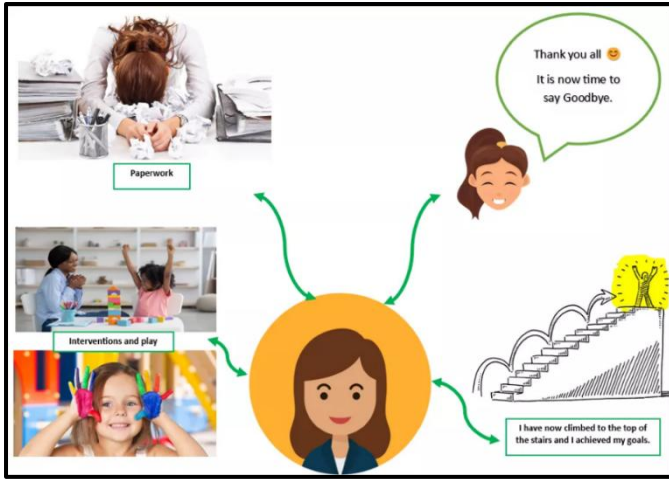


Figure 13 – Graphic created by Bella for week 8

5.5 Case Study 2 – Jess

Theme 1 – Developing weekly Inquiry Graphics (IG) increased focus on key disciplinary learning.

Jess was keen to go on the role-emerging placement and use the IG learning design. Initially, she seemed to struggle with the dual nature of collecting a graphic and answering the eight questions in the IG. However, her view changed quickly once she had chosen her first 'picture' (see Figure 14). She could see the relationship between the graphic and the reflective questions, as well as the connection between her placement experiences and the learning outcomes. She also appeared to value the multimodal approach, using a combination of graphic and textual elements to reflect on learning.

'Being honest at first I thought, ohh wow, this is quite a few questions [8x IG questions] and how on earth am I going to find a picture to do with week 1....but once I found a picture [image from Google] it became quite exciting andfound a picture quite easy to relate to and the questions [IG questions].....helped structure the reflections.....but also helped me to identify what learning outcomes I was meeting or what learning outcomes I was needing to improve on or work a little bit more towards....so they helped to plan ahead for the following week.'

Connecting placement experiences to disciplinary learning, as represented by learning outcomes and associated threshold concepts, can be challenging in REP without onsite occupational therapists. Using the IG learning design appears to have facilitated connections and promoted relational and critical thinking in Jess, thereby increasing her focus on the learning outcomes from the beginning of her placement.

Subtheme 1.1 – Personalised student learning was enhanced

Weeks 1 and 7 include graphic choices that represent Jess's learning journey. In week 1, Jess chose an image of a head with numerous questions and ideas shooting from it (see Figure 14), which represents how she was feeling about her learning at this stage.



Figure 14 - AI-generated image to replicate a similar image Jess had included for week 1

‘my first week the picture of the head kind of being full of ideas and with primary colours.....I was feeling that I was in a [type of school] that I had lots of ideas, but I also didn’t really understand what we were to do.....’.

In contrast, in week 7, Jess chose a graphic of a woman observing a young child at play (see Figure 15). She described how much her learning had progressed at this stage,

‘I’m looking at that picture from week 7, like my feelings around that were my confidence and feeling that I could observe a child and I knew what I was looking for...like carrying out the intervention [occupational therapy intervention] independently..’



Figure 15 - AI-generated image to replicate a similar image Jess had included for week 7

Choosing graphics each week to represent her learning journey meant it was personalised and multi-modal in embodying Jess's learning, progress, and related feelings.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

Jess and her fellow OT student, Bella (Case Study 1), started their weekly supervision session by sharing their IG updates. Jess felt that starting with the IG acted as

'an icebreaker because it starts the discussion [in supervision session] and as well....with how it is laid out [IG layout of learning outcomes, graphic and 8 questions].....I think our supervision benefited greatly....because we were never stuck for something to talk about....always an area to reflect on.....but also it makes me realise how useful having an image in a discussion is....'

Using the IG as part of supervision provided a lens through which to explore, critically reflect and develop learning. Jess values the IG's role and recognises the contribution of this multimodal approach in supporting supervision, shared reflection, and peer learning.

Subtheme 2.1 – Images /graphics mainly act as metaphors

Already in these case study findings, the use of metaphor is apparent, with Jess using a head exploding with ideas and questions in week 1 (figure 14) to represent her feelings related to her learning and lack of confidence in what she was expected to do as an occupational therapy student. Indeed, Jess felt that each week, the images and graphics she chose represented her feelings.

'I could go back over the eight weeks of my images and I could probably tell you exactly how I was feeling at that point [each week the graphic relates to] because of the images.... it's definitely a visual prompt.....and definitely helped...'

In week 7 (see Figure 15), Jess described how graphic features, such as the sun shining through the window, positively reflected her progress, particularly her confidence in working with children, utilising her occupational therapy knowledge and professional practice skills.

'I also identified [singled out] behind the lady in the picture, the light that was coming through.....was like a positive reflection.....a positive light that was coming through on....the OT profession.'

Jess's developing professional practice skills and confidence at this stage in her REP represent not only her feelings but also her developing professional identity.

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

Jess described her REP experience as a positive 'challenge'

'best challenge throughout the course so far.'

This implies that she enjoyed the challenge and found it beneficial for her professional development and her desire to become an occupational therapist. She explained,

'I felt I had to demonstrate a professional role.....explain our role [as an occupational therapy student].....and develop our skills around documentation, risk assessments and intervention planning and working with....an MDT [multi-disciplinary team referring to the school teaching and support team].....some of them [MDT] had not had any involvement from an OT before.....so it just really helped me develop my skills in countless areas.'

Jess acknowledges the challenges of working in this school setting with a staff team (MDT) that has not previously worked with occupational therapists, which suggests they may have limited understanding of the role, professional identity, and scope of practice of an occupational therapist. Jess's response indicates a resilient and confident approach to this challenge. She recognised the staff team's lack of knowledge and understanding, as well as the limited support for assessment, intervention planning, and documentation. She used it as an opportunity to develop these skills and knowledge. This placement setting challenge appears to catalyse Jess's learning by encouraging her to engage in various skill advancements, which are important for her professional identity development and progression with threshold concepts such as OT role, practicing in the real world and occupation.

Theme 4 – The method supported transformational learning

In Jess's IG Padlet, her semi-structured interview, and the conversation I had with Jess's OT educator, there were multiple examples where Jess considered the placement learning outcomes and associated threshold concepts and used theory to support her OT professional practice. This, in turn, built her confidence and suggested transformational learning. Jess described how she felt the use of the IG method helped support her learning across the placement.

'It was a really good way of sort of documenting what I feel looks now to be like a story of my learning..... and I think it [using the IG learning design] enabled me tounderstand more what learning outcomes I was expected to meet.....with having the learning outcomes visible on the actual Padlet.....when I was documenting my own reflection, I could then personally link to the learning outcomes.....sometimes I hadn't realised that what I was doing in practice met a learning outcome.....Having the Padlet to hand and having the opportunity to reflect using the images, I could link and relate to more that I actually believed [relate to more learning outcomes & associated threshold concepts than realised]

The IG method used in this research appears to have fostered in Jess an increased curiosity, leading to a critical exploration of her placement experiences concerning key disciplinary learning outcomes. Jess's description above suggests a structural shift in how she perceives and understands her occupational therapy practice in this role-emerging placement, implying that transformation has occurred. Jess appears to have transitioned from the start of her placement through a liminal learning space, emerging as a new version of herself.

5.6 Case Study 3 – Laura

Theme 1 – Developing weekly Inquiry Graphics (IG) increased focus on key disciplinary learning.

Laura was initially hesitant about using the IG learning design. She described this hesitancy as related to her lack of understanding of the activity's purpose and potential value:

'I didn't really get it.'

Laura suggested that this hesitancy and initial 'struggle' were due to the contrast in how she usually thinks and learns. This meant she struggled to collect or create an image or graphic in the first week for her IG. This new way of reflecting and learning did not initially align with Laura's habit-driven approach to thinking and learning. However, this changed during the placement as Laura embraced the IG learning design,

'I think towards the end [of the placement] I was using information from it [IG personal Padlet] to do my own reflections, which also go into my assignments.'

During week 3, Laura and her student peer (Paula, Case Study 3) ran a mental health and wellbeing group; Laura discussed how her IG for that week explored her professional learning and progress related to leading and running groups and how she used her therapeutic use of self.

'I think the outstanding lesson [from running a group] for me would be use of self [therapeutic use of self]'

Laura described how she had worked with the group and how her leadership had contributed to its engagement and collaboration. During the semi-structured interview, she felt that exploring the image (see Figure 16 below) triggered memories of her learning and development related to these placement experiences. Creating an IG as part of linking placement learning experiences to threshold concepts afforded Laura a new way of exploring and focusing on key disciplinary learning, promoting critical thinking.

Subtheme 1.1 – Personalised student learning was enhanced

Laura was able to personalise the record of her learning journey by choosing the graphic that best represented her learning that week alongside her OT student peer (Paula, Case Study 4). As discussed in Theme 1, planning, delivering, and evaluating a mental health and well-being group supported learning related to threshold concepts, particularly practising in the real world, a person-centred approach and the occupational therapy role. Laura and her

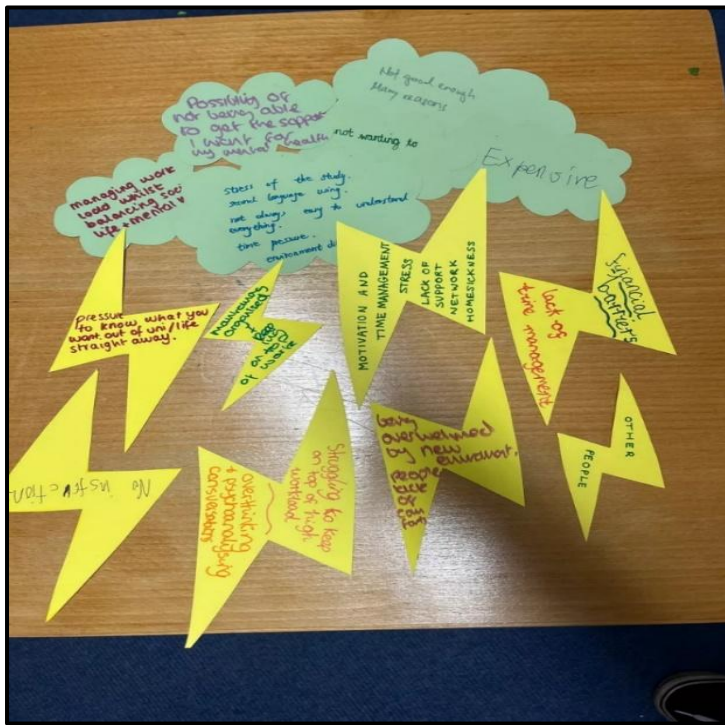


Figure 17 - Laura's graphic for week 3- a photograph of a cloud and thunderbolts with reflective words

These photographs represent the shared learning experience for Laura and her OT student peer, Paula. They represent learning that is personal to their placement experiences, which appears transformational for both learners, leading to a new way of thinking and understanding about group work, practising in the real world and a person-centred approach. Whilst the students chose a single graphic each week to represent their shared learning, they created their own narrative to reflect on their knowledge related to placement learning outcomes and associated threshold concepts, producing their individual IG on their Padlet. Within Laura's narrative, she discussed group work theory and explored the challenges and benefits of applying theory to practice, suggesting that critical thinking is taking place.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

Working collaboratively with a student peer is common on REP. Laura recognised the value of working with her peer, Paula, and the contribution working together had on her learning.

'I really, really enjoyed working in a partnership [with the other student]the learning you do from the different perspectives and everything she has shared with me from her previous experiences.....it was brilliant.....really, really enriching.'

Laura identified that paired peer working was beneficial and enjoyable, implying compatibility between the students in this role-emerging placement for Laura. Students shared their previous learning and experiences to reflect on and support the development of

their occupational therapy practice knowledge, skills, and behaviour on this placement. This positive interdependence suggests that Laura is committed to her success and that of her student peer.

From Laura's perspective, using the inquiry graphic as part of supervision enhanced the students' collaboration and enriched their relationships with their educators. This view also aligned with Paula's perspective and was further endorsed during my conversation with Laura and Paula's educator, suggesting that the focus on an IG increases collaboration.

‘..it definitely helped to facilitate a deeper connection with our onsite educator [person acting as onsite supervisor].....because I think he could understand what our thinking behind doing something was, better...’

Subtheme 2.1 – Images /graphics mainly act as metaphors

The image chosen for week 2 is a photograph of the student's handwritten timetable (see Figure 18). In Laura's IG, she described what the picture represented to her. She explained that the

‘messiness and crossing out – supports the idea of our learning and progression /improvement in management.....You can also see our organisation progress as we addtime, location and type of appointment. You can also see our confidence and experience in the role grow as the days get busier and busier.....’

The analogies of the ‘*crossing out*’ and ‘*messiness*’ representing learning and progression, and the increasing number of appointments and business representing increasing confidence and experience, are personal metaphors for Laura. These image-concept narratives chart her learning, feelings, and building confidence at the end of week 2 (see Figure 18).

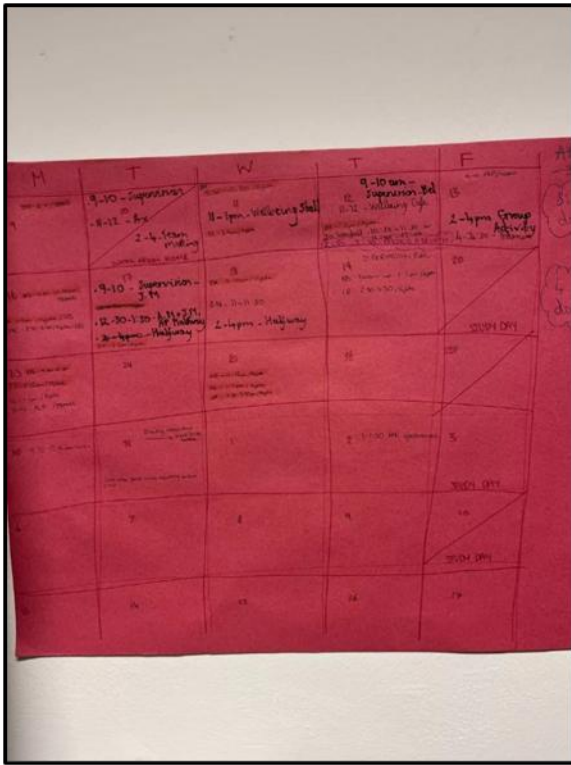


Figure 18 – Laura's graphic for week 2 – a photograph of a handwritten timetable

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

Laura described both positive and negative placement learning experiences, which challenged and developed her professional identity and confidence. Laura discussed how

‘Challenges with communication and misunderstanding of roles by other members of the H & W team.....when some of things we do might overlap’.

were managed through increased collaboration and discussions with the wider team to promote understanding of the OT professional role and potential scope of practice. Laura also described how she applied the OBCD (Occupation-Based Community Development) framework, which she said she had not previously understood when it was introduced as part of theory learning in a second-year module.

‘I really had no idea how to apply it [OBCD framework] before we went.....but as we went through the process [applying the OBCD framework to the groups they were working with] it became so obvious [how to apply, use and evaluate practice with OBCD framework]

Theme 4 – The method supported transformational learning

Using the IG framework to explore the students' thinking, reflecting and learning associated with their placement experiences during supervision together appeared to allay Laura's apprehension and build confidence.

'...the learning that we had to do was very individual and independent. So you've always got that kind of worry that what you're doing isn't right or its not how you should be doing it. And to see that you are doing something a certain way or interpreting something a certain way and then to come together and see whether the other people have thought the same thing or if it is wrong, what have they thought and how could you change it or not? Not even wrong, but just how else could you approach the situation.....it was really excitingto be able to share these perspectives so deeply.....[including] this is the learning objective and this is the theory and everything behind it'.

Laura describes the value of the IG method in reflecting on 'doing' occupational therapy and exploring experiences. Later in her semi-structured interview, Laura went on to discuss how the IG method prompted her to reflect on placement experiences and learning.

'Because I don't think I would have realised necessarily some of the things [OT practice placement experiences and related learning] I'd done without being prompted {IG method and supervision} to reflect on it or the importance of it'

These discussions suggest that the IG method provided a process and framework for reflecting on and critically thinking about OT practice and its associated theory. This, in turn, built confidence and facilitated the transition of key disciplinary learning, implying that the learning experiences supported by the IG method were transformational for Laura.

5.7 Case Study 4 – Paula

Theme 1 – Developing weekly Inquiry Graphics increased focus on key disciplinary learning

Paula added an IG to Padlet, the virtual post board, weekly for six out of the eight weeks of her placement. She described how the Padlet helped her maintain focus on the placement learning outcomes and how creating inquiry graphics contributed to her learning.

‘I think probably the first thing that struck me was how useful it [IG learning design] was in that it really focussed my learning, my attention to what it was, that that we were considering..... And I like the fact that it's [Inquiry Graphic] a mixture of the visual with the written as well.’

Paula values the use of graphics in creating her IG, which serves as a multimodal ‘sign’ to symbolise key learning. The IG appears to provide a platform to focus on and develop her knowledge.

Subtheme 1.1 – Personalised student learning was enhanced

During week 1, Paula described ‘wanting to get it right and.....and expressed the desire aboutfinding the right graphic’

This process of translating the learning concept into the ‘right graphic’ is important, as it represents an increase in the time Paula spends actively thinking about her placement experiences in relation to the learning outcomes and associated threshold concepts. This suggests that critical thinking, such as analysing and evaluating her placement experience in terms of placement learning outcomes and threshold concepts, may be taking place.

By week 3, Paula felt they were more focussed on applying learning related to threshold concepts.

‘...it was more a case of making or checking that we were choosing something (a graphic) that was related to the threshold concept tying everything in together. And so the threshold concept along with the learning objective as well’

Paula identified that linking the graphic to the placement learning outcome/threshold concept.

‘was an important part of the learning and linking those two things together’.

This suggests that obtaining the “right” graphic, or, in other words, the visual representation they imagined and intended to find, enhances students’ focus on making the necessary connection between the learning experience and the threshold concept. In this sense, the

image serves as a mediator between the two crucial types of learning engagement for students during their placement.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

When discussing the shared collection /creation of the graphic, as part of their individually developed Inquiry Graphic on the Padlet, Paula identified the benefits and challenges of using the same graphic for both students. She felt it contributed to a shared collaborative discussion, though she acknowledged that sometimes the lack of individuality meant it lacked personal meaning. However, overall, she described the creation of an inquiry graphic and the use of Padlet to

'cement the learningand the relation between the graphic and the learning objectives and our reflections on that.....we looked for it [graphic], we spoke about it and then we actually physically wrote about it'

Again, the students' collaboration and dialogue about creating the IG appear to enhance their focus and reflection on key learning and acknowledgement of multimodal learning.

Paula chose Learning Outcome 5, 'Analyse the importance of effective team working and communication relevant to the practice placement context', as the first learning outcome to apply learning to in Week 1. She discussed why this learning outcome was chosen in the IG and her interview. The graphic chosen for week 1 was a photograph of the Information leaflet, promoting OT and the temporary group intervention, that the students created together to inform potential service users about the interventions they would offer while on placement.

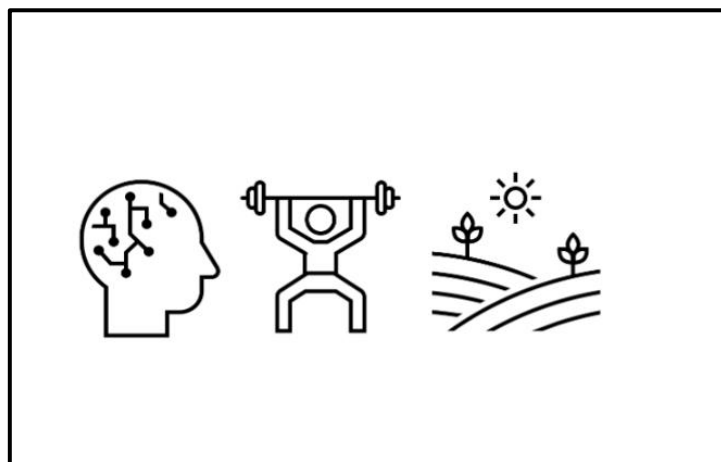


Figure 19 Represents part of Paula's week 1 graphic.

In the IG narrative and the interview, Paula described why both teamwork and communication, which the IG exercise facilitated, were important for their learning as they worked together to develop the temporary occupational therapy group intervention.

‘.....the team working and the communication between myself and Laura (case study 3) because we were doing everything, you know right from day one together most definitely and we were learning at that point about the wider team as well....and our place within the team as well. And those were big aspects from the start of the placement definitely.’

Paula appeared to value working with Laura in a small team, particularly discussing how effectively they collaborated, stating,

‘ the teamwork that was brilliant.... we complemented each other and the way that we work together..... in such an effective way..... a really lovely piece of learning for me’.

This type of teamwork creates valuable interdependence between the students. Working together within the environment to develop their IGs, reflect and critically explore their learning, and then deliver OT interventions supports their learning and development individually and as a team. This connected ‘networked’ learning seems to enhance students’ learning experiences.

Subtheme 2.1 – Images /graphics mainly act as metaphors of learning

In week 2, Paula's IG related to her feelings about learning on a role-emerging placement.

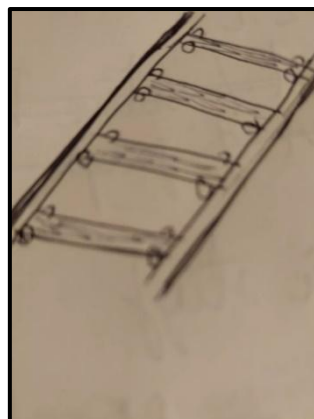


Figure 20 Paula's graphic for week 2 - a photograph of a sketch of a train track

The students had chosen a graphic of a train track (see figure 20), and Paula described this graphic as

‘.....a feeling, that's when I felt that things were tricky, that there was a lot going on and I felt like the train track was going on and on and on and on into the distance.

And there was an awful lot to learn.’

Paula's comments about her feelings related to learning suggest she may have been at risk of becoming overwhelmed with the amount of learning needed on this REP. It revealed that voicing, managing, and supporting students' emotional responses to learning on REP, and indeed all placements, need careful support and future consideration. Here, using a graphic metaphor to describe Paula's feelings related to learning, the IG is valuable, as it illuminates important feelings that might not have been identified otherwise. This demonstrates the emotional charge and value that images can provide in learning. This allows the educator, during supervision, to further explore and support the student.

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

The small group working (between the two students), described in earlier themes, appears to have been straightforward and transformative for Paula, contrasting with the challenges the students (Paula and Laura) faced working with the wider team. Here, there appeared to be misunderstandings about the purpose of the temporary OT group and what an occupational therapist does to support mental health and wellbeing in this type of context.

However, the team working with the wider team, was at one point challenging, not all the time but one point it was challenging and that related to the group work that we were doing.....we needed to publicise the group work and do a posterthere was a sort of a misreading or and a misunderstanding of what was on the poster by one member of one of the teams (other health support teams).....so that needed to be clarified to make sure that that team member understood exactly what it was that we were doing and we weren't you know stepping on toes..... so yeah the clear communication umm was a really important aspect I would say and at times it was challenging because it was it was so fast paced’

Overall, Paula felt that OT was not well understood by everyone delivering health and wellbeing support in this organisation. Paula explained,

‘even though we had explained our role in the MDT (multi-disciplinary team) meeting and we'd also explained our role on other occasions when we had been taking part in other team eventsthe clarity of what our role as

occupational therapy students was in that settingwasn't clear to everybody.'

These findings suggest a lack of understanding about what OT as a profession has to offer in this placement environment, which is consistent with previous research (Clarke et al., 2015; Thew, 2011). Professional identity for occupational therapists has been tricky, particularly in emerging practice areas such as this one. This may go some way to explaining why professional identity (the occupational therapy role) has been recognised as a threshold concept in previous research. For students such as Paula, discovering and categorising experiences related to professional identity may be tricky and troublesome to navigate as they oscillate between being a student and being a newly qualified occupational therapist. However, they are essential learning experiences that warrant discussion and exploration in supervision, support and plans to manage if the potential and offer of occupational therapy are to be fully utilised in future health and care environments.

Theme 4 – The method supported transformational learning

When discussing the inquiry graphics created during the six weeks, Paula discussed particular professional practice learning experiences and feelings associated with the placement learning. These experiences related to group work, teamwork, communication, applying theory to practice, and 'doing' the OT process.

In Week 3, Paula described learning related to group work. The graphic (Figure 21) used shows the creative collage created by the students and their group members in the Mental Health and Wellbeing group, which they developed and ran.

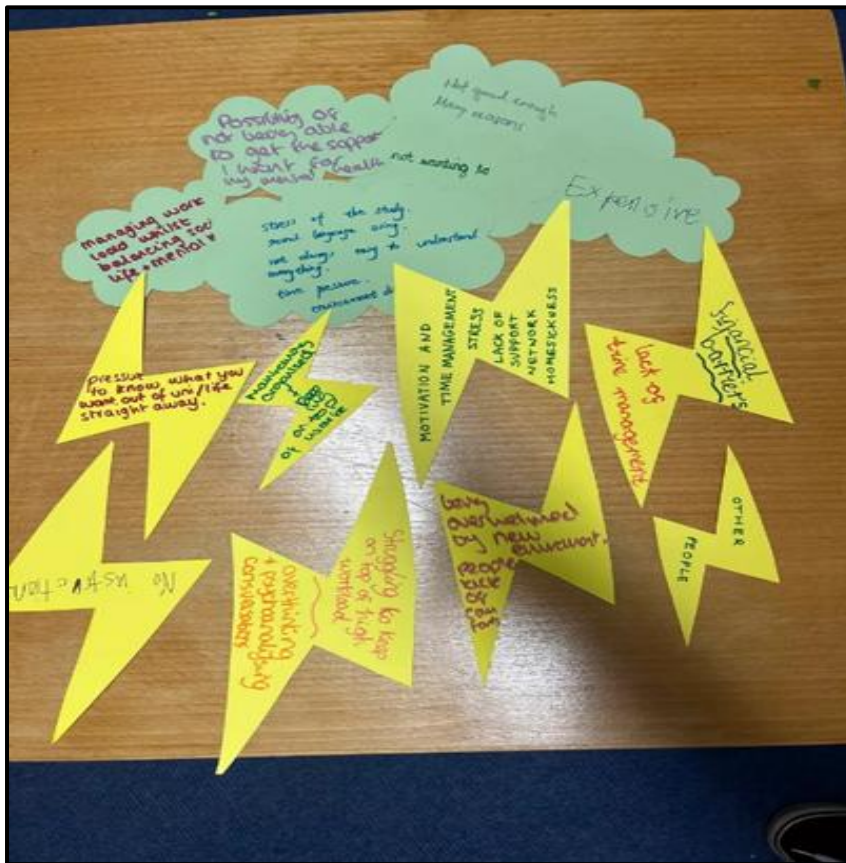


Figure 21 – Paula’s graphic in week 3 – a photograph of a cloud and thunder bolts with words

Paula emphasised the importance of learning about group work delivery as an occupational therapy student. ‘Doing’ the occupational therapy, mental health and wellbeing session allowed her to better understand how group work is used in OT.

‘...that was our first group work session that that we’d done and so again that was very important, I would say in my learning because I hadn’t actually delivered a group in the real world, so to speak like that.And so I think for me that had a lot of importance with regards to my learning as an OT student and delivering something which in the past I had not understood...’

Paula continued by describing the impact that delivering the group work had on her as an occupational therapy student.

‘....it’s sort of brought to the fore something that was quite surprising really you know that this group work element could have such a big impact on not the group themselves but also on me as you know the student who was learning’.

The learning and feelings described by Paula suggest some professional learning associated with key disciplinary concepts (threshold concepts) of OT and represent a

transformative process. Additionally, there appears to be an acknowledgement of socio-material factors, including the influence of social, environmental, and material elements in the placement context. For example, the impact on the learning of the people (service users) the students were working with, the environment and culture of the organisation in which they were delivering their occupational therapy service, and the materials they used as therapeutic tools.

Working in a team reflects practising in the real world (a threshold concept) and is linked to OT placements. Working in a team fosters connections and promotes effective communication between individuals. Paula identified several areas of learning associated with working with the other occupational therapy student (Laura, case study 3) and people in the wider team, suggesting a social relational dimension to their learning experience (Lackovic & Olteanu, 2024). Not all of these learning experiences related to communication were seen as straightforward; some appeared to be troublesome.

There were several examples of the application of theory to practice in all of Paula's data items, with more depth of detail in the inquiry graphics and interview with the researcher. Learning occupational therapy practice skills through applying theory to practice is identified as a threshold concept in the research (Nicola-Richmond, Pepin & Larkin, 2016). In her interview, Paula described how occupational science theory, with a particular focus on the Occupation-Based Community Development (OBCD) Framework, helped her understand its value and how to apply the framework in practice.

'.....the group work element that, that was a really positive learning experience for me, because it was using the OBCD framework as well, it was obviously like very much Community participatory based.....the client group that was sort of leading it, but then it was our questioning that was really important to make sure that that we got the information that we needed so that was a really positive learning experience...
And that surprised me as well, because I had found that really difficult when we first did it [OBCD framework, as theory in class].....it didn't translate into real life because it wasn't real life. And it was only actually the doing of it that made it real and I was able to understand'

Paula went on to discuss other group-related theory, such as 'Coles 7 Steps' (Cole, 2015), where she had experienced similar learning through 'doing'. Another theory, relating to the Occupational Therapy process, was also identified by Paula as a key aspect of occupational therapy learning, where theory is applied to practice. This application of theory to practice learning through engagement with multimodal relational factors, such as social, environmental, and material components, appears to be captured by the analysis of all of

Paula's data items. This suggests that Paula's developing professional practice knowledge is supported by this multimodal approach, as captured by the IG's research interviews and supervision discussions.

In summary, these case study findings suggest that Paula developed transformed ways of understanding, particularly in relation to applying theory to practice, practicing in the real world, and communication, which were facilitated through the IG method/activity she participated in. The narratives related to this key disciplinary learning suggest that, in some cases, the learning was relatively quick and straightforward. In contrast, in others, the learning was more protracted and troublesome, as seen in the communication example. The creation of weekly IG's appeared to strengthen the link between placement learning outcomes and placement experiences, providing a deeper and more critical reflection and discussion of learning related to key threshold concepts.

5.8 Case Study 5 – Helen

Theme 1 – Developing weekly Inquiry Graphics (IG) increased focus on key disciplinary learning.

Helen found creating the IG *'really motivating'* and felt it was a *'really useful marker of my time there'* [on placement]. She described how she was *'searching'* each week for a relevant placement experience that she might photograph and use to link to a placement learning outcome and the associated threshold concepts, suggesting she spent extra time thinking and focusing on how her placement experiences related to key disciplinary learning, similar to other case studies. Helen searched for what might best visually reflect and represent the learning in part of the IG. As well, Helen also described how the visuals within the IG prompted the recall of theory and concepts,

'So the visuals have really helped me in terms of my recall.....I mean [of] a theory or concept.....I'm confident that if in,four months you showed me, one of my eight photos [graphics on weekly IG] I would know immediately what [it referred to]

These descriptions of Helen's behaviours and feelings about the IG learning design suggest that using the IG framework facilitates a greater focus on the connection between her placement experiences, the learning outcomes, and associated threshold concepts. This also implies that analysing and evaluating are taking place, which are both elements of critical thinking.

Subtheme 1.1 – Personalised student learning was enhanced

For week 1, Helen chose a graphic of part of a care diary (Figure 22) for her IG. She felt that the care diary had particular significance for her personal learning about the service users. Through her analysis and reflection in developing the IG, she was able to link key theories to her practice learning journey. The graphic [photograph] appeared to evoke memories of her learning that week and helped to structure her thinking.

Supporting the service users to complete their diaries each day also created a connection between the student (Helen) and the service user. Helen reflected on how her daily involvement in supporting service users to formulate their care diary entries acted as

'a tool to build a therapeutic relationship'

Helen described how she used the 'therapeutic use of self' and carried out 'information gathering,' both key skills and behaviours of occupational therapy professional practice, while supporting the service users.



Figure 22 – Helen's graphic for week 1, a photograph of a part of a care diary.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

Within Helen's week 1 IG narrative, she identifies key details related to the personalisation of the care diary (Figure 22), such as the person's photo on the front and '*the dried soil splattered across the page*'. She described the service user's reflective diary as

' a beautiful keepsake....extremely valuable in terms of uniqueness.....a tool to express...personal development for the service user....as they....gain a deeper understanding of themselves through occupation and interaction with others'.

Helen reflects on the value of the care diary to the service user and how it serves as a medium promoting connection and collaboration between the OT student and the service user. This implies an appreciation that the care diary, a tangible object used to record and explore the service user's lived experiences and day at the farm, enhances both her own and the service user's learning.

As well as finding the creation of the weekly IG motivating, Helen also described how the graphics, in Helen's case, photographs, helped with her reflections.

'It was helping me to reflect on and remember a whole range of information just from one image'

Like other cases, Helen found the graphics/photographs helpful in providing an 'anchor' or 'platform' for thinking, analysing, evaluating and reflecting on learning.

She said

'I didn't realise how useful this would be [creating an IG each week].....I'll definitely look back on this again [weekly IGs on Padlet] and I would like to take it into my future learning because.....it encourages me to read papers, which I would otherwise not read.....it is a motivator.....it really helps me to write it down [answer reflective questions] with a visual representation [graphic] there....I would much rather do it [create an Inquiry Graphic] in this format, than just writing a word document about it [learning related to placement outcomes] without an image.

Helen's comments suggest she feels that using graphics with written reflective narratives [8 questions on the IG, see Appendix 1] to record and develop her learning is more beneficial than previous written reflections. The IG learning design appears to be acting as a catalyst, motivating a deeper connection with theory and evidence, which implies an appreciation of the value of this multimodal learning experience created by the IG learning design.

Subtheme 2.1 – Images /graphics mainly act as metaphors

In Week 3 of the placement, storms and flooding posed a challenge to Helen and everyone at the Care Farm. Helen chose to reflect on her learning related to placement learning outcome five and threshold concepts about practising in the real world and a person-centred approach. Helen explained that the photograph of a flood on the lane near the Care Farm (Figure 23) highlighted her learning experiences related to these threshold concepts and how there was an enhanced level of teamwork and communication during this week. She also linked her graphic choice to occupational science theory around occupational disruption and the KAWA River model.



Figure 23 – Helen's graphic for week 3, a photograph of a flood near the care farm

The KAWA River model is a contemporary OT model that utilises the metaphor of a river to represent a person's life, with its rocks and boulders, which can serve as either a support or a challenge to their occupational engagement and participation (Lim & Iwama, 2021). This graphic not only represents the context of Helen's learning during week 3 but also prompts her to think about key OT theories. This synthesis of multiple concepts, utilising the IG framework as a platform, represents multimodal learning and suggests that critical thinking is taking place.

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

Helen identified challenges, such as the competing pressures of completing essential farm work and delivering therapy, including OT interventions. Helen's reflective narratives on her IG and the interview showed a recognition that these challenges had also become opportunities for her professional learning. While completing 'farm work' alongside the service users, she saw the contribution of meaningful, purposeful occupation made to the service users. Helen described how a service user living with schizophrenia valued working on the farm.

'...who lives with schizophrenia [said] the farm was important in his life.....just seeing first hand the value of occupation in everyone's lives'.

It can be suggested that this recognition, through reflective thinking, writing in her IG, and discussion, of the value of occupation has helped strengthen Helen's understanding of how her professional theory and practice are relevant in this setting, further implying an increased

confidence related to professional identity and occupational therapy practice. Again, the IG learning design has provided the platform and 'launch pad' for this learning.

Theme 4 – The method supported transformational learning

Helen was able to critically explore many learning experiences in relation to the placement learning outcomes and associated threshold concepts. She felt that the IG learning design had supported her in recalling theory and promoting her learning, as well as her critical exploration of theory in practice.

'I think it is a very accessible way of going about it [reflecting on learning using the IG learning design] because you know its split into 8 distinctive parts.....I would much rather do that [complete an IG].....than do it in a word format without an image.....it [IG learning design] really helps me make connections.... So the visuals have really helped me in terms of my recall, so I find it 10 times easier to recall... a theory or a concept if I associate it with an image'

Linking theory to practice experiences through reflection, leading to critical thinking, can result in transformative learning; it is suggested that adopting the IG learning design has facilitated this higher-order thinking for Helen.

5.9 Case Study 6 – Dawn

Theme 1 – Developing weekly Inquiry Graphics (IG) increased focus on key disciplinary learning.

Dawn was on a role-emerging placement on a care farm with Helen (Case Study 5). Like the other participants, she liked the way the IG learning design encouraged her to

‘think about the learning outcomes during the day and during the week’

Moreover, how her placement experiences addressed the learning outcomes. Dawn found that the IG learning design prompted her to recall placement experiences and key disciplinary learning, and aligned with the philosophy of occupational therapy.

‘sometimes it can be hard to remember what you’ve done on placement, but I know.....a quick look through this [weekly IGs on Padlet]...I’d be like yeah.....I know I have reached all my learning outcomes.....you have the proof here’

Additionally, Dawn valued the creativity of using images or graphics to illustrate key professional learning. She felt this learning design aligned with our professional philosophy.

‘ I think as an OT we are kind of encouraged to use our creativity.....and this is definitely a creative way of learning.....like [for example] thinking about clinical reasoning [a threshold concept] in week five when I did the intervention.....afterwards it really made me think about the intervention [and the clinical reasoning I used]

Finally, Dawn recognised the extra thinking and focus on placement learning outcomes and associated threshold concepts within the IG learning design as providing a beneficial record of learning, which helped promote thinking and memories of the learning experiences.

‘I feel like on other placements [past placements in traditional settings]interventions have been thought about when you are at the placement but then you forget about it afterwards, [here] I was coming home and having a think and really trying to develop the idea [IG] before I went back in’

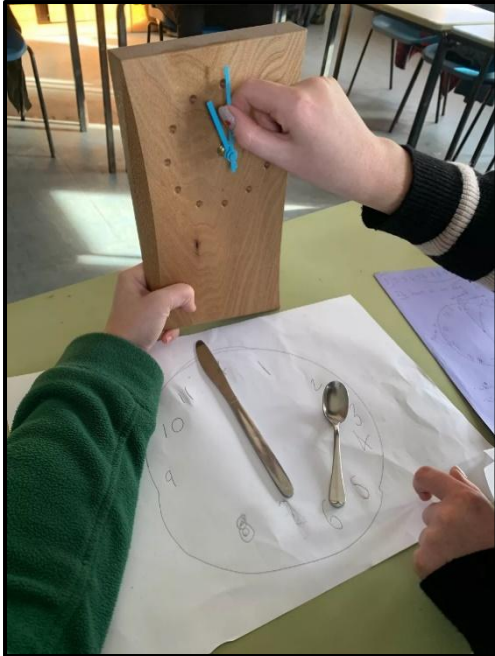


Figure 24 – Dawn's graphic for week 5 – Photograph of an OT intervention.

Dawn's narratives about using the IG learning design suggest she values its ability to promote thinking, focus on key disciplinary learning, and afford a creative lens for developing the IG, which aligns with OT philosophy and theory.

Subtheme 1.1 – Personalised student learning was enhanced

Dawn chose to take a photograph each week to represent her learning, linking it to the placement learning outcomes and associated threshold concepts. She decided on this sole approach because she was not *'artistic'* or liked *'doing mind maps'*. She felt photographs,

'.... were easy....they're like a snapshot of time.....they'll take you right back to the moment you were thinking about [when you look at them again]

By week 3 of placement, Dawn felt she was consciously creating photographs that represented her learning and journey.

Theme 2 – Inquiry graphics enhanced student reflection & collaboration

Dawn described how she used IG to deepen her reflection and connection with her learning

'you know there were times where I would be reflecting, then I'd click back out and look at the photograph again and then go back in and delve into it [reflective questions in IG] a bit more'.

Dawn's narrative about her use of IG suggests an appreciation for this multimodal approach, which appears to develop as she progresses through her role-emerging placement.

‘.... especially toward the end, I liked seeing the photograph on the top and then having that reflective template below....’

In addition to this enhanced reflection, Dawn described how she used to chat with Helen (case study 5) about their placement experiences, reflections, and the images they might include in their IG that week. This suggests a supportive and collaborative learning approach, where reflection may lead to critical discussions through students' engagement with and creation of their IG each week.

Subtheme 2.1 – Images /graphics mainly act as metaphors

In week 1, Dawn chose a photograph of a pair of wellies (Figure 25). During her interview, she discussed why she photographed the wellies and included them in her graphic.



Figure 25 – Dawn’s graphic for week 1 – a photograph of a pair of green wellies

Firstly, she felt the wellies represented the ‘uniform’ (see Figure 25)

‘It’s a farm and everyone.... has to wear wellies during the day and I felt it was like the uniform of placement.....normally when I go on a placement.....you’d wear a polo top or tunic.....in your OT uniform.....where this [wellies] was the uniform for the farm’

This personal metaphor, suggesting that the ‘wellies’ are like an OT uniform, might indicate uncertainty about the setting and an attempt to make sense of it by creating the security of a uniform, which may, in turn, manifest as professional confidence. These feelings of uncertainty in week 1 are further confirmed by Dawn when she explains her uneasiness and how the graphic of the ‘wellies’ has further metaphors.

‘I was definitely a bit nervous because you’re not quite sure what to expect at the start, so I thought, you know, the metaphor of taking, the first step was kind of relevant.....’

This single image represents different metaphors of feelings and confidence in Dawn's first week of placement, highlighting the importance and impact of these early experiences for students and suggesting that feelings early in the placement have the potential to influence learning.

Theme 3 –Professional identity and occupational therapy practice challenges and opportunities

The placement context, with its non-traditional ways of working and its service needs to deliver the farming and the ‘care’ for individuals attending the care farm, was challenging for the students to navigate. Dawn commented on these challenges,

‘ its hard to like, keep focussed on the fact that you’re an OT student when there’s so much going on [supporting service users, farmwork]you sometimes forget why you are there.....’.

Dawn's observations suggest that her professional identity and OT practice were not always at the forefront of her mind in these role-emerging settings. Having the IG learning design as a reflective learning tool may have helped provide a platform and anchor for learning about occupational therapy practice and professional identity.

Theme 4 – The method supported transformational learning

For Dawn, the IG learning design promoted the exploration of related theory and reading to support the ‘doing’ of practice. Dawn described the IG created each week as being ‘more concrete’, and whilst

‘ verbal discussions [are good]...[but] its not as beneficial because you have a conversation and move on. Whereas with this one [IG learning design]....you sit down and you think about it and you reflect on it. And then..... because the Padlet’s [Inquiry Graphic] is laid out like this.....you can see it every week....you feel like you are constantly building [learning]

Dawn also found the IG, with its graphic and written reflection, to be a good communication tool with her OT educator. She found the graphic part of the IG helped to provide more depth and created more confidence.

‘ I felt more confident that even if I hadn’t quite made it clear in the literature (written part)....she [OT educator] could see it [graphic] and then we would also talk about it and reflect on it verbally’

The level of engagement and reflection on learning facilitated through this multimodal method suggests that transformative learning is occurring. Dawn identified possible transformations when, in week 4, she chose a photograph of 2 geese looking at each other (Figure 16). In her IG narrative, she wrote about the similarities in the geese at first glance, which she reflected was like an OT student at the beginning and end of their placement. They may look similar [the OT student], like these two geese, but there are differences. Dawn described them as

‘important changes in my development [have taken place] over the last few weeks’



Figure 26 – Dawn’s graphic for week 4 – a photograph of two geese looking at each other

5.10 Summary of case study findings

This chapter presents the overarching themes and subthemes emerging from the analysis of the data items across the six case studies. The IG framework has been analysed as a learning design and a data collection tool for each of the OT student case studies on REP in a range of settings. Overall findings suggest that the IG learning design promoted reflection and critical thinking about placement learning outcomes and associated threshold concepts, which in turn led to unique and transformational learning experiences. The next chapter will give a more detailed critique and discussion of the findings in relation to the research questions.

Chapter 6: Discussion

6.1 Introduction to the Chapter

This unique research explored the experiences of occupational therapy (OT) students using an Inquiry Graphics (IG) learning design to support their reflection on learning and knowledge development related to threshold concepts during role-emerging placements (REP). The research also explores the experiences of OT students applying threshold concepts to REP, identifying what they found troublesome and transformative. This research contributes to knowledge by adopting an innovative conceptual framework to conduct the first study in occupational therapy using an IG learning design to address the research questions. The research also builds on previous studies of students' learning experiences in REP and the application of threshold concepts as part of reflection on learning, generating new ideas for OT pedagogy and curriculum design.

This discussion chapter adopts a student journey approach and is divided into four sections, based on the themes identified in Chapter 5 of the Findings that cut across all six case studies. In section one, the conceptual framework and associated Inquiry Graphics learning design are reintroduced and discussed in relation to the research. In section two, the answers to the research questions are discussed and critically explored, linking the literature. This section also discusses the research's contribution to role-emerging placement learning, inquiry graphics and threshold concepts. Section three discusses the implications the findings have for practice and policy. Section four discusses the limitations of the research and its future implications, and it concludes by reflecting on my learning and providing a chapter summary.

6.2 Section 1 – The Conceptual Framework and Inquiry Graphics Learning Design

The conceptual framework created to address the research questions and inform the Inquiry-based, IG learning design for occupational therapy students included inquiry graphics and threshold concepts (see Chapter 2, p 11, Figure 1). In Chapters 2 and 3, literature related to these elements was discussed and explored in the creation and rationalisation of the conceptual framework. In this chapter, I revisit some of this literature to discuss and connect the case study findings. Each theory within the conceptual framework played a crucial role in my interpretation, exploration, and understanding of the case studies' experiences related to applying the IG learning design and threshold concepts, particularly in terms of what was troublesome and transformative.

In this research, the IG learning design creates a framework for engagement and critical reflection with key disciplinary learning by setting a weekly task of choosing or creating a

graphic and writing a reflective narrative, resulting in an Inquiry Graphic (IG) (Lackovic, 2010; 2020; Land, Rattray & Vivian, 2016; Nelson et al, 2023). Students were encouraged to engage, develop, explore and critically reflect on their REP learning through the lens of the threshold concepts framework, creating a weekly multimodal IG to discuss and explore with their peers and OT educator (Clarke et al, 2014; Lackovic & Olteanu, 2024; Lackovic, 2020; Land, Rattray & Vivien, 2016). This is an innovative use of images as a representation of educational concepts (i.e., learning outcomes and associated threshold concepts) through the creation of a weekly IG post by OT students (Lackovic, 2020; Lackovic & Olteanu, 2021). In the digital era, images significantly contribute to our everyday communication and lived experiences, suggesting they have much to offer in terms of both communicating and supporting learning (Lackovic, 2020; Lackovic & Olteanu, 2024). This discussion will explore how the IG contributed to students' exploration of troublesome and transformative experiences on their REP journey.

The second theory linked to the weekly IG is the threshold concepts theory. There is increasing debate around threshold concepts, with the core idea of concepts distinct to individual professions, which can be troublesome and lead to transformation being broadly valued and accepted, particularly in Occupational Therapy (Fortune & Kennedy-Jones, 2014; Rodger, Turpin & O'Brien, 2015) However, there are growing questions about how threshold concepts are defined and suggestions that they may oversimplify complex learning processes (Brown et al, 2021; Stopford, 2021).. Therefore Brown, Whybrow and Finn (2021) suggest that using threshold concepts as a 'reflective prompt to promote pedagogical discussion' may be the way forward. This research has employed threshold concepts as a reflective framework, adding a new approach to utilising threshold concepts with occupational therapy students.

The five OT threshold concepts accepted as threshold concepts associated with REP and the additional five threshold concepts identified elsewhere in OT research are;

1. Applying occupational therapy theory to practice
2. Client-centred practice
3. Occupation
4. Practicing in the real world
5. The occupational therapy role (professional identity)
6. Evidence-based practice
7. Clinical reasoning

8. Discipline-specific skills & knowledge

9. Reflective practice

10. Holistic approach

(Fortune & Kennedy-Jones, 2014; Kaelin & Dancza, 2019; Nicola-Richmond et al, 2018; Tanner, 2011)

With its unique combination of Inquiry Graphics (IG) and Threshold Concepts (TC), the conceptual framework created a contemporary multimodal lens for students, educators, and researchers to explore the reflection on learning of case studies in this study. This multimodal lens considers individual students' experiences and learning through a personal, visual, embodied, socio-material, and relational perspective (Fredholm et al., 2020; Lackovic, 2024a, 2024b). The term 'relational' in this study has multiple meanings, with the familiar link to students' external relationships with each other, service users, educators, and other stakeholders in the placement setting being a common discussion topic for OT students on placement (Binyamin, 2018, 2021). However, alternative definitions are also part of this contemporary study, with a 'relational' approach to educational theory and practice being implemented. This approach is linked to Peirce's triadic theory and model, where '*meaning-making*' is explored through the visual image, prompting questions about what this image represents and how it is interpreted (Lackovic & Olteanu, 2021; 2024). For students in this study, we can observe a range of visual images /graphics, as well as the meanings associated with them.

In the next section, the findings from across the case studies REP learning journey will be discussed in relation to the literature to address the research questions. The contribution and value of the conceptual framework will also be critically explored.

6.3 Section 2 – The answers to the research questions

This study's findings identified two themes and subthemes related to research question 1 and two themes linked to research question 2 (see Tables 3 & 4 copied from Chapter 4 below)

Research Questions	Themes & subthemes
<p>Research Question 1</p> <p>What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their reflections on learning and knowledge development related to threshold concepts on a role-emerging practice placement?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 3. What are the students' stories around the use of weekly IG as a data collection tool to inform their learning and knowledge development around occupational therapy threshold concepts? 4. How does the use of artefacts/ graphics support students' reflections and discussions about threshold concepts during role-emerging placement learning? 	<p>Theme 1</p> <p>Use of Inquiry Graphics learning design increased focus on placement learning outcomes & associated threshold concepts connect (RQ1)</p> <p>Subtheme 1.1</p> <p>Personalised student learning was enhanced by choosing or creating the intended (imagined) graphic to represent their learning journey (RQ1 / SRQ 1)</p> <p>Theme 2</p> <p>Inquiry graphics enhanced student reflection & collaboration, and an appreciation of learning as multimodal (RQ1 / SRQ 1)</p> <p>Subtheme 2.1</p> <p>Images/graphics mainly act as metaphors of learning, feelings and/or confidence, which highlights this aspect of learning experiences (SRQ 1 & SRQ 3)</p>

Table 8 - Research Question 1 - Themes and Subthemes

Research Questions	Themes & subthemes
<p>Research Question 2</p> <p>What are the experiences of reflecting on learning related to threshold concepts, through inquiry graphics on role-emerging practice placement for occupational therapy students?</p> <p>Sub Questions</p> <ol style="list-style-type: none"> 4. What are the narratives around these learning experiences? 5. What learning experiences on role-emerging practice placements do occupational therapy students find troublesome? 6. What learning experiences on role-emerging practice placements do occupational therapy students find transformative? 	<p>Theme 3</p> <p>Professional identity and occupational therapy practice challenges and opportunities (RQ 2/ SRQ 1,2 &3)</p> <p>Theme 4</p> <p>The method supported the application of theory and 'doing' occupational therapy in practice, which in turn, built students' confidence and mediates transformational learning (RQ 2 / SRQ 1, 2 & 3)</p>

Table 9 - Research Question 2 - Themes

This research has identified knowledge contributions related to the application of IGs and TCs in Occupational Therapy REP, as well as how the IG Learning design supported students in reflecting on and learning from their REP placement. As these knowledge contributions are woven together and their unique combination plays an essential role in enhancing students' engagement and participation in their key disciplinary learning, I intend

to discuss the findings from across these six case studies through the student role-emerging placement 'journey'.

A student journey approach to this discussion captures the students' development over time, aligns well with experiential inquiry-based learning approaches and the concept of liminality, where learners are transitioning between their former and new selves (Kolb, 1984; Meyer & Land, 2006). It also enables a narrative interpretative style that aligns with the methodology and research design (Finlay, 2011). The discussion themes that will be explored during the student journey, to examine the findings, are

- The combined value of IGs and TCs within the Conceptual Framework and associated IG Learning Design to support students' engagement and reflection on learning related to threshold concepts on REP.

Whilst TC have already been identified in the OT REP research as providing an essential focus on key disciplinary learning concepts (Kaelin & Dancza, 2019; Nicola-Richmond et al, 2019; Nicola-Richmond, Pepin & Larkin, 2016; Nicola-Richmond et al, 2018) the addition of the IG to visually represent and reflect on key learning and associated personal, embodied and relational experiences appears to have added a depth and richness to the students' reflections. Meyer and Land (2006) proposed that threshold concepts were the '*jewels in the curriculum*', which '*can be used to define potentially powerful transformative points in the students' learning experience*' (Land et al, 2006, p. 198). It is suggested that incorporating IGs in this study enhances the quality and richness of TC as '*jewels*' in reflective learning by creating a multimodal representation of students' reflections on their placement experiences (Lackovic, 2020; Meyer & Land, 2006; Reeping, 20).

- Within this study, the placement experiences that contributed to being '*troublesome*' and '*transformative*' across the six case studies related to their affective and relational responses, collaboration, and peer learning.

Both areas will be discussed through the student journey, with the affective factors appearing to influence the students' capacity to deal with '*troublesome knowledge*', particularly nearer the start of the placement and how their collaboration and peer learning appeared to support them with this '*troublesome knowledge*, and supported '*transformation*'

- The application of the innovative pedagogy and conceptual framework combining IGs and TCs will be discussed as a personalised learning design and platform.

Findings suggest that the case studies were able to explore and connect their individual placement experiences to key personal and professional learning, empowering and enabling them to engage and participate in their REP. In addition, the IG learning design appears to

have promoted collaboration and connection between the paired students on placements and their educator. It is suggested that the IG Learning design creates a multimodal, contemporary pedagogy that can better support occupational therapy students (both individually and collaboratively) during REP placements, enhancing their transformative learning experiences (Lackovic, 2020; Meyer & Land, 2006).

- Finally, due to the methodological and pedagogical approach in this study, it is proposed that this creative method enhances OT students' ability to manage troublesome knowledge, such as ritual, alien and inert knowledge, which contributes to growing OT students' confidence, capability, and identity on REP placements by connecting theory to practice experiences.

Figure 27 below illustrates the connected nature of these knowledge contributions.



Figure 27 Three knowledge contributions

6.3.1 The Journey starts – Introducing the Inquiry Graphics Learning Design

This is the first known occupational therapy study to merge the lens of Inquiry Graphics and Threshold Concepts through an adapted IG learning design, exploring occupational therapy students' reflections on learning in REP (Lackovic, 2020; Meyer & Land, 2003). Experiential

engaged and relational placement learning is essential for the growth and development of newly qualified OTs with a strong professional identity and capacity to deliver occupational therapy in both traditional and emerging practice settings (Binyamin, 2018; Matilla et al, 2018) Placing OT students in community contexts where they can experience working with individuals, groups, and communities in a preventive and population health approach is essential for students as future workforce members, changemakers, and OT professionals (Clarke et al., 2014; Thew, Cezar da Cruz, & Thomas, 2023; RCOT, 2024). Allowing students to experience emerging settings where the contribution of occupational therapy, at the micro, meso, and macro levels, supports occupational justice is essential. REP placements represent this type of contemporary learning experience (Bailliard et al., 2020; Irvine-Brown et al, 2020).

The students' REP placement journey begins with the placement preparation phase. The findings suggest that there were mixed emotions and feelings from the case studies about going on a REP placement, with Jess (Case Study 2) looking forward to the experience in contrast to Paula (Case Study 4) who was keen to find out what she would be 'doing' as an OT in the HE setting and what might her day and work look like. These early responses represent the eclectic, individual responses of adult OT learners to REP and align with Taylor & Marienau's (2016) neuroscience perspective, which describes how emotions influence learning and refers to the '*language of the brain*' with different people having different languages and responses to learning experiences. For example, a neurological response, which results in an '*anxious*' brain, means learning may be impacted, in contrast to a neurological response, which results in a '*curious*' brain (Taylor & Marienau, 2016, p 4). Within this research, it can be suggested that the students exhibit differing responses, with Jess showing curiosity and Paula perhaps displaying some anxiety. These responses from a neuroscience perspective may indicate that they are thinking about their REP placement in relation to their previous experiences, trying to contextualise and link how this new placement may relate to prior learning and placements. Taylor & Marienau (2016) describe this embodied response to learning as reorganisation,

'Learning involves the elaboration and reorganization of existing networks of association, forming new patterns that integrate new material with previous knowledge and experiences '(Taylor & Marienau, 2016, p. 28)

Concerning the findings, this might suggest that Paula (Case Study 4) is drawing on her experiences of traditional placements with an OT educator on a hospital ward, where she has successful experiences and networks of knowledge and understanding, in comparison

to the 'alien' alternative environment of an HE setting which conflicts with her pre-placement understanding about how OT is delivered.

As part of the six case studies, introduction, and preparation for their REP placements, they attended a placement launch session where the IG learning design, as a framework for engagement in reflection on learning, was discussed. The choice here of the term 'framework for engagement' links to the work of Dewey (1938), Wenger (1998) and Meyer and Land (2006, p57), who despite being from different eras all share a common view of learning as an active, experience based, transformative process. While not explicitly using the term 'framework of engagement', their work collectively emphasises that meaningful learning emerges through different modes of engagement. With Dewey (1938) emphasising doing, reflecting, and learning through real-world experiences; Wenger (1998) emphasising learning through collaboration and participation in communities of practice; and finally Meyer and Land (2006) associating learning with grappling with threshold concepts to understand difficult knowledge related to key disciplinary concepts. The Inquiry Graphics learning design, with the addition of graphics or images, brings these different modes of engagement together visually and interactively, creating a framework that adds a contemporary edge, appropriate to our digital, image-focused age, with the rise of visual platforms such as Instagram and TikTok. This is further supported by Lackovic & Olteanu (2021, 2024) and Taylor & Marienau (2016), who discuss how experiences and learning can involve visual imagery, multimodal experiences, and embodied feelings, which may influence and shape responses and outcomes to learning.

Already during the preparation for placement, we observed different emotions and embodied responses from Jess (Case Study 2) and Paula (Case Study 4). It is proposed that this IG learning design offers a framework that supports students in engaging with these multimodal experiences to meet the learning outcomes and associated TC, recognising that each learner responds differently. This will be explored throughout the discussion as I discuss the learning journey of the case studies.

Student participants at this stage of the journey, preparing for their placement, had mixed responses to the use of graphics or photos as part of their weekly multimodal reflections and supervision. With Laura (Case Study 3) saying '*I didn't really get it*' and Jess (Case Study 2) saying '*...I thought.....how on earth am I going to find a picture to do with week 1*' compared to Bella (Case Study 1), who identifies as a '*visual learner*' and discussed '*...how much learning you can link to one picture*' which was similar to Helen, (Case Study 5) who found creating the IG '*really motivating*'. These mixed responses suggest a spectrum of feelings ranging from curiosity and excitement to concern (Taylor & Marienau, 2016).

6.3.2 Week 1 - Placement begins: Discussing and mapping students' experiences

Learning and practice for occupational therapy students in role-emerging settings involve different layers of experience. As previously discussed, some of these experiences are internal or personal and embodied by the student, while others are external; all may encompass social, material, environmental, and relational elements. This means outcomes and experiences vary from student to student and from setting to setting (Cooper & Raine, 2009; Hunter & Volkert, 2016; Wood, 2005). These layers of multimodal experiences described above mean that what might be 'troublesome knowledge' and what might be 'transformational' to one student might be experienced differently by another (Fredholm, Henningsohn, Savin-Baden & Silen, 2020). It has already been established in the REP research some students may feel they are missing out on developing key clinical skills and knowledge associated with discipline-specific learning, akin to TC and threshold capabilities, which they believe may be better supported through traditional placements (Dancza et al., 2013; Hunter & Volkert, 2016; Thew, 2011). When there is no occupational therapist in the placement setting, such as in REP, to model and support the development of relational and professional practice skills, knowledge, and behaviour, it can create a vacuum of student concerns (Hunter & Volkert, 2016; Wood, 2005). These concerns can lead to misconceptions about the potential for learning on REP placements.

This type of learning environment can be 'alien' to the student and counterintuitive to the student's view of how OT should be delivered, particularly if students have had traditional medical-based placements in hospital settings. This motivation to achieve professional practice skills and competence progression in traditional settings is important, however, it can be argued that critical professional thinking and reasoning about how to develop and deliver OT in emerging settings, such as REP is equally if not more critical (Bailliard et al, 2020; Thew, Cezar da Cruz & Thomas, 2023) As well as 'alien knowledge' being troublesome, other knowledge that can be troublesome is 'inert knowledge', for example where the student understands the theory behind TC's such as 'occupation' or 'client-centred practice' but doesn't know how to apply it in a practice based sense in a REP setting (Perkins, 1999; 2006). This is illustrated in this study, and it may be suggested that it contributes to students' emotions and feelings related to REP placements when they are unsure about how to apply the theory.

Findings in this study support the suggestion that what might be 'troublesome' to one learner may be 'transformational' to another, with associated student feelings and responses. In Week 1, Bella (Case Study 1) commented on the absence of an OT on site for support at the beginning of the placement. To deal with this apprehension, she recalled her preparation, which explained that there may be 'concerns' at the start of the placement because of the

'alien' environment. Meyer & Land (2006, p 57) propose that these concerns relate to a student's ability to '*tolerate uncertainty*' and recommend that students are prepared for encountering 'troublesome' experiences. The example they share about a first year media studies student who considered leaving her programme because of the difficulty in understanding key concepts is relatable to students on REP in Occupational Therapy and supports the value of good preparation for placement and the focus on TC's, as a means to focus and direct their theory to practice and thereby support their initial apprehensions (Meyer & Land, 2006).

Whilst Meyer & Land (2006) introduced threshold concepts and recommended preparation for learning of these core ideas, as this learning may be troublesome and challenging, Efklides (2005) considered a focus on metacognitive experiences as critical to learning. Whilst metacognition and affect are not among the eight elements of threshold concept acquisition, they are linked to learning. They can positively or negatively impact students' ability to engage in learning related to threshold concepts (Efklides, 2006).

Metacognitive experiences (ME) refer to a student's awareness and understanding while performing a task. Efklides (2006, p. 50) describes these as comprising '*feelings, judgements or estimates.....processing the task,*' with the functions of these metacognitive experiences being to monitor, control, and influence motivation and engagement in the task. The feelings and outcome of these metacognitive experiences can lead to satisfaction and success or stress and non-completion, and everything in between. Taylor and Marienau (2016) also acknowledge the link between metacognitive skills, such as self-awareness and reflection, in supporting students in engaging in transformative learning experiences, including REP placements.

In addition, Taylor and Marienau (2016, p. 4) also use "anxious brain" and "curious brain" as metaphors to refer to learner modes and different responses. Therefore, learners whose circumstances trigger the '*anxious brain*' may be 'defensive' and insecure, lacking confidence and the ability to engage effectively in their learning. In contrast, if the learner is in '*curious brain*' mode, the learner may look for meaning making and be more engaged in learning. Both Efklides (2006) and Taylor & Marienau's (2016) theoretical perspectives help analyse and consider the case studies' responses to their reflection, learning and ability to engage in threshold concepts in this study. It is apparent that emotions and affect impacted these students in their REP placement, possibly due to contextual circumstances and their personal factors (Efklides, 2006; Perkins, 1999, 2006). It has already been identified within the REP research that contextual factors, such as the alien environment, can impact the experiences of OT students (Clarke et al., 2015; Hunter & Volkert, 2017). This is also

apparent within this study, contributing to the evidence and further emphasising the need for pedagogy and curriculum that can support individual learners' responses.

It is proposed that the IG learning design helped each case study explore these multimodal, personal, and affective responses by using an image to represent their experiences during their learning and development journey. Students identified this as a valuable and motivating way to reflect and support ways of thinking and practising (WTP), as referred to by Meyer & Land (2005). This meant they could think through their learning related to the learning outcomes and associated threshold concepts, for example, Helen (Case Study 5) illustrates this with her comments, *.....it encourages me to read papers, which I would otherwise not read.....it is a motivator.....it really helps me to write it down [answer reflective questions] with a visual representation [graphic] there....*

The six students' REP learning experiences from week one were captured through their weekly IG and utilised in weekly supervision to engage in peer and supervisory conversations about personal, affective, and professional practice experiences. Their IGs were used to explore the relationship between the graphic /image and their narrative to explore individual and professional knowledge development and their journey toward acquiring occupational therapy threshold concepts (Jaffe, Gibson, & D'Amico, 2015; Laurillard, 2021; Lackovic, 2020; Meyer & Land, 2003; Nicola-Richmond et al., 2016).

In this study, students' feelings related to REP began before the first day of placement for some participants, and they ranged from 'excited' to 'worried', suggesting that different personal factors create variations in feelings and, therefore, student responses to learning (Healey, 2017). The findings revealed different emotional reactions to REP learning across the case studies, suggesting distinct affective learner positions. This is similar to the research by Cousin (2006a) in threshold concept research and Healey (2017) in OT student placement research. Cousin explored 'affective' factors and the mastery of threshold concepts in Cultural Studies, focussing on emotional capital, and suggested four typical affective learner positions (Cousin, 2006a). Emotional capital is vital to future occupational therapists and has been defined by Cottingham (2016, p. 452) as:

'...a tripartite concept composed of emotion-based knowledge, management skills, and capacities to feel that links self-processes and resources to group membership and social location'

Whilst there is an overlap between definitions of emotional intelligence and emotional capital, the concept of emotional capital originates from cultural capital, as identified in Bourdieu's theory of social practice (Cottingham, 2016; Cousin, 2006a). In Cousin's (2006a) research, which seeks to identify the teaching and learning of the threshold concept

of 'Otherness' in Cultural Studies, Cousin describes a set of abilities associated with learners' 'emotional capital'. Cousin (2006a, p. 138) argues that social and life experiences can create a '*greater experiential proximity to the subject*,' thus creating more emotional capital. Applying this reasoning to this research and REP suggests that OT students with more emotional capital may be better placed to respond to affective factors on REP and therefore deal with 'troublesome knowledge' (Cottingham, 2016; Cousin, 2006a; Efklides, 2006).

Cousin (2006a) further translates this concept of emotional capital to the ability of a learner to deal with 'troublesome knowledge' and progress from the pre-liminal space through liminality. Cousin (2006a) draws on Meyer and Land (2003), who describe how students unable to master a threshold concept may rely on "mimicry," which may not lead to a genuine understanding of the concept. Within REP, there is no OT educator present to 'mimic' and follow daily except their peer. Therefore, there may be fewer opportunities for 'mimicry' and a greater emphasis on the learner to work through 'troublesome knowledge' either together with their Peer or separately.

In this research, the students valued recording and recalling their feelings and emotions as part of their weekly IG, often creating a metaphorical image-concept connection to explore these experiences (Lackovic, 2020; Laurillard, 2012). Across the six students, there were different examples of emotional expression and experiences linked to engaging with the learning outcomes and associated threshold concepts.

Jess (Case Study, 2) used a graphic metaphor of a brain exploding with questions and ideas (see Figure 28 below) in week one to represent her curiosity and excitement about being in a role-emerging setting working with young children (Taylor & Marienau, 2016)



Figure 28 Case Study 2 - Jess - Graphic for Week 1

In contrast to Jess's excitement about the unknown, her peer Bella (Case Study 1) used a graphic metaphor in week 1, depicting a person with the face scribbled out to avoid showing any emotional expression, either positive or negative, through the facial features.



Figure 29 Case Study 2 - Bella - Graphic for Week 1

Within the narrative of her IG, Bella explained how important it was for her in week 1 to keep her emotions hidden. Reflecting during her post-placement research interview, Bella acknowledged the heightened emotions she experienced early in the placement, when she would have liked to have had an occupational therapist onsite to model and learn from (Kaelin & Dancza, 2019). The experiences of Jess and Bella suggest they may be feeling uncomfortable and emotionally challenged, particularly in the case of Bella, which could make the learning associated with the threshold concepts and the ability to deal with 'troublesome knowledge, such as applying theory to practice in this emerging setting, more difficult (Cousin, 2006a). The IG narratives, interviews and conversations with the OT educator confirmed these challenges and struggles with understanding how to apply the 'troublesome knowledge' related to conceptual and tacit knowledge in this role-emerging environment, which appeared heightened by the affective factors. The OT educator was able to view the students' IGs before the weekly supervision and discussed how the use of images and graphics prompted her to ask students about what they represented for them and why. The IG provided a starting point for discussion, support and analysis. The reported 'emotions' appear to differ between the two students, suggesting that Jess may have '*greater experiential proximity to the subject*' [in this case, practising in role-emerging settings], which provides her with more emotional capital resources in this context (Cottingham, 2016; Cousin, 2006a).

The differences in the two students' perspectives, represented via their IGs, can also be viewed from Taylor & Marienau's (2016) neuroscience perspective, where Bella appears to have an '*anxious*' brain in week 1, compared to Jess with a '*curious*' brain (Taylor & Marienau, 2016; Taylor, 2024). The IG learning design provided a platform for each to represent and reflect on their learning experiences, not only in a written, unidimensional way, but also in an embodied, multi-modal way, using visual imagery, metaphor, and analogy. It might further be argued that this supported both the students' learning and the OT educator's supervision, as they could all identify the issues and offer appropriate individualised support.

It can be argued that the IG learning design enabled Jess and Bella to create personalised accounts of their experiences and feelings, as evidenced in their individual graphic choices and IG image-concept narratives (Lackovic, 2020). The students actively explore and analyse their feelings and placement experiences, using personal images to connect to the educational concepts of placement learning outcomes and associated threshold concepts (Laurillard, 2012). In week 1, Bella links her feelings and experiences to the placement learning outcome about 'taking responsibility for a client caseload', which links to the

threshold concepts of 'occupational therapy role', 'client-centred practice' and 'practising in the real world'. It is suggested that these threshold concepts may represent 'troublesome knowledge' for Bella due to the non-traditional environment and the absence of an OT educator on site, which led to heightened emotions at this stage of the placement.

6.3.3 Weeks 2-8 – Discussing multi-modal, troublesome knowledge and transformative learning experiences

Throughout weeks 2-8, the weekly IG posts continued to include affective factors involving the role and impact of 'feelings' associated with the students' individual learning experiences-

'It naturally creates a framework for discussion' (Educator 1)

'I just think it's a really nice way of collectively reflecting' (Educator 2)

'I think that the visual images were often feelings generated of their experiences' (Educator 1)

In weeks 2-8, IGs continued to draw on feelings, which often appeared to be associated with 'troublesome knowledge'.

6.3.3.1 *Emotions and troublesome knowledge*

Student IGs and supervision narratives suggest that personal and contextual placement factors influenced students' capacity to engage with some threshold concepts and associated 'troublesome knowledge', where applying theory to practice was 'alien' (Perkins, 1999; 2006). It appears that these 'troublesome knowledge' experiences were explored, particularly in their weekly IG, leading to 'transformation'. It is suggested that peer collaboration and learning supported some of this transformation during the eight weeks (Cousins, 2006; Meyer & Land, 2006; Nicola-Richmond, Pepin & Larkin, 2016).

Troublesome knowledge and transformative elements are two of the eight characteristics of the disciplinary threshold concept, as defined by Meyer and Land (Meyer & Land, 2003, 2006). Troublesome knowledge can come in different forms, such as difficulties with 'ritual knowledge', 'Inert knowledge', 'conceptual knowledge', 'alien knowledge', 'tacit knowledge' and 'troublesome language' (Perkins, 1999; Meyer and Land, 2006). This study reveals troublesome knowledge in various forms as students endeavour to practice Occupational Therapy in an 'alien', non-traditional role-emerging placement context. Being able to identify 'troublesome knowledge' and discussing it, along with the associated emotions, as part of supervision with their OT educator, was a positive experience for these six case studies. Paula (Case Study 4) and Laura (Case Study 3) used a graphic of a train track to represent troublesome knowledge related to threshold concepts, working as an OT and applying theory to practice (Inert knowledge) in the HE setting.

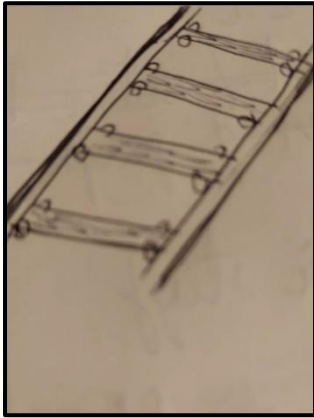


Figure 30 - Case Study 3 & 4 - Laura & Paula - Graphic for Week 3

'.....a feeling, that's when I felt that things were tricky, that there was a lot going on, and I felt like the train track was going on and on and on and on into the distance. And there was an awful lot to learn.. (Paula, Case Study 4)

The IG learning design seems to provide a platform for the students to identify and work through this 'troublesome' knowledge (Lackovic, 2020). Encountering 'troublesome' knowledge is part of the journey to acquiring threshold concepts that are 'transformative'. This is portrayed by Meyer and Land (2003, p. 6) as:

'akin to 'portal, opening up a new and previously inaccessible way of thinking about something.....it represents a transformed way of understanding, or interpreting, or viewing... without which the learner cannot progress'

The "tricky" and "troublesome knowledge" experiences associated with threshold concept transitions evolved throughout the placement and among students as they progressed toward transformation.

The use of metaphor in the image/graphic choices the students made for their IG, which explored 'troublesome knowledge' and affective factors, was apparent in most case studies. The personalised choices of images and subsequent reflection on learning appeared to support the student's progression through this liminal phase (Meyer & Land, 2003; 2006). For example, Dawn, (Case Study 6) chose an image of a pair of green wellies to represent two metaphors and meanings: first, her '*uniform of the care farm*' in contrast to the usual occupational therapy green uniform and second, '*taking the first step forward*' suggesting her progression into the liminal space (Meyer & Land, 2003; 2006). Using imagery in the IG, particularly in connection with metaphor and analogy, has effectively represented the

students' emotions, and possibly linked to 'troublesome knowledge' related to the TC, 'the occupational therapy role' in this REP setting. (Lackovic, 2020; Meyer & Land, 2006; Taylor & Marienau, 2016).

This use of imagery helps to explore the experience of liminality, a relatively new area of exploration linked to semiotics (Lackovic & Olteanu, 2021; Land, Rattray, & Vivian, 2016). Land, Rattray & Vivien (2016) first explored the liminal space using a semiotic approach through four stages. In the first stage, they explored the confusing space of liminality, where the learners' old understandings still exist but their new learning is not fully formed, through spatial metaphor. Land, Rattray & Vivien (2016) argue that supporting this first phase is essential to achieve deep learning and progression. In the following stages, visual models, their application and the shared inquiry, with lecturers guiding students, are discussed. Since then, Lackovic (2020) has introduced the concept of the 'inquiry graphic,' proposed as a means to explore knowledge through visual representations and narratives. This creation of the IG can also be analysed using the Peircean triadic model, adopted by Lackovic (2020) to explore the complexity of meanings through IG's. For Dawn, the green wellies (see Figure 31 below) are a pictorial representation of an embodied sign. So, while the green wellies represent an item associated with working on a farm, for Dawn they also represent other embodied feelings and thoughts. The green of the wellies, like the green of an OT uniform (probably worn on her other placements), and the action of walking in wellies, links to her feelings about taking the first steps forward into this placement, which is her representation of stepping into the 'alien knowledge' (Lackovic & Olteanu, 2021; Land, Rattray & Vivian, 2016; Meyer & Land, 2003;2006)



Figure 31 - Case Study 6 - Dawn - Graphic for Week 3

All case studies in this study used visual metaphor and analogy to express feelings, progression, or experiences related to their learning. I have already represented some of these in discussing week 1. This continued during weeks 2-8, with examples such as Bella's (Case Study 1) image of a sapling (see figure 32 below). Applying a Peircean triadic model (Lackovic, 2020) to reflect on this image, my interpretation of her image and interview reflections are as follows:

- 1) Noticing (focussed seeing): I notice a sapling, a hand, droplets of water
- 2) Interpreting: The sapling represents Bella, as an OT student, a young student professional with developing knowledge.
- 3) Interpreting: The hand represents people nurturing, and the water is the knowledge that people are giving her, and the sun is creating the right environment.
- 4) Inferring: I interpret this mainly as Bella feeling more settled in week 3, after her anxious start in week 1.

Meaning making in this way is powerful and represents the multimodal aspects of learning for Bella during her REP placement. Similarly, this type of analysis and meaning making can be carried out for other case study images.



Figure 32 - Case Study 1 - Bella - Graphic for Week 3

The use of the IG learning design appears to have promoted an active and engaged way for students to reflect on and explore their learning related to threshold concepts, identifying associated emotions and experiences unique to them. It might be suggested that the creation of the IG provided a means to support associated emotions and embodied responses, allowing individuals to share them with their educators and peers. The IG took

time to create, which suggests an effort invested in the activity to link images to OT experiences and concepts, and provided an artefact for shared discussion and collaboration.

6.3.3.2 Collaboration and Peer learning support 'transformation', creating a sense of belonging

As part of acquiring threshold concepts and transformative learning, transformation is an essential transition from being a student to a newly qualified occupational therapist (Nicola-Richmond et al., 2016). The IG learning design and application of threshold concepts theory not only seems to support students in reflecting on affective factors related to their placement experiences associated with the learning outcomes and related threshold concepts, but the student peer discussions of the graphic and IG promoted collaborative learning, reflection, and critical thinking (Laurillard, 2012; Markowski et al., 2020). Tanner (2011) was an early OT researcher who explored the application of threshold concepts theory to practice education. In her research, Tanner (2011) applied a threshold concepts framework to enhance dialogue and collaboration between practitioners, academics, and students regarding learning on OT practice placements. This study provided a valuable starting point for utilising and identifying threshold concepts in OT practice education, as well as exploring the importance of dialogue and connection between OT educators, students, and the university curriculum. This research supports Tanner's (2011) work by suggesting that threshold concepts can facilitate and support student peer dialogue and collaboration. However, this study introduces a new dimension of graphics alongside the threshold concepts to create multimodal richness, further enhancing discussion and collaboration.

Collaborative Peer learning has philosophical foundations in constructivist and social learning theories, such as those of Vygotsky and Dewey, which assume that learning is constructed and scaffolded during interactions and collaborations with peers and educators (Lackovic, 2010; Markowski, 2021; Vygotsky, 1978). Collaborative Peer Learning is described in the OT literature under a range of terms, including 'Peer-Assisted Learning', 'Peer Learning' and 'Collaborative Learning' (Aguilar, Kaskutas & McAndrew, 2023; Daniels, 2010; Fieldhouse & Feddon, 2009; Keptner & Klein, 2019; Marksowski, Bower, Essex & Yearley, 2020). Effective collaboration and interaction with other professionals in health and care are essential skills for OT students to learn and develop into successful practitioners. Learning designs that encourage and facilitate this way of working are beneficial for OT students and all health students.

The IG method adopted in this study promoted collaboration between pairs of students in the same role-emerging placement and between the students and their OT educators. This collaboration using the IG appears to provide a structure to scaffold and support reflection and critical thinking about placement learning, building a better understanding of the

potential for OT within the role-emerging setting and contributing to growing professional confidence (Holland, 2012; Lackovic, 2010; 2020).

Laura, Case Study 3, valued collaborating with her student peer, Paula,

‘I really, really enjoyed working in partnership with [Case Study 4].....the learning you do from the different perspectives and everything she has shared with me from previous experiences.....it was brilliant.....really really enriching’ (Laura, Case Study 3)

She also attributed the shared IG discussion during supervision as a way of facilitating a deeper connection with their OT educator

‘it definitely helped to facilitate a deeper connection with our [OT] educator.....because I think he could understand what our thinking behind doing something was, better....’(Laura, Case Study 3)

These collaborations are similar to those of Keptner & Klein (2019), who applied a ‘collaborative learning model’ (CLM) to supervise a group of first-year MSc students on placement with a student partner. A further comparison between Keptner & Klein (2019) and this study can be seen in their use of learning activities, including photovoice journal entries, to promote students' reflections on their fieldwork experiences in a preschool emerging setting in New Mexico, USA. Regrettably, Keptner and Klein (2019) did not discuss the use of photovoice as a data collection and reflective tool further. However, their findings did identify that OT students in the USA found that ‘Peer relationships make a difference’, recognising the value of peer support when they have limited supervision for checking learning, practising, and observing each other, and providing reassurance, which is similar to this study.

In another study, Aguilar, Kaskutas, and McAndrew (2023) adopted a "dyad" model to support a pilot of a peer-assisted learning approach in a student experiential learning clinic for hand therapy. This clinic was part of the preparation for placement, rather than a placement. Again, as in Keptner & Klein (2019) and my study, supporting learning tools were present, although they differed from those in this study. Aguilar et al. (2023) used a session rating tool and documentation checklists to provide structure and feedback between the students. These checklists were well received by the participants, as they provided clear criteria for students to use in informing their practice and learning in the hand therapy clinic. These ‘criteria’ focused on practice delivery, and, similar to this study, Dancza et al. (2016) and Keptner and Klein (2019) found that students reported these support structures were beneficial in supporting their learning and practice in the setting.

This PhD study encourages peer learning and support through pairing students and using the IG learning design. The IG learning design has prompted and supported peer discussion, collaboration and learning related to key disciplinary concepts. In addition to the studies discussed above, the discussion includes students' feelings and emotions associated with their learning. The combined professional practice peer learning, with the ability to record and explore their emotions and feelings related to their placement experiences and learning, also seems to give this innovative IG learning design additional depth.

Peer supported learning relies on students working well together. Whilst this PhD study did not identify any compatibility issues with the student pairs, Keptner & Klein (2019) did experience this, suggesting that compatibility issues can be magnified in these emerging settings with less supervision due to the reliance on each other and the need for close working. However, learning to manage conflict as a healthcare professional is essential, and therefore, managing and dealing with these challenges as part of peer learning will be beneficial, albeit possibly emotionally challenging. The weekly IG provides a potential space for each learner to express their experience in an embodied, multimodal way. Further studies may be beneficial to explore how students on REP placements experience the use of IG when they encounter compatibility issues. Careful design that addresses all ethical matters will be necessary for this type of further study.

In this study, each pair of students' ways of collaborating about their IG varied according to the setting and how they and their educators used the weekly IG development and discussion. The three pairs of peers, Jess and Bella, Laura and Paula, and Helen and Dawn, differed in how they applied the IG Learning Design method during the week and in weekly supervision (Lackovic, 2020). This variance in delivery, while reducing the focus and findings related to one approach, has introduced interesting alternative approaches that would benefit from further discussion here and in future research.

Bella (Case study 1) and Jess (Case study 2) were on a REP in a school. They each selected their own image and created an individual IG to explore their learning related to a placement learning outcome and the associated threshold concepts. They described having some informal discussions about their IGs and then meeting once a week with their OT educator for supervision, where they took turns exploring their IG. The OT educator had access to their IG Padlet's, where they stored their weekly IG, so they reviewed each student's IG before the weekly supervision. The IG learning design process appears to have enhanced collaboration, connection and communication between the students as peers and the educator.

Jess, Case Study 2, felt that the IG learning design acted as

‘an icebreaker as it starts the discussion [in supervision] and as well... with how it is laid out [IG layout of learning outcomes, graphic and 8 reflective questions]....I think our supervision benefited greatly....always an area to reflect on....but also it makes me realise how useful having an image in a discussion is...’

In a similar but different way, Laura and Paula discussed the value of collaboration during their REP in a higher education (HE) setting (Dancza et al, 2013; Daniels, 2010). In this setting, the educator and students applied the IG process in different ways. Here, they decided to collect and create a shared image or graphic, then use it to craft their narrative and individual IGs. Whilst Laura suggested that not choosing her own image may have restricted some personalisation, as the agreed upon choice may not always have been the best fit, overall, she felt this shared process was beneficial. Both students identified the value of negotiating and agreeing on the image or graphic choice, as well as the shared discussions about their learning related to threshold concepts with their educator during supervision. Engaging in this shared occupation, as they identified their graphic, individually created their IG and then came together to share and discuss their IG's with their supervisor, appeared to develop a sense of connection and belonging (Hitch, Pepin & Stagnitti 2014a; Wilcock, 2006).

Creating a sense of connection and belonging for OT students through their engagement in ‘doing’ the ‘occupation’ of developing and discussing their IG may support their emotional well-being during their REP placement. ‘Occupation’ is a threshold concept and central to the philosophy and theory of occupational therapy (Christiansen & Haertl, 2024; Fortune & Kennedy-Jones, 2014). Crafting this collaborative experience using this multimodal IG method appears valuable not only to the OT students' well-being on REP but also to their knowledge and professional identity development (Hitch, Pepin, & Stagnitti, 2014a, 2014b; Lackovic, 2020).

This IG process for OT students on REP can be considered through the lens of Wilcock's Occupational Perspective of Health (Wilcock 1999; 2006). This framework views ‘occupation’ as a central concept in health, wellbeing and human experience (Wilcock, 2006). It might be suggested that the occupation of IG creation contributes to OT students' experiences of reflection, learning, and wellbeing on REP placements. Applying the framework might propose that ‘doing’ the activity of creating the IG, develops skills needed to be a future occupational therapist, with ‘being’ (thinking, reflecting, discussing and collaborating) helping the OT students to reflect and discover who they are ‘becoming’, as they move forward with their disciplinary learning and development towards becoming an

occupational therapist. Hitch, Pepin & Stagnitti (2014a, 2014b) further developed Wilcocks' framework, suggesting that 'doing', 'being', 'becoming', and 'belonging' are all interconnected. It is proposed that this IG pedagogy and learning design enhanced OT students experience of 'doing', 'being', 'becoming' and 'belonging' through the occupation of creating, discussing and reflecting on their IG each week (French & Clarke, 2024; Hitch, Pepin & Stagnitti, 2014a;2014b; Wilcock, 2006).

In summary, the findings suggest that the IG learning design provided a personalised platform for these six OT students on REP placements. They could record and reflect on their learning experiences in a multimodal, embodied way. This IG process appeared to foster a sense of connection and collaboration, contributing to the students' overall well-being and professional identity development on these REP placements. Developing a professional identity requires OT students to understand the key disciplinary concepts of the field. In this study, threshold concepts theory has been used as a framework to specify this essential knowledge. In the next section, I will discuss the next part of the students' learning and development journey, their evaluations of their REP experiences. The findings suggest that threshold concepts, combined with IG's, were important 'jewels' in growing students' critical thinking, professional confidence, and identity, leading to transformation towards the end of their placement (Holland, 2012; Meyer & Land, 2003; 2006).

6.3.4 Role-Emerging Placement Evaluation – Reflecting on the placement

By focussing on the placement learning outcomes and associated threshold concepts, students appeared to have a 'hook' to direct their reflections on learning that led to the choice of graphic and creation of their IG. The process and time involved in creating the IG and linking it to the learning outcomes and threshold concepts also kept a focus and connection between placement learning experiences and OT theory. During the semi-structured interviews, after completing their REP placement, the case studies reflected on their overall experience using the IG learning design with threshold concepts. Paula (Case Study 4) found that the combination of choosing a graphic to illustrate and connect learning related to threshold concepts provided focus,

'choosing something [a graphic] that was related to the threshold concept tying everything together....was an important part of the learning and linking'

A way to enhance the dialogue, focus, and reflection on key disciplinary learning is by articulating the threshold concepts on the IG. Paula suggested the threshold concept, and IG acted as a method to

'cement the learning....and the relation between the graphic and the learning objectives [and associated threshold concepts] and or reflections on that ...we looked for it [a graphic], we spoke about it and then we actually physically wrote about it' Paula, Case Study 4.

This level of thinking suggests critical thinking is taking place, which can be defined as:

'the art of analysing and evaluating thinking with a view to improving [your thinking]' (Paul & Elder, 2016, p. 2)

Critical thinking is an essential professional skill linked to the OT process and, therefore, important for students to develop (Berg, Phillip, & Taff, 2019, 2023). The link between critical thinking, IG's and threshold concepts must be considered further. From the data and students quoted above, it can be implied that focusing students' thinking on creating an IG to represent their learning related to the learning outcomes and associated threshold concepts encouraged them to think deeply and reflect. Taking the time to connect with the learning outcome and associated threshold concept deeply and considering what image or graphic might best illustrate their learning appears to lead to critical thinking in this study. In this example, it might be suggested that IG's and threshold concepts are acting as a catalyst to students' critical thinking by encouraging students to focus, engage and think about threshold concepts and their learning through the creation of the IG (Berg, Philipp & Taff, 2019; Lackovic & Olteanu, 2024).

It is proposed that by critically engaging with theory to practice reflections using the IG learning design, students were facilitated to focus on their professional practice learning, which in turn led to growing confidence. Jess discussed her developing confidence and progression in her IG in week 7, when she chose a graphic of a woman observing a young child at play (see Figure 33 below). She described how much her learning had progressed at this stage,

'I'm looking at that picture from week 7, like my feelings around that were my confidence and feeling that I could observe a child and I knew what I was looking for...like carrying out the intervention [occupational therapy intervention] independently..'



Figure 33 - Case Study 2 - Jess - Graphic for Week 7

For Dawn (Case Study 6), the graphic added to the level and quality of her reflection, giving her confidence that if her written narrative were unclear, the discussion using the graphic in supervision would enhance the learning experience and support clarity.

‘ I felt more confident that even if I hadn’t quite made it clear in the literature (written part)....she [OT educator] could see it [graphic] and then we would also talk about it and reflect on it verbally’

The combination of the REP and the use of the IG learning design to support student engagement with theory to practice and growing confidence was also apparent in comments from Bella (Case Study 1). After placement, she said she was ready to be a Band 5.

I have that confidence now to use my core skills [OT skills] to collaborate with others, teamworking and promoting the OT profession cuz [because] I had to advocate for us [Occupational therapy profession] ...’

The addition of the IG learning design in this study appears to be linked to supporting OT students with managing emotions, peer collaboration, disciplinary learning, and confidence on REP placements. Whilst there are other supporting factors, such as placement mentors and OT educators, the continual use of the IG appears to have provided a useful personalised, multimodal learning platform on REP.

6.4 Section 3 - A pedagogy and conceptual framework for REP learning

The conceptual difficulty of applying professional practice knowledge and skills in REP settings has already been identified in the literature. However, the value of REP placements in supporting students' professional identity development has also been acknowledged (Clarke et al, 2014; Dancza et al, 2019; Hunter & Volkert, 2017). Where students have less confidence or experience in REP contexts, this can lead to different emotional and affective responses. These affective responses risk students' ability to maximise their learning and

connect theory to practice and vice versa. Using the IG learning design as part of reflection on learning about threshold concepts has created a vehicle to explore placement experiences related to learning during weekly supervision. This innovative, new OT pedagogy for REP placements is creative and person-centred, allowing students to explore their personal, embodied and multimodal experiences.

Currently, there is a lack of OT-specific pedagogies which include OT theory and philosophy (Hooper et al., 2013; Hooper, Molineux & Wood, 2020). This IG conceptual framework and learning design aim to provide a learning roadmap to support students on REP placements. This IG learning design possesses both a creative and person-centred focus, reflecting the values and ethos of Occupational Therapy. The creation of the IG through the 'doing' of the reflective learning occupation aligns with OT theory. This supports students' identity development as they are guided towards 'being', 'becoming', and 'belonging' to the occupational therapy profession (Hitch & Pepin, 2021; Walder et al, 2022). Further research is indicated to explore the use of this innovative conceptual framework and IG learning design.

6.5 Section 4 - Limitations

Identifying and discussing the limitations of this study is crucial at this stage of the discussion. A single 'insider' researcher has conducted this PhD study; thus, it is recommended that future research involve others and a larger number of participants. My position as an 'insider' was addressed in section 4.7 of chapter 4 and merits further discussion. Overall, my 'insider' status provided advantages, as I possessed a deep contextual knowledge and understanding of occupational therapy, REP placements, and students' learning (Braun & Clarke, 2022; Morse, 2015). However, this benefit risked becoming a disadvantage in parts, if bias or power issues had emerged as I navigated the dual role of lecturer and PhD researcher. Within this study, I took care to reflect on and be reflexive, using supervision to monitor my position and role within the research (Etheringham, 2004; King & Horrocks, 2010). Having a PhD supervisor, external to my profession and work setting, supported this reflexive approach, as she was not immersed in the profession and context, and provided appropriate challenges and discussions, fostering robustness (Etheringham, 2004). This was particularly important in my role as data collector and interviewer, as the case study participants were OT students on programmes that I lectured and worked on. There was a potential for 'confirmation bias' among participants, who may have wanted to be positive about their learning experiences and the use of the IG learning design (Berger, 2015; Clark et al, 2021). To mitigate this, participants understood their participation was voluntary and that it had no effect on their placement assessment.

Neutral language was also used during data collection, and diverse viewpoints were encouraged (Braun & Clarke, 2022; King & Horrocks, 2010).

The number of case study participants is a limitation that may raise questions about the reliability of the findings. However, there is a richness to each case study's findings, with all case studies providing valuable perspectives and experiences that contribute to addressing the research questions. The OT students represented a mix of backgrounds and ages, which reflects the OT profession. However, there were no male OT students. In addition, this study was conducted from a Western, white perspective, which may limit its applicability to other parts of the world where occupational therapy is thriving and REP and diverse role placements are emerging (Mahoney & Kiraly-Alvarez, 2019). Further studies involving OT students from the Global South, representing diverse cultures, are indicated.

IG design and activity was reported as having a highly positive and successful effect on both students and educators. Some challenges may need to be considered too, such as the time required for educators' preparation and getting familiar with the IG activity, their engagement as co-designers in the future, that was not the case in this initial study, the way how the activity is introduced, and further work in supporting critical and deeper image analysis for thinking.

Although the study includes only six case studies, the richness of eight weeks of data, the level of analysis, and the identification of cross-case themes suggest some level of data saturation. The addition of the two educators' conversations added further depth to the findings. However, including more educators' perspectives in a larger study would help draw their viewpoints, particularly as they were essential to facilitating and delivering the IG learning design. Further studies will help in ongoing refinement and evolution of the IG pedagogy and learning design in OT practice

6.6 Chapter Summary

This chapter has discussed the findings of this study in addressing two research questions. The discussion has used a student journey approach to explore and interpret the findings, situating them within the existing literature. Consideration of the study's limitations has been discussed, including the number of participants and the position of the researcher. Suggestions about the research's knowledge contributions have been made and will be discussed further in the next chapter, alongside tentative recommendations.

Chapter 7 – Conclusion and Recommendations

This concluding chapter summarises my findings, contribution of new knowledge and the recommendations for future research. This research has introduced and evaluated a creative, multimodal learning design that utilises graphics and images to explore OT students' learning related to threshold concepts in REP placements (Lackovic, 2020; Meyer & Land, 2003). This is the first study to utilise inquiry graphics in occupational therapy, making several contributions to knowledge regarding inquiry graphics, threshold concepts, and role-emerging practice placement learning.

7.1 Summary of the study

This innovative exploratory study evaluated an IG learning design to support six occupational therapy students' application of threshold concepts in three role-emerging placement contexts (Lackovic, 2020; Meyer & Land, 2003). In addition, the application of threshold concepts as a reflective tool and the focus on key disciplinary concepts were evaluated in terms of what students found 'troublesome' and 'transformative' about their learning experiences (Meyer & Land, 2003, 2005).

Across the six case studies, the emotions related to being on a REP placement surfaced, and they varied across the eight weeks, with some students expressing feelings of excitement and others showing signs of anxiety about the placement. Weekly IG's enabled students to articulate and then reflect on or confront their 'curious' or 'anxious' experiences and responses, alongside troublesome and transformative experiences and key concepts that they needed to learn about, through the creation of a weekly IG (Lackovic, 2020; Meyer & Land, 2003; Taylor & Marienau, 2016). This kind of response to REP placements aligns with other REP studies, as do the emotional responses and experiences associated with learning (Cade, 2023; Clarke, De Visser, Martin & Sadlo, 2014; Hunter & Volkert, 2017). What is different in this study is the way that the creation of weekly IGs provided a critical platform or 'framework for engagement' for students to explore their feelings and reflections on learning related to threshold concepts that are central to OT practice. All case studies found that this process of IG creation and the subsequent discussion in weekly supervision were conducive to their learning about themselves and professional threshold concepts, despite some participants' hesitancy in the early stages of the research. Using IGs to represent their learning over the eight weeks also allowed them to connect theory to practice, reflect on their development and REP learning journey, and their placement experiences as they progressed through their placement.

In particular, peer collaboration about IGs and supervision discussion to explore what their IGs represented related to threshold concepts provided a creative and reflective experiential framework for engagement in learning on REP placements. Identifying troublesome and transformative experiences was valued, as students progressed through their own liminal learning spaces (Meyer & Land, 2006). Within the IGs, the use of visual metaphor as one of the IG image-concept types was apparent throughout the 8 weeks, with powerful graphics used to illustrate multiple feelings, learning and experiences. This rich data provided deeper insights for both students and educators into individual students' experiences and analysis of their feelings and learning related to threshold concepts and wider placement activities.

7.2 Contribution to Knowledge

The findings from this study not only provide insights about OT students' experiences of adopting the multimodal IG learning design to reflect and explore their learning related to threshold concepts on REP placements. They also highlight the importance and role of embodied, relational and affective student responses to learning in these non-traditional settings. In particular, knowledge contributions from this study are at the intersection of the following three areas:

- 1. Contribution to OT learning and practice** – Using a digital multimodal, IG learning design with graphics and written narratives can provide a platform for OT students to reflect and connect theory to practice placement experiences more deeply. Expanding OT practice with multimodality appears to support students in reflecting on all experiences in REP. Professional identity challenges in REP can present learning opportunities. Challenges, whether personal, contextual or occupational, concerning their role as a student in the setting, impact their experiences. Opportunities and learning from these challenges can be explored through the IG learning design.
- 2. Contribution to Threshold Concepts** - Expanding threshold concepts learning through visual reflection. An IG on a Padlet creates a digital space for OT students to reflect in a personalised way and increases focus on key disciplinary learning concepts, in the form of threshold concepts or what can be termed “threshold graphics”. ‘Troublesome knowledge’ and ‘transformative’ experiences form part of this focus. This supports collaboration with peers and supervision discussions about all aspects of learning, including emotions and feelings.
- 3. Contribution to Inquiry Graphics** – This was the first study to apply Inquiry Graphics in the context of OT. The use of visual metaphors to represent and reflect

affective, embodied, and cognitive experiences related to placement learning may enhance depth, connection, and memory of placement experiences and knowledge. The application of IG pedagogy and learning design in REP placements provided a creative, contemporary, multimodal approach and supported active, inquiry-based student reflection and collaboration. It can be suggested that this approach to supervision for these six case studies fostered confidence in their 'doing' of OT in REP and application of theory to practice.

The study has shown that this creative method and approach using IG and TC, which has been suggested as a possibility and termed 'threshold graphics' (Lackovic, 2020), is both feasible and acceptable to both students and OT educators.

7.3 Future Research and Tentative Recommendations

Further application and research of the IG (inquiry graphics) method, which incorporates TC in REP and other placement learning, can continue to illuminate student learning and experiences. It can further advance knowledge on how the use of images and student reflections as IG's (or threshold graphics) can support deep, affective, and holistic learning for occupational therapy students and other allied health professions about key disciplinary concepts. This could include longitudinal studies in cross-university and cross-national contexts. Continued development and identification of digital spaces for storing and sharing IG for discussion purposes (e.g., Padlet) are recommended, including the creation of dedicated OT "concept galleries" (Lackovic, 2020).

Further research, methodological experimentation and evaluation involving occupational therapy educators, newly qualified OT practitioners, and service users is required to advance the development and refinement of this pedagogy and learning design. Engaging these stakeholder groups would enable a deeper understanding of how Inquiry Graphics (IG) and threshold concepts (TC) operate across a range of role-emerging placement (REP) contexts, and how they shape learning, identity formation, and professional reasoning. Embedding IG-TC activities within pre-registration curricula and continuing professional development (CPD) frameworks for educators, OT practitioners, and OT students may also support wider adoption and sustained pedagogical innovation. If this were the case, future studies should consider examining the scalability, transferability, and contextual adaptability of this approach by evaluating its impact on learning outcomes, professional identity development and application of theory to practice. It is suggested that such research would strengthen

the evidence base for contemporary OT pedagogy and enhance the translation of multimodal, concept-driven learning designs across educational and practice settings.

Appendices

Appendix 1: Extract from Pebble pad Research diary – 21st November 2021

Great supervision session with Natasa today! Feel as if my study design is finally coming together! It feels as if I have been trying to work out how to bring inquiry graphics and threshold concepts together over the past year, but I have been struggling with the details of applying them to students on REP placements. I know the theory and have read chapters from the IG book, but have been struggling with the details of its practical application!

In today's supervision, discussions around ways to apply it, with graphics and narratives, have helped it to progress - phew! Really helpful discussions around the actual method and how I might store the Occupational Therapy Inquiry Graphics Learning design. I feel reassured that, by adapting a version of Natasa's previous method for veterinary students, this can work for OT students! This is another step along the PhD Journey!

We discussed the key learning concepts/outcomes for Practice Placements 1,2 & 3. Going to work on how to apply these through this framework of IG & TC. Linking a photograph with a narrative. Natasa is going to share some of her work with veterinary students. Excited that this may be the first OT & ?health based IG study

Excited to share this with the team and pilot it as soon as developed

Padlet Guidance & Reflective Questions

Please add a photo, mind map or doodle (graphic) to illustrate your learning related to a learning outcome here.

Reflective Questions

1. Which Learning outcome does this photo/ graphic relate to?
2. What are you particularly interested in relation to this learning outcome?
3. What reading and literature have you read about the topic?
4. Why did you choose this photo to represent this learning concept? How did you select /create or search for it?
5. What details are important for your learning about this photo? Identify things in the content, for example, colours, people, objects, things, positioning?
6. How do you interpret what you see? How does it relate to your learning around this topic or concept? How does it relate to your learning experiences?
7. What do you find challenging about your learning in relation to this concept?
Why?
8. What do you plan to do to continue your learning related to this topic?



Participant Information Sheet for Students

Title: Students' perceptions of occupational therapy threshold concepts on role-emerging and project practice placements: A qualitative study using a threshold concepts and inquiry graphics framework

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection

My name is Susie Wilson, and I am a PhD student at Lancaster University and Principal Lecturer and Professional Lead for Occupational Therapy at the University of Cumbria. I would like to invite you to take part in research investigating student learning on role-emerging and project practice placements.

Role-emerging practice placement – A placement where there is no established occupational therapist but the people/ service users within that service would benefit from occupational therapy. Students are supported in placement by long arm external supervision by an occupational therapist from the academic team at the university or another external qualified OT.

Project-based placements – based in a team which may or may not have an occupational therapist. For example, students based in a new Simulation team within the University of Cumbria. These students work with the Simulation team and carry out specific projects around developing simulated scenarios for occupational therapy student learning. Topics may relate to Professional behaviour, ethics or safeguarding. Students lead a small project. This type of placement is also happening within NHS practice.

Please take time to read the following information carefully before you decide whether you wish to take part.

What is the study about?

This research aims to explore occupational therapy students' learning related to key discipline concepts in role-emerging and project-based practice placements. The research will use an Inquiry Graphics design, which means that you (student) will collect or create graphics (e.g., you will provide at least one photograph or other graphic, such as sketches,

diagrams, doodles) to represent and symbolise your learning for deeper reflection on practice. Please note that no artistic skill or practice is expected or needed from you.

Why have I been invited?

I have approached you because you are a student doing a role-emerging or project practice placement for either Practice Placement 2, 3 or 4.

What will I be asked to do if I take part?

If you decided to take part, this would involve the following:

1. Before your placement starts, you will be introduced to the research as part of the practice placement briefing/meeting. I would share a clear protocol to follow, which explains how you will collect graphics each week at your placement. You would then use the graphics to reflect on your learning experiences related to placement.
2. During your placement, I would like you to collect at least one graphic each week, this would be either a photo or another graphic of your choice, such as a mind map, video, doodle or drawing. This graphic should symbolise or represent something that strikes you about your learning and your focus each week. You would then upload the photograph and/ or graphic to your own individual Padlet with a brief reflection. You would discuss this work at the weekly supervision sessions, which take place as part of your placement already.
3. There will be clear guidance for you to follow regarding the discussion of the photographs/graphics at the weekly supervision session. I would like your consent to record (using MS Teams) the part of the supervision session which involves the reflective discussion of the photograph /graphic. If consent is gained from all participants, I would like to record this session each week.
4. At the end of your practice placement, you would also take part in a 40-minute interview with the researcher, either via Microsoft Teams or face-to-face, to explore your experience of using this tool for student learning. This will be recorded on MS Teams.
5. If you think you could participate only in the interview or only be recorded in the group supervision sessions, this is also OK, if this is your preference (you can state that on the consent form).

What are the possible benefits from taking part?

There are no benefits to you for taking part in this research. However, taking part will allow you to experience this teaching-learning design that potentially can support your learning and experiences on practice placement. Your insights will contribute to the understanding of key issues and concepts in the practice and disciplinary learning in occupational therapy.

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. If you decide not to take part, this will not affect your professional position or work.

What if I change my mind?

If you change your mind, you are free to withdraw up to two weeks after sharing your data with me. After two weeks, your data will have been redacted and pooled together with other participants' data and therefore cannot be withdrawn. If you want to withdraw, please let me know by email within 2 weeks of your contribution.

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any disadvantages to taking part. If there is any discomfort about participating for any reason, please report it to the researcher (Susie Wilson).

Will my data be identifiable?

After your practice placement ends, the researcher conducting this study and my supervisor will have access to the ideas you share with me. I will not use any names in reporting the research, and when reporting, I'll use pseudonyms. The university will be referred to as a North-West UK university, and we will refer to the discipline and the course content.

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 remove any personal information from the written record of your contribution. All reasonable steps will be taken to protect the identity of the participants involved in this research.

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

The data provided by you in this research are the recordings from the supervision conversations, the graphics you have collected and our interview. The conversations and interviews will be transcribed by MS Teams. I will use the information you have shared with me for research purposes only. This can include my PhD thesis, academic and open access publications. I may also present the results of my research at academic and practitioner conferences.

When writing up the findings from this research, I would like to reproduce some of the views, ideas and graphics you shared with me. I will give you a pseudonym, and I will only use redacted quotes (e.g. from my interview with you), so that although I will use your exact words, **all reasonable steps will be taken to protect your identity in** our publications.

How my data will be stored

Your data will be stored on my university's OneDrive account. This protects files through multi-stage encryption (that is, no one other than me, the researcher, can access them). Any recordings will be listened to using headphones to protect confidentiality. Any hard copies that are printed during data analysis will be stored securely in a locked cabinet 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 university guidelines, I will keep the data securely for up to minimum of ten years.

What if I have a question or concern?

If you have any queries with anything concerning your participation in the study, please contact myself or my supervisor-

1. **Susie Wilson** on s.wilson13@lancaster.ac.uk
2. Dr Nataša Lacković,
Director, CHERE@LU, Centre for Higher Education Research and Evaluation
Director, ReOPeN@LU, @ the Institute for Social Futures Research, Lancaster
University, Lancaster LA1 4YG

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:

Dr Jan McArthur – Head of Department

Tel: +44 (0)1524 594443

Email: J.McArthur@Lancaster.ac.uk

Room: County South, D32, Lancaster University, Lancaster, LA1 4YD, U

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

Thank you for considering participating in this research.

Appendix 4: Consent form for Students



Consent form - Students

Project Title: Students' perceptions of occupational therapy threshold concepts on role-emerging and project practice placements: A qualitative study using a threshold concepts and inquiry graphics framework.

Name of Researcher: Susie Wilson

Email: s.wilson13@lancaster.ac.uk

Please tick each box

Statement	Tick box
1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	<input type="checkbox"/>
2. I understand that my participation is voluntary and that I am free to withdraw at any time during my participation in this study and within 2 weeks after I took part in the study, without giving any reason. If I withdraw within 2 weeks of taking part in the study, my data will be removed.	<input type="checkbox"/>
3. I understand that any information given by me may be used in future reports, academic articles, publications or presentations by the researcher/s, but my personal information will not be included, and all reasonable steps will be taken to protect the identity of the participants involved in this project.	<input type="checkbox"/>
4. I understand that my name/my organisation's name will not appear in any reports, articles or presentations without my consent.	<input type="checkbox"/>
5. I understand that any interviews will be audio-recorded and transcribed and that data will be protected on encrypted devices and kept secure. I confirm that I agree to my end of study interview being audio & video recorded and transcribed on Microsoft Teams. Please circle YES NO	<input type="checkbox"/>

6. I confirm that I agree to having part of my weekly supervision sessions audio-recorded, where discussion related to the research takes place	<input type="checkbox"/>
7. I understand that the data I provide in my Padlets, which could be photographs, any other graphics and reflections, will be used as research data, and I consent to this and to the ethical conduct of the graphic data I provide, following the instruction/protocol I receive.	<input type="checkbox"/>
8. I understand that data will be kept according to University guidelines for a minimum of 10 years after the end of the study.	<input type="checkbox"/>
9. I agree to take part in the above study.	<input type="checkbox"/>

Participant's details

Participant's name _____

Participant's Signature _____

Date _____

Declaration of researcher/person taking the consent

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Name of Researcher/person taking the consent

Signature of Researcher/person taking the consent

Date (Day/month/year) _____

One copy of this form will be given to the participant and the original kept in the files of the researcher at Lancaster University.



Research Information Sheet for Role Emerging Placement Organisations

Title: Students' perceptions of occupational therapy threshold concepts on role-emerging and project practice placements: A qualitative study using a threshold concepts and inquiry graphics framework

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection

My name is Susie Wilson, and I am a PhD student at Lancaster University and Principal Lecturer and Professional Lead for Occupational Therapy at the University of Cumbria.

In this information sheet, I would like to let you know about some research I would like to carry out with occupational therapy students coming to your organisation on placement. As this research involves students collecting or creating data whilst they are on placement, I would like your permission for students to collect this data whilst they are at your organisation on practice placement.

Please take time to read the following information carefully before you decide whether or not you give permission for students to collect data whilst on placement at your organisation.

What is the study about?

This research aims to explore occupational therapy students' learning related to key discipline concepts in role-emerging and project-based practice placements. This will not only help academics and students but also support the development of role-emerging placements, like yours. I will also provide a short executive report, which I will share with your organisation to support future developments.

The research will use an Inquiry Graphics design, which means that students will collect or create graphics (e.g., they will provide at least one photograph or other graphic, such as sketches, diagrams, mind maps or doodles) to represent and symbolise their learning for deeper reflection on practice each week. Students will bring the graphic to weekly supervision, where it will be discussed.

Every effort will be made to ensure that identifying organisational or service user data (photographs or other graphics) will not be collected by students. Students will stick to the

guidance you and I give them. The photographs or graphics created by the students will be available to you for you to review and retain at the end of the study. The photographs or graphics will not be attached to your organisation, and we will protect the identity of the data by not referring to the organisation ever. We will use pseudonyms for the students. All students will be expected to follow your organisation's policies, as well as our Student Code of Conduct and the HCPC Guidance on conduct and ethics for students regarding the collecting and storage of the graphics <https://www.hcpc-uk.org/globalassets/resources/guidance/guidance-on-conduct-and-ethics-for-students.pdf>

Why have I been approached about this study?

I have approached you as the lead person from your organisation, which takes University of Cumbria occupational therapy students on placement. I would be very grateful if you would agree that students can collect data whilst on placement at your organisation.

What will I be asked to do if I agree my students can collect data at my organisation?

If you agree that students can collect data whilst on placement, you will be asked to sign a consent form. This means that I, as the researcher, can use the data collected for my research and future publications. The nature of the data is graphics and narratives by students.

What are the possible benefits from taking part?

Your participation will allow students to share their learning experiences and contribute to the understanding around student learning on role-emerging practice placements and your own organisational learning and future placements.

Do I have to take part?

No. It's completely up to you to decide whether your organisation allows this data collection to take place. Your organisation's participation is voluntary.

What if I change my mind?

If you change your mind, you are free to withdraw your organisation. If you want to withdraw, please let me know, and I will extract any graphics or information (=data) contributed to the study from your organisation and destroy them. However, it is difficult and often impossible to take out data from one specific organisation when this has already been anonymised or pooled together with other data. Therefore, you can only withdraw up to 2 weeks after completion of the student placement and the reviewing of photographs (which will be available to you once the students finish the placement).

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any disadvantages to taking part.

Will the organisation's data be identifiable?

Only I, the researcher, my PhD supervisor, the students collecting the data and the placement educator providing supervision will have access to the graphics and ideas created at your organisation.

I will keep all personal information about you (e.g. your name and other information about you and your organisation that can identify you) confidential; that is, I will not share it with others. I will remove any personal information from the written record of you and your organisation's contribution. All reasonable steps will be taken to protect the identity of your organisation and other participants involved in this project.

What will happen to the results of the research study?

I will use the information shared by participants with me only in the following ways:

I will use it for research 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 and in open access platforms or journals.

When writing up the findings from this study, I would like to reproduce some of the views, ideas, and graphics shared with me. I will only use redacted quotes. All reasonable steps will be taken to protect your organisation's identity in our publications.

How my data will be stored

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 your organisation separately from non-personal information. In accordance with university guidelines, I will keep the data securely for a minimum of ten years.

What if I have a question or concern?

If you have any queries with anything concerning your participation in the study, please contact me in the first instance and then my supervisor -

1. **Susie Wilson** on s.wilson13@lancaster.ac.uk
2. Dr Nataša Lacković,
Director, CHERE@LU, Centre for Higher Education Research and Evaluation
Director, ReOPeN@LU, @ the Institute for Social Futures Research, Lancaster
University, Lancaster LA1 4YG

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:

Dr Jan McArthur– Head of Department

Tel: +44 (0)1524 594443

Email j.mcarthur@Lancaster.ac.uk

Room: County South, D32, Lancaster University, Lancaster, LA1 4YD

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

Thank you for reading this information sheet.

Appendix 6: Consent form for Placement Organisations



Consent form – Placement Organisation

Project Title: Students' perceptions of occupational therapy threshold concepts on role-emerging and project practice placements: A qualitative study using a threshold concepts and inquiry graphics framework.

Name of Researcher: Susie Wilson

Email: s.wilson13@lancaster.ac.uk

Please tick each box

Statement	Tick box
10. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	<input type="checkbox"/>
11. I understand that my organisation's permission to let students collect/ create graphics whilst on practice placement at my organisation is voluntary.	<input type="checkbox"/>
12. I understand that my name/my organisation's name will not appear in any reports, articles or presentations without my consent.	<input type="checkbox"/>
13. I understand that any data collected from student or placement educator interviews will be audio-recorded and transcribed, and that data will be protected on encrypted devices and kept secure.	<input type="checkbox"/>
14. I understand that the data provided by students on Padlets, which could be photographs, any other graphics and reflections, will be used as research data. And that any photographs will not include any service users or imagery that identify the organisation or service user by name or face	<input type="checkbox"/>

15. I understand that I can review the graphics/data created by the students at the end of the placement. If you wish to do that, please contact Susie Wilson, the researcher	<input type="checkbox"/>
16. I understand that data will be kept according to university guidelines for a minimum of 10 years after the end of the study.	<input type="checkbox"/>
17. I agree that students on placement at my organisation can collect /create the data described in the information sheet to take part in the above study.	<input type="checkbox"/>

Placement Organisation details

Placement Organisation _____

Participant's name on behalf of the organisation _____

Participant's Signature _____

Date _____

Declaration of researcher/person taking the consent

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Name of Researcher/person taking the consent

Signature of Researcher/person taking the consent

Date (Day/month/year) _____

One copy of this form will be given to the participant and the original kept in the files of the researcher at Lancaster University.

Appendix 7: Interview Guide

<p>Introduction</p>	<ol style="list-style-type: none"> 1. Thank you for agreeing to take part in this study 2. Have you had the opportunity to refamiliarise yourself with the participant information sheet? Do you have any questions? 3. Are you happy for me to video and audio record this interview? 4. Thank you, so I have your consent to take part in this interview. 5. I will start the recording 6. Just to explain the format. The interview will consist of 2 parts. In the first part, we will discuss your use of Padlet and review it together. In the second part, we will discuss your learning during a role-emerging placement. 7. Do you have any questions 8. Ok, let's start - To start with
<p>Research Question 1 - What are occupational therapy students' experiences of using an Inquiry Graphics learning design to support their learning and knowledge development of threshold concepts on a role-emerging practice placement?</p>	
<p>Research Sub Question</p> <p>What are the students' stories around the use of IG images as data collection tools to inform their learning and knowledge development around occupational therapy threshold concepts?</p>	<ol style="list-style-type: none"> 1. Can we start by you talking about your experiences of using the Padlet and graphics for your learning on your placement? Prompt: Imagine you are describing your experience from the moment you were introduced to the activity to your final task. 2. Can you describe the activity and what it means to you? How do you understand it? What is its value? What is its challenge? 3. What would you say was an important part of your Padlet activity experience?
<p>How does the use of artefacts /graphics support student's</p>	<ol style="list-style-type: none"> 1. Can we have a look at your Padlet now and talk about your work?

<p>reflections and discussions about threshold concepts during role-emerging practice placement learning?</p>	<p>Can we start by reflecting on week 1 of placement? Could you tell me how you felt about the activity in week 1 and how you chose this image/graphic/photo?</p> <p>When you look at your Padlet now, how are you feeling about it? What are your thoughts?</p> <p>2. Let's move on to week 3 or 4 – how were you feeling about collecting graphics now? How did collecting graphics relate to learning during placement at this stage?</p> <p>3. Finally, let's look at week 7 or your final week 8. Again, how were you feeling about collecting graphics in the final weeks?</p> <p>Has your perception and understanding changed? If yes, in what way?</p> <p>4. How did collecting graphics link with learning on placement at the end of your placement?</p> <p>5. How useful is it to learn about occupational therapy key concepts in this way?</p>
<p>What are the student's stories around the use of IG images as data collection tools to inform their learning and knowledge development around occupational therapy threshold concepts?</p>	<p>1. Can you tell me what is the role of graphics in reflecting on your placement experience?</p> <p>What does the use of graphics in learning bring in comparison to classical, verbal learning activities?</p> <p>What was your process of identifying the graphic (image) you wanted to upload? How did you think about that translation of the concept into an image?</p>

<p>How graphics link to occupational therapy concepts?</p>	<p>2. How did you use the graphics during supervision? What were the challenges and benefits of using the graphics?</p> <p>3. What do you think you learnt through the Padlet activity?</p> <p>Did you find anything surprising?</p>
<p>What threshold graphics are associated with role-emerging practice placement learning?</p> <p>In what ways do the graphics support the learning?</p>	<p>1. Looking at your Padlet – what types of graphics do you think represent your learning on role emerging placements the best and the least?</p> <p>Can you define the type and style of the graphics for me?</p> <p>Prompt – Is it a photo, drawing, clipart?</p> <p>How does graphics' content link to the concepts, in your opinion?</p> <p>(For example, is there a metaphorical link?. Is it an instance in practice? Do they represent feelings or ideas about practice? Why?</p> <p>Can you show me some examples on your Padlet?</p> <p>2. Would you do this type of activity again? If you were to repeat this type of learning activity or style, what would you add or change?</p>
<p>Research Question 2 - What are occupational therapy students' learning experiences related to threshold concepts on role-emerging placements?</p>	

<p>What are occupational therapy students' learning experiences related to threshold concepts on role-emerging placements?</p>	<p>1. In this second part of the interview, we are going to move to thinking and reflecting on your learning experience in general and threshold concepts in occupational therapy.</p> <p>What do you think are examples of the key professional learning, for example, knowledge, skills for example applying the OT process? concepts you learned on your placement?</p> <p>Are there any other examples of learning key/threshold concepts in occupational therapy you would like to share?</p> <p>2. Students on role emerging practice placements are working in different settings. How do you think this may impact on learning?</p>
<p>What learning experiences on role-emerging practice placements do occupational therapy students find troublesome?</p>	<p>1. When thinking about your learning of key occupational therapy knowledge and skills, what did you find difficult? How did this make you feel? Prompt: Can you tell me more? Can you share an example?</p> <p>2. And what learning of key occupational therapy knowledge and skills did you find straightforward? How did this make you feel?</p>
<p>What learning experiences on role-emerging practice placements do occupational therapy students find transformative?</p>	<p>1. What was challenging to master in this setting? Can you share examples of challenges related to your learning of key OT knowledge and skills? What was difficult to master?</p>
<p>What are the narratives around these learning experiences?</p>	<p>1. Can you share some more examples of learning experiences?</p>

Closing questions	<p>We are coming towards the end of the interview now. To summarise, what do you think was the most important learning you gained from this placement?</p> <p>Was the use of a Padlet and collection of graphics successful in supporting your learning? How?</p> <p>Is there anything else you would like to say in relation to your use of the Padlet, collection of graphics or your learning related to key professional occupational therapy knowledge and skills?</p>

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