A PEDAGOGICAL INVESTIGATION OF AN OCCUPATION FOCUSED TEACHING TOOL; TEACHING-LEARNING THE COMPLEX CONCEPT OF OCCUPATION

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Declaration

This thesis is my own work and has not been submitted for the award of a higher degree elsewhere. No section has been published.

The word count of my abstract exceeds the recommended 300-word limit. Likewise, my overall word count exceeds the 80,000-word limit of the thesis by 1,882 words.

For ease of use of the soft bound copy a number of pages are presented double sided. These include the contents pages, lists of figures and tables, glossary of terms, reference list and the appendices.

All alterations to the standard format have been discussed with, and approved by, Professor Diane Cox, Head of the Graduate School, on behalf of the university.

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Joan Howarth

This research has been supervised by Professor Diane Cox and Dr Karen Morris, University of Cumbria, 2013-2020.

Abstract

Background: The Royal College of Occupational Therapists (2019a) state that "*… occupation must be the core of every occupational therapy pre-registration curriculum, into which all other subjects are integrated. The centrality of occupation in human life and in the occupational therapy curriculum must be made explicit for learners to experience the transformative potential of occupation*" (p. 3). However, the concept of occupation is acknowledged as complex and multifaceted (Pierce, 2001), which makes it challenging for educators to develop students' understanding of the concept (Hocking, 2009).

Aims: To investigate the pedagogic use of a newly developed occupation focused teaching tool. To critically explore the influence of the teaching tool on development of occupational therapy students' knowledge and understanding of the concept of occupation.

Method: This study is informed by a grounded theory approach. The research consists of two distinct phases of investigation; Phase I and Phase II. Phase I consisted of twelve semi-structured teaching observations, used to investigate the pedagogical impact of the teaching tool on student learning. Phase II consisted of four peer-learning observations, in which students worked together, to investigate their use of the teaching tool; exploring a case scenario; the influence of the teaching tool on the development of understanding of the concept of occupation.

Participants:

Eighty-two participants were involved in this research; fifty-seven student-participants in Phase I, twenty-four student-participants in Phase II, and one participant-researcher in each phase. In Phase I, six student-participant groups involved first year pre-registration

occupational therapy students, who had no prior learning regarding the concept of occupation. An additional six student-participant groups involved final year pre-registration occupational therapy students who had prior knowledge of the teaching tool. All Phase I student-participants were recruited from one U.K. University (Higher Education Institute - H.E.I. 1).

Four student-participant groups were recruited in Phase II. Two participant groups involved second year occupational therapy students studying at Bachelor level at H.E.I. 1. These student-participants had received teaching regarding the concept of occupation through use of the teaching tool in the first year of their education. The remaining two participant groups recruited occupational therapy students from a second U.K. based H.E.I. (H.E.I. 2). These student-participants were enrolled on a Master pre-registration occupational therapy programme. They had received initial education regarding the concept of occupation, though not through the use the teaching tool.

Findings:

Phase I: Findings demonstrate student-participants gained knowledge of the concept of occupation, as understood by the profession of occupational therapy, through an academic's use of the teaching tool. Provision of a dynamic, physical model of the concept afforded visual identification of the multitude of internal components of occupation, thus aiding student-participants' knowledge development.

Phase II: Findings demonstrate student-participants developed understanding of occupation through their own use of the teaching tool in exploration of a client-based scenario. Hence, the teaching tool has capacity to be used by students in tutor-supported collaborative-

learning events. Furthermore, occupational therapy student-participants, with no prior knowledge of the teaching tool, recognised the tool as representative of the professional understandings of occupation as a concept.

Conclusions:

The occupation focused teaching tool enhances the development of knowledge, and understanding, of the professional conceptualisation of occupation. The teaching tool enables the concept of occupation to be treated as a threshold concept. Use of the teaching tool through employment of an active learning approach, supports the use of pedagogic methods of analogies and storytelling, thus, enhancing student learning.

Acknowledgements

The Student-Participants, who gave so generously of their time, often during periods when their own academic demands were pressing.

Professor Diane Cox and Doctor Karen Morris, for encouraging to me to engage in undertaking higher level research; for providing ongoing support and advice throughout the process and embracing the chaos when it arose.

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To my parents, whose belief in me always exceeds my own.

To my 'office buddies', whose encouragement and humour so often gave light to my path.

And, **to my past students**, whose questions, curiosity and thirst for knowledge and understanding resulted in my creation of the occupation focused teaching tool.

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Glossary of Key Terms

Activity	Commonly understood descriptions of actions that are carried out by individuals and or communities.
Co-occupation	An occupation that involves two or more individuals are interacting together and actively shaping each other.
Occupation	An activity undertaken by individuals or communities that has a known or identifiable purpose and, subjective meanings and values attributed to it by those undertaking the action.
Occupational Performance	The process of an individual enacting an occupation.
Purposeful Activity	An activity that is undertaken and which has a known or identifiable purpose.

1.0 Introduction

"Once upon a time, when people made more of their own things, they created more stories about their life experiences. They told these tales to each other regularly, gracefully, and productively. They did it to give each other insights, to entertain each other, and to engage each other …"

(Maguire, 1998, p. xiii).

This introduction sets the scene and introduces a story; my research story. The aim of this story is to take you on a journey through the process of my research and lead you to my end discoveries. I begin with an introduction to my initial focus of concern (section 1.1); the importance of developing occupational therapy students' knowledge and understanding of the concept of occupation. I introduce the conceptualisation of teaching-learning as one process (section 1.2), which informs aspects of the perspectives I employ within my research. In addition, I present an introduction of myself; an academic, researcher, reflector and storyteller.

In the Preliminary Literature Review (Chapter 2) I explore the importance of the concept of occupation; its' place in occupational therapy curricula. I explore some of the complexities of occupation and resultant challenges of teaching and learning the concept of occupation. Challenges encountered by a range of occupational therapy academics as well as those encountered by many occupational therapy students. A further in-depth Literature Review is positioned in Chapter 7.

Chapter 3 introduces a newly developed occupation focused teaching tool; its' inception and design. A teaching tool created by me, aimed at addressing some of those challenges, with an aim to better facilitating the knowledge development essential to occupational therapists (Howarth, Morris & Cox, 2018)

I progress to explanation of the rationale and aims of my research (Chapter 4), my methodological options and considerations (Chapter 5) and chosen research design (Chapter 6). Within the Principle Literature Review (Chapter 7), I investigate pedagogic philosophies and methods focused on knowledge acquisition and development of understanding. I provide my discovery of findings and construction of theory (Chapter 8) accounting for the functionality of the teaching tool, followed by discussion of those findings (Chapter 9). Chapter 10 acknowledges of the limitation of my research, followed by the knowledge my research contributes to the field of occupational therapy education and its contribution to wider fields concerned with the concept of occupation (Chapter 11).

I conclude my work with identifications of the current outputs of my research (Chapter 12) and planned postdoctoral research (Chapter 13).

1.1 The Research

"*Occupation is the central concept in [the] … profession of occupational therapy; [and] as a method of therapy what makes the profession unique and valuable to society*" (Nelson & Jepson-Thomas, 2003, p. 89). However, the concept of occupation is acknowledged as highly complex (Hocking, 2009). When defining occupation authors have expressed difficulty in clarifying what occupation is without losing elements of the dynamic, multidimensional nature of the concept (Gray, 1997; Krishnagiri, Hooper, Price, Taff & Bilics, 2017). For occupational therapists to utilise occupation as their means of therapeutic intervention,

development of a comprehensive understanding of the concept during pre-registration education is essential (Health and Care Professions Council, 2013).

Hocking (2009) identified that when students develop a more comprehensive understanding of the concept of occupation, they develop greater appreciation of the interdependent relationship between occupation, daily life, health, well-being and life satisfaction. This better places student and graduate occupational therapists to focus their practice on occupation-based interventions. More informed occupational therapists can enable individuals to overcome barriers that prevent them from doing the activities and occupations that are important in their lives; better facilitating individuals' recovery (College of Occupational Therapists, 2015).

Developing understanding of a subject allows individuals to retain and use their knowledge flexibly, within novel situations (Newton, 2012). Occupational therapists are employed in a wide variety of health and social care settings, as well as within private and voluntary organisations (College of Occupational Therapists, 2015). Thus, occupational therapists utilise occupation as a therapeutic medium in novel situations. To develop understanding student occupational therapists need to be facilitated to become actively engaged with the subject to empower them to use their knowledge in innovative ways (Newton, 2012).

My research does not aim to define the concept of occupation. This would require extensive critical investigation into the construct and definition of occupation. Rather, my research is a pedagogic investigation of a newly developed teaching tool designed to develop occupational therapy students' knowledge and understanding of the concept of occupation (Chapter 4).

1.2 Teaching and Learning, and the Teaching-Learning Continuum

Teaching and learning are commonly discussed in literature as two separate educational activities (Ashwin, 2012). As a result, a variety of pedagogic literature drawn upon within my research refer to each activity individually. However, Ashwin (2012) contends that on many occasions teaching and learning are opposite ends of a continuum of one activity. He identifies this is a result of the continuous interactions that occur between a teacher, or academic, and students. Hence, in his own research Ashwin (2012) utilises the term teaching-learning as an alternative. He does this to highlight each as being an aspect of one interactive activity. On review of literature, whilst continuing to discuss each term separately, other authors also acknowledge the interactive nature of both teaching and learning (Northedge, 2003; Entwistle, 2009; Light, Cox & Calkins, 2009; Kolb, 2015).

Through my research I aim to investigate the use of the teaching tool, by me, during the teaching of the concept of occupation within pre-registration occupational therapy programmes. Furthermore, I investigate occupational therapy students' use of the teaching tool in tutor-supported collaborative-learning events, in which students learn with each other (also referred to as peer-learning). In both aspects myself, as tutor, and students are present. Thus, whilst teaching and learning can occur as separate activities, when discussing own my research I predominantly use Ashwin's term of teaching-learning (2012).

1.3 The Academic, Researcher and Storyteller, Reflector

In this section I present an introduction to myself as an academic and developing researcher. This is followed by an introduction to me as a reflective researcher and storyteller. An introduction of myself as a participant-researcher is presented in section 6.5.3.

To differentiate the information presented by me as an academic and researcher from that of me as a reflective researcher and storyteller, I employ different type fonts through my work:

- Academic and researcher voice
- *Reflective researcher and story-teller voice*

Within the discussion of my findings I also include some direct quotes drawn from myself as a participant-researcher:

- Participant-researcher voice

Furthermore, in chapters 8 and 9, I present the voices of the student-participant(s) to illuminate key points. Voices of the student-participants are illustrated through my use of a fourth font.

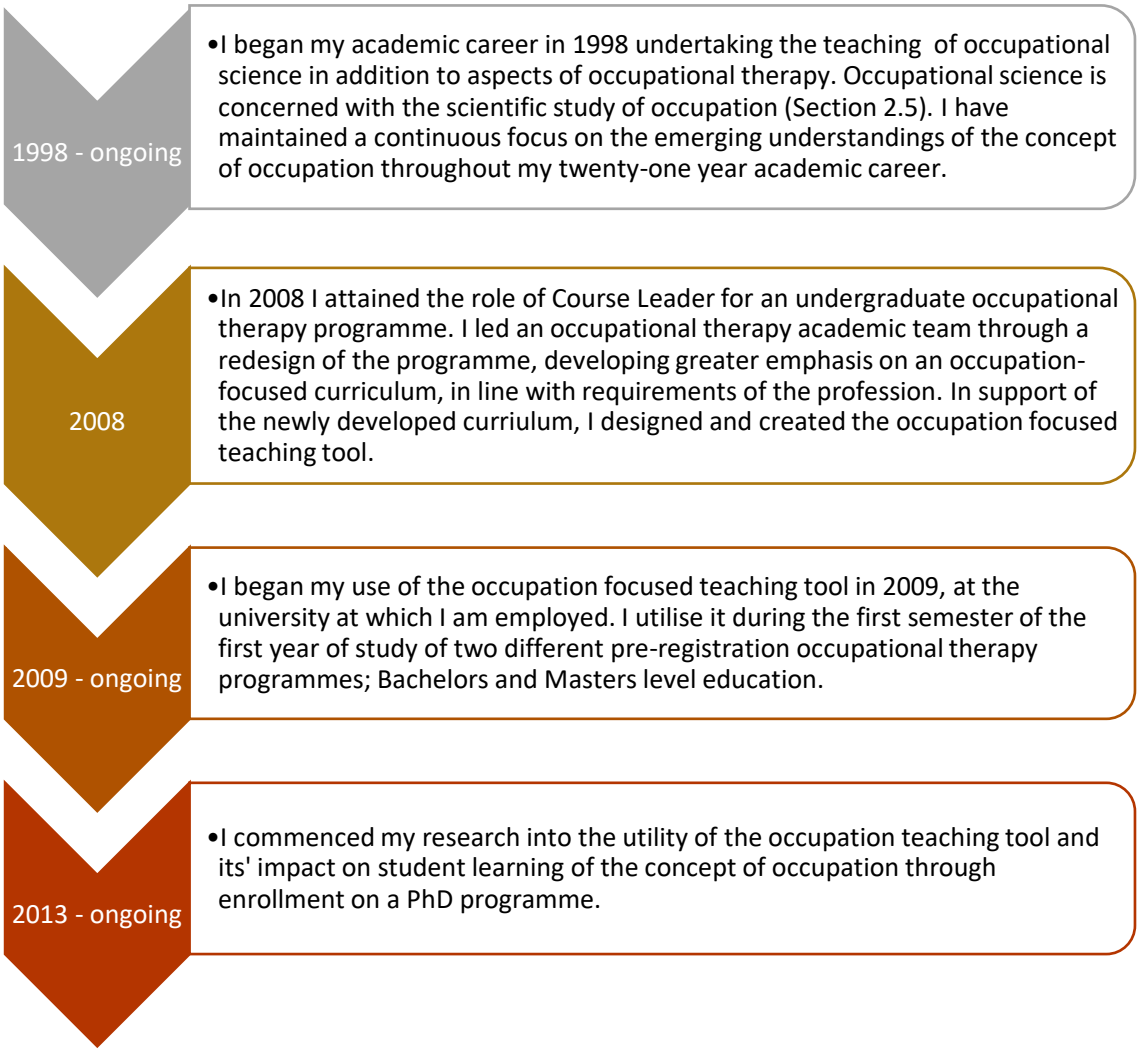
- **Voice of the student-participants**

1.3.1 The Academic and Researcher

I began my academic career in 1998 having previously worked as an occupational therapist in a practice setting. Employed in the education of pre-registration occupational therapists, I commenced teaching the concept of occupation utilising literature of occupational therapy and occupational science (Figure 1). The foremost pedagogic method I utilised was didactic; presenting and explaining definitions of occupation from available literature of that time (Yerxa, 1990; Wilcock, 1993; AOTA, 1995; AOTA, 1997; Townsend 1997). With experience I trialled more active learning methods, facilitating student workshops aimed at exploring and developing students' knowledge of occupation.

As a senior lecturer in occupational therapy, I have focused much of my own academic studies on occupational science, in addition to occupational therapy. I developed my knowledge of occupation within the lives of individuals and communities; how occupations shape identity and influence health, well-being and life satisfaction. My Masters level studies culminated with my commencement into research; exploring occupational identity transformation through career change.

Figure 1: My Academic Journey; Creation and Research of the Occupation Teaching Tool



As an academic I have authored undergraduate and master level education modules in occupational science, people as occupational beings, and use of occupation to develop

public and community health. I continue currently to teach occupational concepts in undergraduate and postgraduate level occupational therapy education. In creation of these aspects of education I have developed a thorough understanding of the currently understood definitions of occupation within occupational therapy and occupational science (Fisher, 2013; Krishnagiri, et al, 2017; Howarth, et al, 2018) enabling me to approach this topic of investigation.

In 2008 I attained the role of course leader for the undergraduate occupational therapy education programme within the H.E.I. at which I am employed. An aspect of my role at that time was to lead the occupational therapy academic team in redesign of the curriculum. In line with requirements to develop curricula with a greater occupation focus (C.O.T., 2014) the occupational therapy team aimed to place occupation at the centre of the curriculum. Discussions amongst the team acknowledged challenges that exist in teaching the concept of occupation as understood within the profession occupational therapy (section 2.4). It was to address some of these challenges that resulted in my development of the occupation focused teaching tool, the utility of which being the focus of this research.

My experiences and knowledge development as an occupational therapy academic influenced me to aim toward an objective stance in my writings and conference presentations; aiming to speak with the voice of the literature. However, undertaking this journey as a researcher has resulted in my becoming a participant-researcher (Finlay, 2005). In this role I had to allow myself to become open to my being part of the research. This required me to investigate the power and importance of becoming reflexive researcher (Etherington, 2004; section 6.1.1). My learning provoked me to uncover the voice that I use in my day-to-day teaching practice; to use it with my research; my voice as a storyteller.

1.3.2 The Reflective Researcher and Storyteller

I grew up within a family of natural storytellers; in a world filled with stories. Family tradition of storytelling and poetry recital led me, from an early age, to develop my own abilities to present to an audience. As a result, stories have, and continue to be, deeply embedded in my life. Reflections, developed through my research process, have enabled me to recognise my use of storytelling as a natural approach to education as well as my day-to-day practice.

Investigation into the use of Storytelling as a pedagogic method (section 7.4.3) has further development my knowledge of their use in education. This has enhanced my knowledge of the power of storytelling and enabled me to find my voice as the storyteller of my work. Hence, throughout my work I will provide reflections on my research process through my voice as a storyteller.

1.4 The Evolving Process of Research

Early stages of my research began with my intent to critically investigate the use of a newly developed occupation focused teaching tool; to critically explore its' utility for teaching the complex concept of occupation within occupational therapy education (Appendix 1). As with much research, whilst the process advanced so my focus evolved and altered.

In this PhD study I present my research process and journey. I provide explanation and justification for alterations as they occurred. Hence, the reader will note alterations in research focus, title, methodology and data analysis strategies from those presented in the initial ethical clearance proposal (Appendix 1). To provide a comprehensive understanding of my final research several explanations are proffered through my reflections. Thus,

information presented through my academic, researcher voice articulates final processes, whilst my reflective voice provides context to the journey that led me there.

2.0 Preliminary Literature Review

The methodological approach I ultimately decided upon for my investigation is a grounded theory approach (section 5.5). Opinions of grounded theorists vary as to when in the research process the researcher should engage with the literature (Charmaz, 2014; Birks & Mills, 2015). However, a common consensus identifies for the in-depth literature review to commence as the data is gathered and analysed (Birks & Mills, 2015).

Most of the literature reviewed in this study is drawn from teaching and learning research (Chapter 7). However, I aim to provide context to my research by first discussing some of the challenges that relate to teaching-learning the concept of occupation. Therefore, this preliminary literature review aims to introduce the overarching topic that led to my development of the teaching tool and resultant research.

I begin by outlining occupation as the core concept of occupational therapy. I present requirements of occupational therapy education, nationally and internationally. This is followed with a concise explanation of occupation as a complex concept and the challenge this has created within occupational therapy terminology. From there I introduce challenges this creates for the teaching-learning of occupation within occupational therapy education. I review a variety of pedagogic approaches that have been utilised in occupational therapy education; approaches aimed to better illuminate the concept for student learning. This provides insights into the challenges encountered in teaching a vocational programme and how those challenges sit within a Higher Education arena.

I close this section with an exploration, and emerging consensus, of occupation as being a threshold concept for use in occupational therapy education. And how my experiences as an

academic within occupational therapy led to my development a teaching tool focused solely on occupation as a discrete complex concept.

2.1 Occupation as a Core Concept of Occupational Therapy

The profession of occupational therapy was founded on the premise that use of occupation, as a therapeutic medium, could positively influence the health of individuals (Dunton, 1915). Breines (1995) identified the founders of the profession as having purposefully selected the word occupation because it was a commonly understood term, but also because of its' ambiguity. This selection enabled the profession to develop its' specialist area of concern whilst maintaining a broad conceptual basis (Breines, 1995). This concurs with the work of Peloquin (1991), who previously identified the founders as selecting occupation as a term whilst being aware of its ambiguity.

In 1917, the National Society for the Promotion of Occupational Therapy, of which Dunton was a founding member, set out three key objectives for the profession of occupational therapy; "… *the advancement of occupation as a therapeutic measure; the study of the effect of occupation upon the human being; and the scientific dispensation of this knowledge.*" (Wilcock, 2001a, cites the Constitution of the National Society for the Promotion of Occupational Therapy, Inc. 1917, p.1). Embedding a focus on occupation in the key objectives at the outset of the profession established it as a core concept of occupational therapy. Price, Hooper, Krishnagiri, Taff and Bilics (2017) identify the belief in occupation as an influencer of health and well-being as still well established in the profession today, nationally and internationally.

In the United Kingdom (U.K.), the Royal College of Occupational Therapists (2019a) stated that "*The core principles of occupational therapy and occupation-centred practice are [to be]*

integrated into every part of the pre-registration programme" (p. 33). For this to be achieved pre-registration programmes must ensure that *"… occupation … be at the core of every occupational therapy pre-registration curriculum*" (R.C.O.T., 2019, p. 33). Internationally, associations of occupational therapy echo this requirement through their own official documentation (Hooper, Krishnagiri, Price, Taff, & Bilics, 2018). This illustrates the profession as holding a global, shared principle; that having knowledge of occupation is core to the understandings of the occupational therapy profession (Hooper, et al, 2018). This criterion has necessitated articulation of specified education requirements. Development and creation of the education requirements has been achieved through the work of the World Federation of Occupational Therapists (W.F.O.T., 2016).

2.2 Occupational Therapy Education Requirements

The World Federation of Occupational Therapists (W.F.O.T) as an international organisation, was established in 1952. Recognised by the World Health Organisation in 1959 (W.F.O.T., 2019), one of its aims has been to promote the education of occupational therapists; it exists as an organisation to which national occupational therapy associations are affiliated. Connection of national associations to the W.F.O.T. brings with it the requirement that occupational therapy education programmes meet the W.F.O.T. Minimum Standards for Education (W.F.O.T, 2016). Detailed in the Standards is the requirement for occupation to be placed at the heart of the profession's curricula.

This requirement recognises the value of occupational therapy students developing understanding of the concept occupation. Developing comprehensive knowledge of occupation enables them to gain insight to the reasons for engaging in occupation; develop skills in analysing and adapting occupation for use as a therapeutic medium; and develop

competencies in utilising occupation for assessment, intervention and evaluation, to promote and develop health (HCPC, 2013).

Pierce and Peyton (1999) and Whiteford and Wilcock (2001) previously urged for occupational therapy academics to redesign curricula and to place occupation at the centre of all content. These standpoints concurred with that of Yerxa (1998) who identified curriculum as being a forceful power for the development of the profession. By placing occupation explicitly within all elements of teaching and learning, the traditions, beliefs and values of occupational therapy could be transmitted to students (Yerxa, 1998). These proposals, brought to fruition through the W.F.O.T. Minimum Education Standards (2016), have led to increased focus on research and development of occupation-focused curricula.

2.3 Occupation Focused Curricula

Pentland, Kantartzis, Clausen and Witemyre (2018) identify the practice of occupational therapy as dynamic and highly complex. Student occupational therapists being required to develop a breadth of knowledge encompassing structures and functions of the human body and psyche and the socio-cultural contexts in which individuals perform their occupations. Additionally, knowledge of health conditions, environmental and societal factors that can impede occupational performance is essential. With this knowledge student occupational therapists are required to develop skills of professional reasoning and reflection to guide and shape their clinical interventions; to work with individuals at family, community and societal levels (Pentland, et al, 2018). As a result, developing knowledge and understanding of these many subjects and skills leaves occupation as having to *"… vie for prominence"* (Nicola-Richmond, Pépin and Larkin, 2016; Hooper, et al, 2018, p. 1) within the curricula. To

redress this concern occupation focused curricula has been advocated (Wood, 1995; Yerxa, 1998, Hooper, 2006; Nicola-Richmond et, el, 2016; Price, et al, 2017; Hooper, et, al, 2018)

Occupation focused curricula requires subject-centred teaching (Hooper, 2006), which for occupational therapy would establish occupation as the principle subject around which all other topics are situated. This educational approach would orientate students to relate all learning to what it means in terms of occupation and occupational performance (Hooper, 2006). Through this approach occupational therapy students would be supported to transform their knowledge to professional understandings. This would result in them viewing individuals and societies through an occupational lens (Yerxa, 1998). Developing deeper understandings of the capacity of occupation to affect change would enhance clinical practice (Wood, 1995). In addition, the profession would be better able to articulate its' unique contribution to the health and well-being of individuals and populations, thus conveying its value to society (Nelson & Jepson-Thomas, 2003). Furthermore, since publication of the International Classification of Functioning, Disability and Health (World Health Organisation, 2001) the relationship between activity, participation and health conditions has been increasingly acknowledged. This has led to all health professions having to develop an understanding of the occupational impact that health conditions can have and conceptualise their own work in terms of participation and activity (Hocking & Nicholson, 2007). In my view, as proprietors of the understandings of occupation and its' relationship to health, occupational therapy would be best placed to support professional colleagues in their learning.

Occupation focused curricula has been identified as curricula that emphasizes *"… knowledge of occupation as it occurs in life beyond therapy and disability contexts"* (Hooper, et al, 2018,

p. 2); curricula designed to direct the attention of students to occupation as a concept (Hooper, et al, 2018). Hooper, et al (2018) noted that this directing of attention has often been attempted through use of curriculum metaphors, with occupation identified as *"surrounding everything"* and as *"that which steers the ship""* (p. 4). Wilcock (2005) previously raised concern regarding occupational therapy curricula highlighting occupation, as a concept, being frequently obscured by other auxiliary subjects. These auxiliary subjects, whilst fundamental to the practice of occupational therapy, are supplementary knowledge rather than core subjects. Hooper (2006) concurred identifying that occupation was often *"… a just-out-of-sight subject"* (p. 558)*;* that occupation was often amalgamated with related concepts and subsumed into associated areas of knowledge (Hooper, et al, 2018). Research into how occupation has been addressed in occupational therapy curricula in the U.S. identified occupation being used *"… as a way of seeing"* (Price, et al, 2017, p. 3). The research of Hooper, et al (2006), Krishnagiri, et al, (2017), Price et al, (2017) and Hooper, et al, (2018) examines occupational therapy curricula delivered in the U.S. These programmes, like those in the U.K. and other countries, are accredited by the W.F.O.T. (Nicola-Richmond, et el, 2016). Their explorations of the importance of occupation-focused curricula are commensurate with the perspective of the Royal College of Occupational Therapists (2019a), hence resulting in transferability of findings to U.K. occupational therapy education. Hooper, et al, (2006; 2008; 2016;2018) Price, et al, (2017), through numerous publications, present as predominant researchers in the field of occupation-focused curricula. Thus, findings from their studies are used to support discussions.

In addition to the use of curricula metaphors previously mentioned, experiential learning methods have been used to support occupation-focused curricula and develop students' knowledge of occupation (Price, et al, 2017). One approach, which utilised experiential

learning, was to direct students' attention to occupation by requiring them to participate in occupations as learning experiences (Price, et al, 2017). Students self-selected the 'occupation' to participate in and reflected on the process. Academic staff then supported student reflections on the process, using questions to prompt their thinking. However, occupation has been identified as an individual, subjective, non-repeatable experience (Pierce, 2001). Due to the subjective aspect *"… of occupation, there is no certainty that the occupations students chose to participate in are meaningful for them. Thus, when students are being directed to participate in occupation as a learning experience, they may be confused by the term if the learning activity is not experienced by them as an occupation"* (Howarth, et al, 2018, p. 145).

To compound this problem further it is noted that questions used by educators, to prompt students' reflections, ask them to consider their engagement in **activities** rather than **occupations** (Price, et al, 2017). Whilst the terms activity and occupation are noted as often being used synonymously in occupational therapy literature, evolving definitions have identified them as separate terms with their own meanings (Golledge, 1998a; 1998b; Pierce, 2001; Creek, 2010), albeit with a relationship existing between them. The relationship between the two terms is an intricate one and adds to occupation's complex nature. Di Tommaso, Isbel, Scarvell and Wicks (2016) also recognised the highly complex nature of occupation, identifying it as a key challenge that requires addressing for successful creation of and implementation of occupation focused curricula.

2.4 Occupation as a Complex Concept

When defining occupation authors have expressed difficulty in clarifying what occupation is without losing elements of the dynamic, multidimensional nature of the concept

(Krishnagiri, et al, 2017). Ilott and Mounter (2000) acknowledged the challenges of developing and delineating comprehensive definitions of occupation. Commonly held conceptions of occupation have considered occupation as work, or employment (Gray, 1997; Nelson & Jonsson, 1999; Darnell, 2002; Oxford English Dictionary, 2015). Whilst occupation can be conceived of as work or employment from the perspective of occupational therapy, it is also recognised as a more extensive concept; one that encompasses activities of leisure, self-care and restorative actions to which individuals attribute personal meanings (Pierce, 2003).

In an effort to present a comprehensive explanation of occupation, Nelson and Jepson-Thomas (2003) identified occupation as being a relationship between copious varieties of elements, that come together in an unpredictable manner, resulting in an occupation that an individual can perform. Encapsulating these multidimensional components, and dynamic nature of occupation, in a definition has challenged many authors (Krishnagiri, et al, 2017). However, Ilott and Mounter (2000) cautioned for the 'wholeness' of occupation to be maintained during the education process, as to deconstruction occupation into its' elemental parts would, in their opinion, be precarious and may result is errors in learning.

Nevertheless, a plethora of definitions of occupation have been presented within occupational therapy literature and are utilised in education. Definitions posed have shown occupation to be influenced by social, cultural and historical context as well as by temporal aspects (Hocking, 2009). Occupation has long been acknowledged for its' relationship to health, well-being and life satisfaction (Dunton, 1915; Dunton, 1922; Wilcock, 2001b), and personal and social identities are also noted as being influenced by people's engagement in occupations (Christiansen, 1999; Rudman, 2002). Exploration of these and additional

definitions (Wilcock, 1993; Trombly, 1995; Stone, 2003; Abrahams, 2008; Russell, 2008) illustrate developing understandings of what occupation does and what it can provide to individuals and societies. However, these definitions frequently illuminate the functions and influence of occupation rather than encapsulate the essence of occupation as a discrete concept (Howarth, et al, 2018). Dickie, Cutchin and Humphry (2006) proposed that as the relationship of occupation to health is of the principle concern to occupational therapy, and as authors who publish definitions with the profession's literature are predominantly occupational therapists, production of such definitions is unsurprising.

Points of convergence and dissonance exist in the professional literature of occupational therapy regarding the definition of occupation. One point of convergence is that occupation can be viewed as activities that people do that are subjectively meaningful and valuable to the individual, thus enabling people to develop as members of society and as individuals (Townsend, 1997). Pierce's (2001) definition identified occupation as *"… a specific individual person's personally constructed non-repeatable experience"* (p. 139). However, she also recognised that albeit that a person's occupations can be observed, understanding of the subjective meaning can elude the observer. Nelson and Jepson-Thomas (2003) presented an alternative definition, identifying occupation as *"… a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance"* (p. 90). Acknowledged as abstract and requiring further explanation (Nelson & Jepson-Thomas, 2003), both definitions recognise and incorporate the characteristic that subjective meanings are attached by individuals to do what they do, thus creating their occupations. The result being that occupation is a subjectively determined experience. This adds to the challenge of enabling students to understand when something is an occupation and when it is not. However,

Twinley and Addidle (2012) identify that there continues to be aspects of occupation that are yet to be understood. They identify some occupations as having negative consequences for the individual, and or for others; occupations that are antisocial, disruptive and or damaging (Twinley & Addidle, 2012). These many investigations into the understanding of occupation reinforce recognition of its' multifaceted nature and its' complexity.

Occupational therapy education requires students to develop ways of knowing that is commensurate with professional knowledge and understanding (Hooper, 2008). Thus, occupational therapy students need to develop understanding of the discrete concept of occupation as a more complex concept (Wu & Lin, 1999; Reed, Smythe & Hocking, 2013). Whilst there remains no agreed differentiation of terms within occupational therapy, confusion of professional terminology that educators draw upon when teaching about occupation is likely to continue (Di Tommaso, et al, 2016). Selection and use of the ambiguous term, occupation, may have enabled broad development of practice (Peloquin, 1991). However, it has also resulted in use of interchangeable terms and confusion of professional terminology that educators draw upon when teaching about occupation (Di Tommaso, et al, 2016). Whilst attempts to separate definitions of activity and occupation have grown (Pierce, 2001; Reed, Hocking & Smythe, 2010), there remains no agreed defining or differentiation of the terms within occupational therapy, or occupational science (section 2.5).

2.4.1 Interchangeable Terminology

In 1998, Golledge acknowledged occupational therapists have used the terms activity, purposeful activity and occupation interchangeably throughout occupational therapy's history. This interchangeability has resulted in confusion in the use of terminology. This is a further challenge to developing occupational therapy students' knowledge and

understanding of occupation and its' differentiation from the other terms. This predicament, in part, resulted in the development of occupational science (Wilcock, 1991). Occupational science emerged as a research discipline in response to occupational therapy's need to better understand the relationship between humans, occupation and health. Its aim, to develop knowledge of occupation and contribute to research-based evidence of the efficacy of occupational therapy intervention (Clark, Parham, Carlson, Frank, Jackson, Pierce, Wolfe & Zemke, 1991; Wilcock, 1991)

2.5 Occupational Science

Yerxa (1993) identified occupational science as being *"… the study of the human as an occupational being"* (p. 3), with the ability to contribute multiple understandings regarding the relationship between occupation and health; the concern of occupational therapy. Research, focused on occupation as a concept (Wu & Lin, 1999; Josephsson, Asaba, Jonsson & Alsaker, 2006; Reed, Smythe & Hocking, 2013), has contributed significantly to its definition and differentiation of related terms used within literature, e.g. activity. Concepts and understandings that have emerged through occupational science research include occupational justice, occupational deprivation, occupational marginalisation and occupational alienation, amongst others (Whiteford, 1997; Wilcock & Hocking, 2015; Hocking, 2017).

Recognition that many other disciplines had knowledge of occupation led to researchers from outside of the profession of occupational therapy being invited to contribute to the research and evidence base. Disciplines from the social, natural and applied sciences to those from arts and humanities, adding multiple understandings of occupation, necessary for the creation of comprehensive understandings (Glover, 2009). Thus, occupational

science has developed as an interdisciplinary research discipline (Clark, 2006; Rudman, Dennhardt, Fok, Huot, Molke, Park & Zur, 2008), exploring occupation in the context of wider complex social issues (Wicks & Jamieson, 2014) in addition to its' relationship to health.

However, occupational therapy remains concerned with therapeutic use of occupation, and as such, *"… the aspect of occupational science that members of our profession embrace most wholeheartedly is the exploration of occupations' relationship with health, … to enable people to participate in occupation which will improve their experience of health and well-being."* (Wilcock, 2003, n.p.)

The lack of agreed definitions, not yet resolved in occupational therapy or occupational science, has resulted in students not being taught one predominant conceptualisation of occupation that can be applied to all forms of human occupation. For clarity of terminology within my research I use the terms activity, purposeful activity and occupation as separate defined entities (Figure 2).

Figure 2: Definitions of Activities, Purposeful Activities and Occupations.

Activities: commonly understood descriptions of actions that are carried out by individuals and or communities.

Purposeful Activities: activities that are undertaken and which have a known or identifiable purpose.

Occupations: activities undertaken by individuals or communities that have known or identifiable purpose and also, subjective meanings and values attributed to them by those undertaking the actions.

(Golledge, 1998a; Pierce, 2001; Nelson and Jepson-Thomas, 2003).

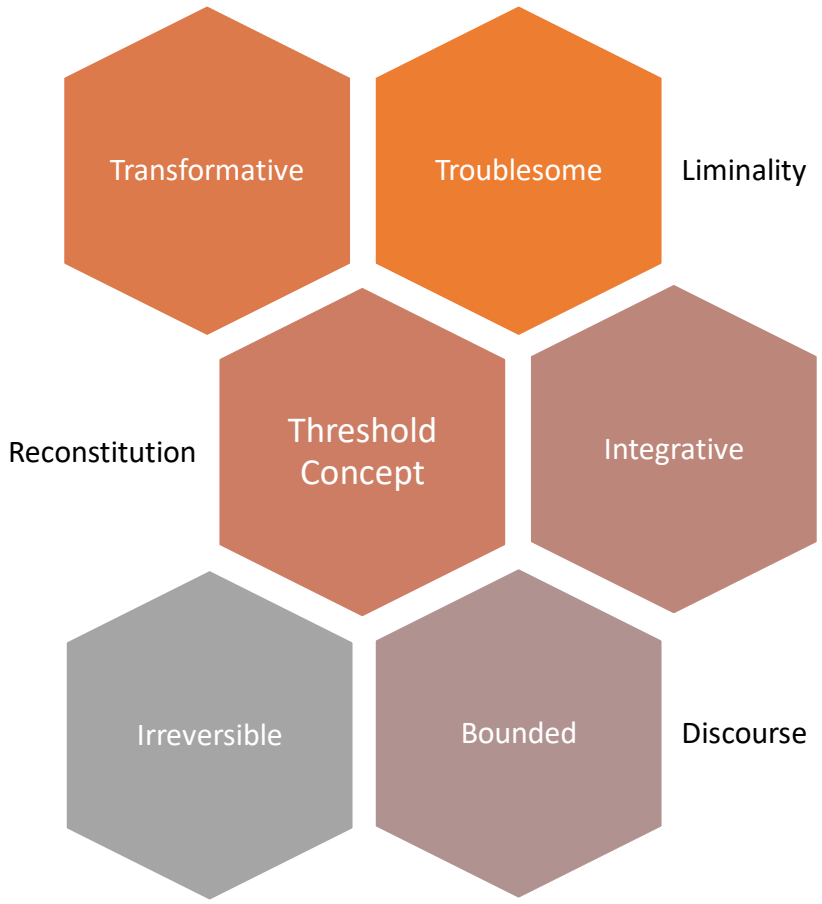
Availability of numerous definitions of occupation facilitates multiple understandings and insights into its complexity. However, this adds to the notable challenge for clarity in occupational therapy education, with the concept of occupation remaining obscured by use of associated terminology in the curricula (Hooper, 2006; Krishnagiri, et al., 2017). To redress this, Price, et al (2017) identified *"… concepts from education literature … that could support teaching occupation as a way of seeing"* (p. 6) and place occupation as the principle concept of the curricula. One option would be to recognise, and utilise, occupation as a threshold concept (Price, et al, 2017).

2.6 Occupation as a Threshold Concept

Meyer (2010) explained threshold concepts as providing an analytical framework that enables a subject to be viewed in a transformed way. The threshold concept acts as *"a conceptual 'building block' that progresses understanding of the subject"* (Meyer & Land, 2006, p. 6). A threshold concept is core to a subject. The transformation in learning that occurs opens *"a new and previously inaccessible way of thinking about something"* (Meyer and Land, 2006, p. 3). This allows students to begin to explore and understand a subject differently. Students can then gain understanding from the perspective of a specific discipline (Hooper, 2008).

Meyer and Land (2006) identified threshold concepts as having several characteristics; being 'transformative' of understanding; creating understanding that is 'irreversible'; being 'integrative', thus exposing previously concealed interconnectedness of a subject; being 'bounded', thus adjoining supplementary threshold concepts; and the information to be learnt is 'troublesome' to the learner.

Figure 3: Visual Representation of a Threshold Concept



Nicola-Richmond, et al (2016) discussed three further characteristics of threshold concepts that Baillie, Bowden and Meyer (2013) had added to Meyer and Land's original 2006 definition; reconstitution, discourse and liminality. Reconstitution relating to an alteration occurring in a student's self-identity; discourse referring to the development of a more integrated mental process and relates to the integrative knowledge gained from the threshold concept; and liminality, a period during which a student can move back and forth between previous and new understanding of the concept can occur (Baillie, et al, 2013). Nicola-Richmond, et al (2016) noted discussion regarding how many characteristics are required, or fixed, to be present for a concept to be regarded as threshold. Meyer (2010) is

noted as stating that transformation is a fixed characteristic in order that a concept can be considered threshold. Hence, for the concept of occupation to be considered a threshold concept, developing knowledge of occupation must result in a transformed understanding of the term; one that opens a new way of thinking about the subject.

Rodger and Turpin (2011) explored the use of threshold concepts as a mechanism for development of a contemporary curriculum. Their research focused on the curricula of two occupational therapy programmes delivered in Australia. With support of the programme academic team, a set of seventeen topics were identified in the occupational therapy curricula, which students struggled to learn. On completion of thematic analysis, the seventeen topics were categorised to eight items, then examined in relation to the original five characteristics of threshold concepts (Meyer & Land, 2006). Five threshold concepts emerge from the data (Rodger & Turpin, 2011); purposeful and meaning occupation; client centred practice; integral nature of occupational therapy theory and practice; identity as an occupational therapist; and, thinking critically, reasoning and reflecting. Whilst purposeful and meaning occupation was identified as one threshold concept within occupational therapy knowledge requirements, no further discussion as to its importance or place within the curricula was discussed. In addition, it is noted that the narrow scope of curricula analysis undertaken, i.e. two programmes delivered by the same academic team, raises concern of transferability of the findings to all occupational therapy curricula. However, the programmes involved within the research are W.F.O.T. accredited, thus improving the potential of transferability of findings.

Identification of 'purposeful and meaningful occupation' as a threshold concept of occupational therapy (Rodger & Turpin, 2011) concurs with findings of Nicola-Richmond, et

al (2016) who reported a 100% consensus from their participant groups (academics, clinicians, students, all of occupational therapy) that occupation be acknowledged as a threshold concept. However, Nicola-Richmond, et al (2016) noted that occupation was only ranked as the third most important concept in occupational therapy education. Models and theories of occupational therapy along with clinical reasoning, both being ranked higher. This is reflected in the findings of Hooper, et al (2018), with occupation often being concealed by auxiliary subjects. The higher ranking of models and theories in addition to clinical reasoning may relate to the number of participants in each participant group (Nicola-Richmond, et al, 2016). Whilst ten academics partook in the research, twenty-one of the participants were clinicians. Consequently, a greater number of responses being received from the clinical group. This may be accounted for due to the *"… shift to the contemporary paradigm …"* (Nicola-Richmond, et al, 2016, p. 102) which emphasises occupation as the principle concept of occupational therapy and was noted as *"… perhaps not so pivotal in education programmes previously"* (Nicola-Richmond, et al, 2016, p. 102).

Fortune and Kennedy-Jones (2014) also discussed the importance of threshold concepts. They explored the use of threshold concepts in occupational therapy education as a mechanism to facilitate students to think *"…in an occupational way"* (p. 297). Whilst highlighting the importance of understanding the concept of occupation, their discussion focuses on the use of an occupational perspective of health as being the predominant threshold concept (Fortune & Kennedy-Jones, 2014). The rationale being that, the area of concern for occupational therapy is the relationship between occupation and health. Consequently, the relationship claims prominence as the principle threshold concept. In addition, Fortune and Kennedy-Jones (2014) discuss that concepts that exist within more than one subject or discipline exclude its potential as being threshold. Occupation as the

principle subject, and probable threshold concept of occupational science, may account for Fortune and Kennedy-Jones (2014) discounting occupation being named as a threshold concept for occupational therapy and their identification of the relationship between occupation and health being their alternative. However, this can only be surmised as there is no explicit discussion of this in their work. Though, unlike the findings presented by Rodger and Turpin (2011) and Nicola-Richmond, et al (2016), Fortune and Kennedy- Jones' (2014) article is an opinion piece, thus deficient of researched evidence.

Sadlo (2016) identified threshold concepts "*as fundamental concepts that are identified by experts as essential to the learning and understanding of any subject*" (p. 497). Whilst research regarding the threshold concepts of occupational therapy is in its infancy, there appears to be a growing consensus that occupation could be considered a threshold concept of the profession as it was at the beginning of the profession (Cox, 2017).

2.7 Challenges of Teaching-Learning a Vocational Programme.

Occupational therapy is a practice-based profession and conferment of the title, occupational therapist, is attained through completion of a vocational programme of education (Watson, 2008). Hooper (2008) stated professional education is a method of enabling students to develop the knowledge as well as the values, attitudes and beliefs of a chosen profession, all of which influence the formation of professional identity (Hooper, 2008). Within occupational therapy literature, there has been notable consideration regarding the importance of professional identity and issues influencing its formation (Fortune, 2000; Watson, 2006; Hooper, 2008; Wilding & Whiteford, 2009; Rodger & Turpin, 2011; Turner & Knight, 2015).

Fortune (2000) expressed concern that failure of the profession to consistently position itself in the occupation paradigm resulted in continuous confusion of identity, both from those within the profession and, from those outside it. Turner and Knight (2015) undertook a review of literature regarding the profession's identity and concurred with the findings of Fortune (2000). Turner and Knight's (2015) findings emerged from a review of published literature, sourced predominantly from publications of occupational therapy academics involved in the teaching of occupation. However, the literature was drawn from international publications of the profession. Thus, evidence suggests that therapists' inability to clearly articulate occupation focused practice as their area of concern is an issue across the profession and negatively impacts on professional identity. Watson (2006) proposed that utilising the core characteristic of the profession, occupation, would secure a clear identity for the profession.

Further research has highlighted that occupational therapists, on some occasions, avoid use of the word occupation due to the wide variety of understanding of the term, again both within occupational therapy and as understood by the public (Wilding and Whiteford, 2008). However, it was also identified that on occasions when occupational therapists used occupational terminology, they expressed a greater perception of professional identity. The use of professional language has been noted as being transformative for occupational therapists' professional identity (Turner & Knight, 2015), as well as for the identity of occupational therapy students (Rodger, Thomas, Greber, Broadbridge, Edwards, Newton & Lyons, 2014).

Meyer (2010) identified transformation of knowledge as a fixed characteristic of a threshold concept. In addition, Nicola-Richmond, et al (2016) identified threshold concepts as being

able to hold the characteristic of reconstitution, thus, having the power to shape an individual's self-identity. An outcome of occupational therapy education to view oneself as an occupational therapist is noted as of importance to the profession, and literature suggest that use of occupation as a threshold concept would support this requirement.

2.8 Challenges in Higher Education

Occupational therapy has been described as both an art and a science (Peloquin, 1989). Development of scientific knowledge of the biological, psychological and sociological performance required to engage in occupations; and the art of modifying and adapting occupation and the surrounding context, to develop and employ the therapeutic power of occupation (Peloquin, 1989).

In the UK, occupational therapy programmes are delivered through higher education institutions (universities). Position to confer a qualification in occupational therapy at Bachelor or pre-registration Master level, requires programmes to develop students' academic knowledge to the education standards set out by the QAA, now referred to as the Office for Students (OfS) (QAA, 2014; 2018). This is in addition to development of occupational therapy competencies set out by the Health and Care Professions Council (2013; 2017); the regulatory body who oversee competence to practice in the UK. Furthermore, the programme must meet the Education Standards of the Royal College of Occupational Therapists (2019a) and W.F.O.T (2016).

The OfS, safeguard standards and improve the quality of UK higher education wherever it is delivered around the world. They check that students get the higher education they are entitled to expect. As a vocational education programme delivered in Higher Education Institutes (H.E.I.s), occupational therapy theorists and academics have striven to develop

the scientific underpinnings of occupation whilst simultaneously facilitating application of the theories to practice (Law, Cooper, Strong, Stewart, Rigby & Letts, 1996; Kielhofner, 1997).

Occupation is recognised as an emerging phenomenon (Pierce, 2001). Investigation into the relationship between occupation and resultant occupational performance has resulted in scientific approaches being utilised in occupational therapy education to support student learning; approaches including systems theory, complexity theory and chaos theory. Each of which will briefly be explored as to their support of occupational therapy knowledge development.

2.8.1 Systems theory

Occupational therapy education has looked to different iterations of systems theory to develop understandings of individuals and their performance of occupations (Kielhofner, 1997). Through this, individuals were conceptualised as part of a system that included occupation. Reilly (1974) proposed the use of General Systems Theory as a way of synthesising the underpinning sciences of the time; psychology, sociology and biology, and how they enabled the occupation of play to occur.

Use of General Systems Theory aimed to provide a structured explanation of the relationships that exist between different elements that together create a system or concept. For occupational therapy the aim being to develop structured explanation of the relationship between biological functions, psychological abilities, within social contexts, that interrelate to form human occupation. However, systems theory is hierarchical. Each element within the system is categorised according to its level of complexity. Elements are then catalogued within the system according to their status of complexity. Use of General

Systems Theory acknowledged the multiple elements that act upon each other in the formation of human occupation (Reilly, 1974). However, a flaw in utilising a General Systems Theory approach is its requirement that the elements within the system act upon one another hierarchically. None of the elements involved in the construction of occupation consistently have greater control or influence over any other. Rather the elements that form occupation are heterarchical i.e. the influence of altering in their level of influence within the system on different occasions (Fogelburg & Frauwirth, 2010). Initial use of systems theory was reductionist, and within occupational therapy would have advocated for viewing the person as part of a system or machine. However, harnessing a systems theory approach did enable occupational therapists to identify the importance of the occupational performance as being an ever changing and evolving system (Kielhofner, 1997). This led to use of Dynamic Systems Theory in occupational therapy education (Kielhofner, 1997), which better accounted for the dynamic nature of human occupation, becoming the foundation for models such as the Person-Environment-Occupation model (PEO) (Law, et al, 1997). As knowledge of the complex dynamics developed, occupational therapy theorists turned to complexity theory to further advance understandings of occupation.

2.8.2 Complexity theory

Cole (2012) identified complexity theory as arising from a requirement to develop understanding of phenomena that are beyond the scope of reductionist methodologies. Complexity theory concerns itself with "*… systems that are complex in the sense that very large numbers of constituent elements or agents are connected to and interacting with each other in many different ways … the system is characterised by a continued organisation and reorganisation of and by the constituents 'into larger structures'"* (Mason, 2008, p. 36). Complexity theory being concerned with investigating and understanding the diverse array

of components that exist within a system, how they interact and create resultant behaviour (Cole, 2012). Complex systems are noted as transformational as well as dynamic (Mason, 2008).

Occupation is an emergent phenomenon (Jackson, Carlson, Mandel, Zemke & Clark, 1998). It is created by multiple components that dynamically interact and interrelate in a myriad of ways (Nelson & Jepson-Thomas, 2003; Creek, 2010). If considered a threshold concept it can be transformational of understandings. Thus, occupation can be said to be a complex system. In addition, Horn (2008) identified complexity theory as focused on behaviours that emerge as the components come together and self-organise. This correlates to the concept of occupational performance, where the constituent parts self-organise to form an occupation, enabling the performance or behaviour of that occupation to take place, i.e. occupational performance (Nelson & Jepson-Thomas, 2003).

Complexity theory has been considered as an appropriate framework for use in developing understanding of occupation as it offers a variety of factors that can be related to occupational therapy practice. Whiteford and Wright-St Clair (2005) discussed the use of complexity theory in understanding occupation. They noted its recognition of the diverse nature of individuals, and the relationship between the individual and processes; processes that can be based on qualitative effects. Occupational performance can be viewed as the process of an individual enacting an occupation.

A challenge with the use of complexity theory being that the systems under consideration are not only complex, they are also unpredictable (Whiteford & Wright-St Clair, 2005). The system never maintains a state of equilibrium; it is constantly in a state of change (Fogelburg & Frauwirth, 2010). Further to this, due to the heterarchical nature of the

elements of occupation their interactions are unpredictable (Pierce, 2001) and resultantly chaotic.

2.8.3 Chaos Theory

Chaos theory may therefore be an alternative to complexity theory. Each are concerned with wholes systems and the constituent relationship between the elements that together form the phenomenon (Mason, 2008). However, chaos theory postulates that systems that are chaotic still possess in underpinning order (Kramer, Hinojosa & Royeen, 2003); one simply must know the system in order to extrapolate the order. Kramer, et al (2003) identified the practice of occupational therapy as fitting into chaos theory in that behind the apparent chaos in choice and design of intervention there is underlying order in the forms of clinical reasoning, therapeutic use of self, etc. However, occupation itself has not been identified as having an underlying system. Rather it is a dynamic interplay of components unique to every individual that interact in an unpredictable fashion within each circumstance and occurrence (Pierce, 2001).

Systems, complexity and chaos theories have all contributed to understandings of human occupation. However, they again focus on the relationship between occupation, the person, their context and thus the resultant impact on health, rather than discretely develop student knowledge first and foremost of occupation itself.

Summary

The aim of this preliminary literature review was to present contemporary understandings of occupation within the profession of occupational therapy as a core, and complex,

concept. Challenges encountered in the teaching of a vocational programme and previous approaches and strategies utilised, and proposed, by occupational therapy theorists and academics have been summarised. It was my knowledge and experience of many of those challenges that led to my creation of the occupational focused teaching tool; the pedagogic investigation of its role and influence in teaching-learning being the focus of my research. Therefore, in chapter 3, prior to presenting a literature review of pedagogy (Chapter 7), I first introduce the teaching tool and its design.

3.0 Design of the Teaching Tool

Occupational therapy is a practice-based profession, which utilises occupation as the method and the intended outcome of intervention (Crabtree, 1998). To achieve this, occupational therapists employ practical skills to manipulate and adapt occupation for use as therapeutic media (HCPC, 2013). As an HCPC registered Occupational Therapist, competent in practice skills, it was a natural process for me to develop a teaching tool that is both practical and interactive. This approach to teaching reflects the underpinning philosophy of occupational therapy, which is based on the premise of learning through doing (Breines, 2004) (section 7.3.1).

The creation of the teaching tool was in response to my need to improve education of pre-registration occupational therapy students about the concept of occupation. My aim was to enhance my teaching practice and thus better develop students' knowledge and understanding of the concept of occupation. My knowledge, experience and reflections on prior teaching of the concept of occupation in occupational therapy education culminated in 2008 in my creation of an occupation focused teaching tool. Following the teaching tool's creation, only I used it within my teaching.

Review of contemporary definitions of occupation enabled my identification of a growing understanding of what occupation does and what it can provide to individuals and societies (Pierce, 2001; Abrahams, 2008; Reed, Hocking & Smythe, 2010; Twinley, 2013). However, I recognised that most definitions focused on the function and influence of occupation; that defining purely what occupation is has remained challenging to the profession. Having reviewed multiple definitions of occupation, I identified one definition that provided me

with a more comprehensive explanation of the concept of occupation. Furthermore, the definition did not focus on occupation's function or influence. Rather it provided insight into what occupation essentially is. This definition stated that occupation is

> "*a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance.*" (Nelson and Jepson-Thomas, 2003, p. 90).

However, the authors acknowledged the definition as abstract and requiring further explanation (Nelson and Jepson-Thomas, 2003). In acknowledgement of the complex nature of the concept and in response to the identification that the definition is abstract and required further explanation, I created a teaching tool (Figure 4). No other occupation focused teaching tools of this type has been identified through literature, conference, professional bodies or occupational therapy networks.

Figure 4: Photographs of the occupation teaching tool

The idea for the teaching tool came about through my reading of the work of Breines (2004) in addition to that of Nelson and Jepson-Thomas (2003). Breines (2004) discussed the concept of occupation and the potential benefits of being able to unpack concepts that are recognised as complex.

In consideration of my chosen definition, it was identified in the literature (Nelson and Jepson-Thomas, 2003) that there were internal concepts embedded within the overarching concept of occupation that required expansion; occupational form, personal with a unique developmental structure and subjective meanings and values. Furthermore, within each of these internal concepts, there were further items of which students needed to gain knowledge and understanding. Thus, it was indicated in the literature that within the concept of occupation there existed a large number of internal components (Nelson & Jepson-Thomas, 2003). Each component interrelating to each other, and only when brought together could occupation emerge (Figure 4). Hence, I began to extend and expand upon the initial components Nelson and Jepson-Thomas (2003) had identified.

One of the core skills of an occupational therapist is the ability to analyse activities (Creek, 2010). This procedure requires the identification of all the physical, psychological, social, culture, environmental and spiritual components that exist within activities that people do (HCPC, 2013). Drawing on the published explanation of the concept (Nelson and Jepson-Thomas, 2003) and using my professional knowledge, I created a list of all the initial components of occupation. I then categorised each component under the corresponding internal concepts (occupational form, person and their unique developmental structure, subjective meaning and purpose) (Figure 5).

In creating the teaching tool my intent was to be able to show students the concept of occupation rather than merely explaining it, as I had done previously. Hence, the teaching tool was created to provide a visual representation of an abstract concept in a physical form to aid students learning (Brown, Collins & Duguid, 1989). I aimed to employ the tool to transform the written and verbal explanations into physical form (Figure 4). The concept of occupation and all its components could be physically unpacked, visually examined and actively engaged with. Detailed explanation of the process by which the teaching tool is utilised in my practice and replicated in Phase I of this research is presented in section 4.1.1.

Figure 5: Diagrammatic Representation of the Content of the Teaching Tool

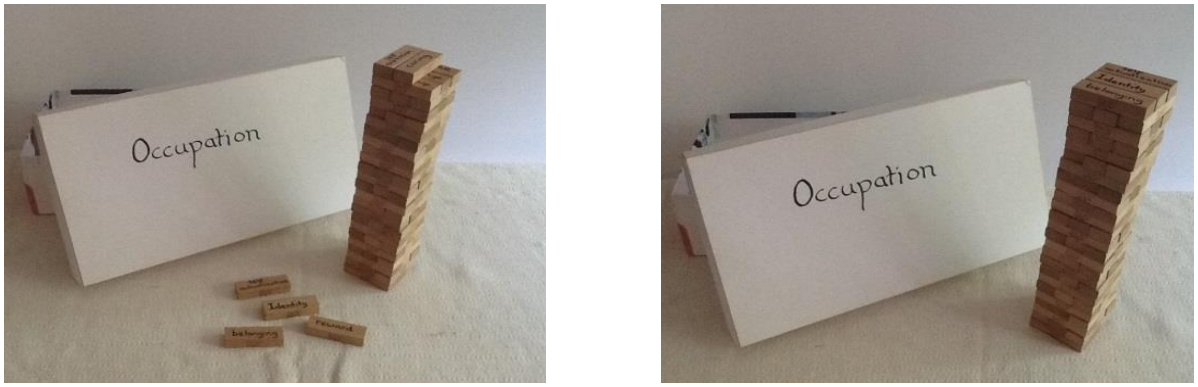
The three internal concepts of occupational form, person with a unique developmental structure and subjective meanings and values (Nelson and Jepson-Thomas, 2003) are represented as boxes contained within the large box that represents occupation (Figure 4).

The box of occupational form houses two further boxes, one for physical dimensions and one for sociocultural dimensions. Inside each of these boxes there are fifteen wooden blocks. Each wooden block represents an internal component that is part of occupation. The box representing the person and their unique developmental structure also houses two further internal boxes. One box represents a person's physiological dimensions whilst the second represents a person's psychological dimensions. Each of these boxes also house fifteen wooden blocks. The third box represents the subjective meanings and values of an individual. This box has no internal boxes but does contain twenty wooden blocks. Fifteen of these blocks are labelled, each with a subjective meaning of value that an individual may attribute to things they do. The remaining five block are left blank. An individual can attribute alternative meanings to these blocks if the meaning they identify is not already represented. As a result, the teaching tool consists of a total of eighty-one internal components (represented by wooden blocks) housed within eight boxes of varying sizes. Therefore, all the internal concepts and components that together create the concept of occupation are brought together in one large box that can be unpacked, explained and explored (Figure 4).

A key aspect of occupation is that all the internal components are interrelated and interdependent. Therefore, it was necessary to illustrate this with the teaching tool. Following investigation of potentially suitable building blocks I identified that the oblong shape of the blocks used in the game of 'Jenga®' facilitated the representation of each

component being interdependent on the other. Each oblong shaped block represents one internal component of occupation. During the teaching of the concept of occupation, as each internal component (block) is shown to students and a verbal explanation given, the blocks are placed adjacent to and on top of each other in the same pattern as the game of 'Jenga®'. Thus, as occupation is unpacked, and each internal concept and component is explained, a tower of interrelated and interdependent blocks is constructed. This provides students with a visual representation of all the internal components, as well as their interdependency (Figure 6).

Figure 6: Photographs of the Tower Constructed to Represent Occupation



Since the commencement of data collection, one modification has been made to the teaching tool. This was the inclusion of five unlabelled blocks that are housed in the box that represents subjective meanings and values. The inclusion of unlabelled blocks provides opportunity for an individual to name a form of subjective meaning they attach to an occupation that is not already represented in the teaching tool. Change was instigated by discussion with student-participants of this research and is discussed in Section 9.2.3.3.1.

In employing the wooden blocks for the design of the teaching tool it is noted that the game of Jenga® is a protected product. The name Jenga® is a registered trademark; the original

graphics are copyright protected; and the operation method is patented, i.e. how the game is played (www.answers.com/Q/Does_Jenga_have_a_copyright_or_patent , 2015; 2019). Whilst it is acknowledged that the teaching tool utilises oblong shaped blocks, and the actions during teaching culminate in the construction of a tower in the same pattern as Jenga®, the teaching tool does not use the tradename. The graphics on each block are unique to the teaching tool, either created by me or terms sourced from published literature. The tool is used solely for teaching purposes and not in any form of game. Thus, the teaching tool does not use the tradename, the original graphics or the method of operation of the game Jenga®.

4.0 Rational for My Research

In this section I present the reflections on my rationale for this research. Having presented the challenges of teaching occupation in my Preliminary Literature Review (Chapter 2) I now provide a summary of my academic journey that lead to my design and creation of the occupation focused teaching tool. I lead you through key milestones of my journey and identify how I came about my personal rationale for my research.

4.1 Reflections on My Journey and Resultant Rationale

In 2008 I commenced my role as programme, or course leader, of the BSc (Hons) Occupational Therapy programme at a U.K. H.E.I. At that time the university, at which I am employed, offered three routes of study for individuals who aspired to become occupational therapists. Most students undertook a three-year full-time programme of education. Alternatively, students could complete their education through a four-year part time programme. For individuals who had previously achieved a degree, in another subject, they could complete the programme through a two-year accelerated route. As programme leader I held responsibility for the coordination and delivery of all three routes and the educational experiences of approximately 300 enrolled occupational therapy students.

In 2008 I led the occupational therapy academic team in completing a redesign of the occupational therapy education provision at the H.E.I. This culminated in the introduction of a revised programme of bachelor education, offering full-time and part-time routes of study. In addition, the team created a pre-registration master level occupational therapy programme as a replacement for the previous two-year accelerated bachelor route of study.

Delivery of the revised bachelors programme and newly developed master programme commenced in autumn of 2009. I continued as programme leader for the bachelor programme, with colleagues taking on the leadership of the master programme.

During the curriculum redesign process my knowledge of the repositioning of the profession toward an enhanced focus on occupation in occupational therapy curricula drove my development and creation of the occupation focused teaching tool (Chapter 3). However, it was my initial use of the tool in a teaching session with first year bachelors occupational therapy students in 2009 that led me to question what the tool did and why.

4.1.1 Using the Teaching Tool

The teaching tool is a physical tool therefore, when using the teaching tool for the first time, I was keen to ensure students could see what I was doing with the tool as well as hear what I was explaining. Thus, at the commencement of the lecture I instructed the cohort of 70 students to arrange their seating in order that they could see both me, the teaching tool and the PowerPoint display screen. This they did. Requesting this action from the cohort appeared to pique their curiosity. I placed myself at the front of the room with the teaching tool on a table and began the lecture with a set of PowerPoint slides to introduce the topic. Following the introduction, in which I emphasised the simplicity and complexity of occupation and its importance to the profession, I progressed to presenting the quotation on which the tool is based (Nelson & Jepson-Thomas, 2003). I verbalised the quotation and inquired as to whether students understood it, to which I received a tentative positive response from some, and a negative response from others. I proceeded to identify that I was going to unpack the quotation using the teaching tool. Thus, began my teaching of the concept.

I asked students to consider the tool as occupation. I clarified that whilst the teaching tool could represent any occupation they could imagine, I would explain it through use of gardening as one of my own key occupations. I began by opening the main box and showed them the three internal boxes. I moved on to unpack the box named occupational form, simply because it was the first part of the quotation. I continued to open this box, reveal two further internal boxes and then proceeded to unpack one box at a time. As I unpack the wooden blocks from the box, I began to construct them into a tower, just as in the setting up of the game from which the physical structure is drawn (Jenga®). As each box was unpacked and blocks added to the tower, I progressed to the next box until the process was complete. Explanation and time for questions and clarification was given at every stage of reveal.

By the end of the session the tower of occupation was fully formed. I then ask students what they thought would happen if I were to move or remove a block. They identified that the tower would become unstable or collapse. I began to undertake this action as they verbalised their responses. Students observed avidly to see whether I would allow the tower to fall. Hence, they began to see

the dynamic nature of occupation and the interdependent relationships that exist between the internal components that together create occupation.

I also discussed the role of an occupational therapist; with knowledge of all the components, the impact of one component on other components, and the occupational therapists' use of therapeutic knowledge and skills to manipulate alternative blocks or replace lost blocks to support the recreation of occupation for a client. These skills I identified as formally referred to as grading and adaptation of occupation.

On completion of my first use of the teaching tool, a student took it upon themselves to speak with me before leaving the lecture theatre. They identified how beneficial they had found the use of the tool. Being able to see all the components and how they act upon each other, the individual expressed as being very powerful learning for them. They discussed the challenges they encountered personally as a student with the learning difficulty of dyslexia.

Having observed the increased level of attention the cohort of students had paid during the teaching, in conjunction with the specific feedback of the individual student, my curiosity about what the tool did and why began.

I continued to use the teaching tool with first year bachelor occupational therapy students from 2009. I commenced its use with master level occupational therapy students in 2010.

I continued to be approached by students from each programme who wished to make comment on how they perceived my use of the teaching tool had benefitted their learning of the concept of occupation. This led me to begin writing a journal about what I believed the function of the teaching tool might be. Thus, whilst not being done formally as part of this research, my memoing regarding the teaching tool commenced in 2010.

Whilst the teaching tool was only used once, annually, within each programme, the more I used the teaching tool the more student feedback I received and the more curious I became. Student comments included points such as use of the teaching tool help them make sense of literature about occupation; being able to 'see' occupation became a recurring theme. Students also expressed their enjoyment of the learning. I never used the teaching tool in any other taught sessions, or in the presence of any of my academic colleagues. However, on occasion during related teaching sessions I would refer students to when they had been taught with the teaching tool to assist them in making connections

between professional theories. The clarity of their recollections of the teaching tool always surprised me. A further observation I made was that in classroom-based discussions, with minimal prompting, students were better able to verbalise the difference between the terms: activity, purposeful activity and occupation. Their expression of the terms was consistently correct. I had not experienced this previously. I was used to having to provide greater discussion and guidance to support students' transformation of this knowledge.

However, as the programme leader of a large bachelor programme my capacity to undertake research into the tool was restricted. In 2012 I chose to end my role as programme leader and return to a senior lecturer position. With fewer administrative and academic responsibilities I was able to commence my research of the teaching tool.

4.1.2 Academic to Researcher

My experience in teaching the concept of occupation, and knowledge of published literature of the time, led me to question whether I had developed a mechanism for teaching the professional understanding of occupation. I also questioned whether I had created a tool that facilitated clear differentiation

between the terms of activity, purposeful activity and occupation (section 2.4.1).

However, a key concern with my initial design of the teaching tool was that I had drawn on personal reflection of my occupation of gardening when populating the box of 'Subjective Purpose and Meanings'. I thus undertook a discrete review of occupational therapy and occupational science literature to investigate contemporary knowledge of subjective meanings. I concluded that research regarding the subjective meanings attached to activities that create occupations was limited. Hence, I came to my PhD research with the intent of investigating forms of subjective meaning individuals attached to what they do. My preliminary PhD proposal centred on

'A Critical Investigation of the Categories of Meanings of Everyday Occupations'

My Key Research Questions were to critically investigate;

- What are classed as everyday occupations?
- What meaning(s) do individuals attach to their everyday occupations?
- What categories/kinds of meanings can be identified?

I proposed to employ a qualitative approach to investigate whether there existed different categories, or forms, of meaning that would be important in a final version of the teaching tool. The aim being to develop a teaching tool that was a comprehensive representation of occupation.

Having been accepted as a probationary PhD candidate I commenced my research, meeting with my supervisory team to discuss my research focus. During the initial supervisory meeting discussions centred on why I had come to the position I had. In aiming to articulate my thinking process I disclosed my creation of the occupation focused teaching tool and explained how it had shaped my thinking. In order to better understand the stance I was taking and support my research, I was requested to bring the teaching tool to the second supervisory meeting, which I did.

I presented a full demonstration of the teaching tool to my supervisory team during this second meeting. Through discussions it became clear that a pedagogic investigation of the teaching tool, its' form, function and impact on student learning, was to become the focus of my research. This resulted in my creation of a new title and aim for my research;

'Occupation as a Complex Concept; educating pre-registration occupational therapy students'

My aim now was to investigate the utility of the teaching tool for aiding the development of occupational therapy students' knowledge and understanding of occupation.

At the heart of my endeavours as an academic was my intent to improve my own knowledge of the concept of occupation, and to better articulate this knowledge to students for their future use of occupation as a treatment media. At times this has gotten in the way of my definitive research; the pedagogic utility and function of the tool. Whilst I had refocused my research at an early stage, the process of transferring from probationary to confirmed PhD candidate resulted in a further refocusing of my research.

The procedure for confirmation required my production of an initial research document. Through the document, I was to present an early literature review, initial data analysis, preliminary findings, discussion and identification of next steps. I had decided on employing a grounded theory approach to my research (section 5.5). As such, I was aware of not investigating teaching and learning

literature too early, in case it influenced my data analysis (Birks & Mills, 2015). Thus, I present a literature review focus on the contemporary occupational therapy understandings of occupation as a complex concept.

My focus of articulating the complexity of the concept through my literature review received criticism from my examiners. Their key concern was whether I held sufficient knowledge of teaching and learning theory to accomplish a pedagogic investigation of a teaching tool. Thus, I was required to submit a new literature review and amendment of the title and overarching aim of my research.

In completion of a revised literature review I looked broadly at teaching and learning theory to illustrate my knowledge in this field, without predetermining the literature I would eventually investigate through a grounded theory study. I drew on my knowledge of the origins of the profession and educational theorist John Dewey who influenced founders of the profession (section 7.3.1). I also drew on conversations that had taken place in supervision regarding the teaching tool acting as an analogy for occupation. In addition, I aimed to consider contradictory perspectives from the literature. Hence, I reviewed different types of students who undertake higher education, i.e. vocational

learners (section 2.7) and the influence of different learning strategies students can employ (section 7.5.1). Many of these areas of literature have become important in this research and are critically considered in Chapter 7. Other pedagogic concerns have emerged from the data, e.g. learning styles.

The refocusing of the literature at that point culminated in the definitive aim of my research:

A pedagogic investigation of an occupation focused teaching tool supporting teaching of the complex concept of occupation.

Objectives:

- To critically consider the design of the teaching tool;
- To critically explore the perceived influence of the teaching tool on student learning; and
- To critically investigate the pedagogic utility of the teaching tool in facilitating students' knowledge and understanding of the concept of occupation.

Having reflected on my journey and formulation of my research topic I also considered my research stance whilst selecting my research methodology.

4.2 Positioning Myself within My Research

The stance a researcher holds influences how they view their subject and which methodologies they employ to investigate a subject (Etherington, 2004; Charmaz, 2014). Developing insight as to my own research stance was important as I undertook my exploration of a range of methodologies that might best serve my investigation. Exploration of research philosophies resulted in my identification of my stance being one of social constructionism.

Researchers who hold a constructivist stance believe that an individual's cognitive interactions with their environment enable knowledge of the world to be constructed (Teddlie & Tashakkori, 2009). They are concerned with the discovery of how social realities are produced (Silverman, 2015). However, unlike naturalists, who aim to gain insight into the lived experiences of their participants, constructionists aim to investigate the underlying processes through which social realities are constructed (Silverman, 2015). This leads to a belief that "*the meaning of human experience is context bound"* (Teddlie & Tashakkori, 2009, p. 56). Further to this, constructivist researchers believe the subject of research cannot be separated from the researcher; knowledge of the subject is an outcome of their own cognitive processing of the findings of investigation. As a result, the researcher becomes part of the research (Teddlie & Tashakkori, 2009; Birks & Mills, 2015).

The undertaking of constructivist research has been identified as focusing on the abstraction of categories from the data at the expense of the voices of the participants (Birks & Mills, 2015). However, as the knowledge and meaning of a subject is constructed through narrative interactions of the researcher with their participants this perspective is contestable (Charmaz, 2014).

Social constructivism, as an extension of constructivism, values the exploration of identity and meanings as they are created through behaviour, language and stories. It gives greater emphasis to the voice of participants within the research (Etherington, 2004). Identified as the founder of social constructionism, Vygotsky (1978, 1984) purported that individuals learn about their world through their interactions with, and within, their social environment (Kolb, 2015). This stance is also reflective of the philosophies of occupational therapy, in which occupational therapists work in partnership with clients; enabling them to reconstruct their occupational abilities and resultant occupational identities (Clouston, 2003).

Whether I hold social constructivist views because of my own education and practice as an occupational therapist, or whether I was drawn to occupational therapy as a profession because its' stance and philosophies aligned with my own, is not a subject for this research. However, identification of this alignment has enabled me to develop understanding that I also hold these perspectives within my educational practice.

Informed by the perspectives of occupational therapy and occupational science, I have come to conceptualise teaching-learning as being co-occupational. Co-occupations are those occupations that involve the participation of more than one individual. According to Pickens and Pizur-Barnekow (2009), performance of a co-occupation requires that shared physicality, shared emotionality and shared intentionality exist. Whilst research focused on teaching-learning as a co-occupation has not been identified in literature, elements of the three shared forms can be considered.

Shared physicality refers to the motor behaviours of individuals being directly linked (Pickens & Pizur-Barnekow, 2009). This element of co-occupation can occur in theory-focused teaching-learning events through participants' use of body language. Academics can

use body language and other forms of non-verbal communication to indicate and emphasis key information. Students also indicate through their body language and facial expressions their engagement and understanding of the topic. Alternatively, in skills-based teaching-learning shared physicality can be explicit. Skills-based teaching-learning within occupational therapy includes techniques such as the safe physical transfer of individuals who live with mobility restrictions.

Shared emotionality refers to the individuals involved responding, and being responsive, to the emotional tone of each other (Pickens & Pizur-Barnekow, 2009). In addition to the monitoring of non-verbal communication, during teaching-learning events, I listen for the tone in which students present answers or pose questions. Tone of communication can indicate a range of feelings experienced by students during teaching-learning, as can the tone of communication of the academic when emphasising key points of theory and confirming students' knowledge development during the event.

The final aspect of co-occupation is shared intentionality. This occurs when each participant holds an understanding of the role of the other(s) and is aware of their purpose within the process (Pickens & Pizur-Barnekow, 2009). Academics and students can be identified as having shared intentionality, as each know the role and purpose of the other within the context of teaching-learning events.

My conceptualisation of teaching-learning as co-occupation is a personal conceptualisation and holds weakness particularly in the aspect of shared physicality. However, Pierce (2009) presents an alternative understanding of the term. She contends that the shared elements outlined by Pickens & Pizur-Barnekow (2009) are not essential elements. Rather the "… *essence of co-occupation is simply the degree to which the occupations of two or more*

individuals are interactively shaping each other." (Pierce, 2009, p. 204). Teaching-learning are a result of the continuous interactions that occur between a teacher, or academic, and students (Ashwin, 2012). Hence, my conception of teaching-learning as co-occupation reflects the perspective of Ashwin (2012).

My professional understandings of occupation and co-occupation have been instrumental in the development of my perspectives of knowledge and skill construction as it has occurred in my health-based practice and my educational practice. Hence, my knowledge and experiences underpin my research stance as a social constructivist.

5.0 Methodology

This chapter is a presentation of my consideration of a range of research methodologies for use in the completion of my research. I commence with a brief explanation a range of methodological options I explored. I complete the chapter with a more detailed explanation of the methodology of grounded theory, the underpinning philosophies, ontological and epistemological perspectives, and my final selection of a constructivist grounded theory approach for use in my research.

5.1 Phenomenology

Phenomenology, as a research methodology, is employed to investigate the world as it is experienced by human beings, within specific contexts, at particular times (Willis, 2007). Use of a phenomenological approach is for interpretation and to develop understanding of the meanings people attribute to their experiences. However, phenomenology is not one single research approach. Rather, it is a methodological framework through which a variety of research methods can be employed (Willis, 2007).

Phenomenological methodology involves the collection of first-hand accounts of individuals' experiences as they naturally occur (Finlay, 2011). The aim is to develop insight into the person's experience, and thus gain knowledge of the phenomenon under investigation. Employment of a phenomenology approach enables a choice of methods of data collection including interviews and focus groups (Willis, 2007). A phenomenological approach therefore presented as a potential methodology that could enable me to develop insights regarding students' experiences of the teaching-learning process as it occurred through my use of the teaching tool. However, the aim of my research was also to investigate the

properties of the teaching tool; to develop knowledge of their influence in the teaching-learning process. Hence, I needed to ensure I selected a method of data collection that would enable me to gather a variety of data and not solely the lived experiences of students.

Commensurate with a phenomenological methodology, observation, as a method of research, enables the collection of live data. This form of data is believed to be more valid and authentic than data based on personal accounts and reflections (Cohen, et al, 2007). Used within education-based research, it can be employed to investigate events as they occur within classrooms. Observation as a method, used in health care practice as well as health research (Green & Thorogood, 2014), is a skill I have developed competence in. As a research tool, it enables the researcher to examine every-day behaviours and uncover what is often unnoticed or presumed (Cohen, et al, 2007).

In selecting observations as a method as data collection I decided upon the use of unstructured observation (Bowling, 2009). This form of observation requires that no variables of interest are specified prior to data collection. Thus, whilst the teaching-learning event itself had a predetermined structure; my use of an unstructured observation would enable me to remain open to the data. This would allow me to review the data before considering explanations for the phenomenon (Cohen, et al, 2007).

A further reason for my choice of unstructured observation was to enable me to collect data with myself as a participant of the research. This was necessary as I am the individual who delivers the teaching-learning events using the teaching tool. Hence, my aim was to employ a form of participant observation that enabled me to undertake the activities under investigation. I therefore would undertake the role of participant-researcher (section 6.5.3).

Prior to my first data capture event, discussions undertaken during supervision had raised the question that, as the teaching tool was a physical entity, might there be quantifiable elements to the data? Mindful that a phenomenological approach would solely focus on the lived experience, I also began to explore the potential of a mixed methods approach to my research.

5.2 Mixed Methods

A mixed methodologies approach can be used when neither qualitative nor quantitative methods alone are sufficient to capture all aspects of data that are important, or required, to understand a subject (Teddlie & Tashakkori, 2009; Creswell & Clark, 2011). The combined use of methods from each approach enables greater breadth and depth of a subject to be investigated and understood (Creswell & Clark, 2011). Findings generated from each method are merged or linked during the research process. Data from one form of enquiry can be used to build upon the findings of the other (Creswell & Clark, 2011). Likewise, findings from each method can be integrated to illustrate a greater understanding of the subject.

Creswell and Clark (2011) identify that researchers who wish to undertake a mixed method approach first need to develop a comprehensive understanding of mixed methods research as a subject area. They discuss the importance of the researcher(s) having practical experience of both qualitative and quantitative methods. They advocate that researchers without the practical experience in both areas should work with a mentor in an apprenticeship capacity to gain the required knowledge and skill (Creswell & Clark, 2011).

Whilst a mixed method approach might allow me to explore different aspects within my research, I was anxious regarding my lack of knowledge and experience in using quantitative methods. My previous research experience had been through the employment of a qualitative stance (section 1.3.1). However, I decided to remain open to the possibility of using a mixed method approach until I had an opportunity to explore some initial data.

My use of observation, and collection of visual and auditory data, provided me with the potential to examine non-verbal behaviours that may hold some quantifiable data. The predominant non-verbal communication I identified within the initial data were my interactions with different elements of the teaching tool. Comparison of the initial two data sets resulted in my noting that the number of interactions that occurred were static. Each set of actions within the different teaching-learning events being determined by the number of component parts that together make up the teaching tool. As this presented itself as the only quantifiable element within the data, I began to question further whether a mixed method approach would be appropriate for my research. I therefore explored other methodological options for use within my

research. These included Action Research, Narrative Inquiry, and a Grounded Theory approach.

5.3 Action Research

Action research enables the use of a systematic study, with the aim of improving practice or improving the understanding of practice (Teddlie & Tashakkori, 2009; Atkins & Wallace, 2012). It requires practice to be observed and reflected on. Alterations for practice are then identified and acted upon (Cohen, et al, 2007). The altered actions are subsequently observed and evaluated in order to identify any improvements in practice. Action research has been commonly used in education (Willis, 2007). In addition, employment of an action research approach has been identified as beneficial in situations where a problem has been identified that requires solutioning.

Initial consideration of action research suggested to me that it may have utility as a methodological approach for my research. Developed to enable practitioners to reflect upon and develop understanding of their own practice (Cohen, et al, 2007), it offered me an opportunity to reflect on how I taught the concept of occupation. In addition, there was a clearly identifiable problem that required a solution; the challenge of teaching-learning the concept of occupation (Di Tommaso, et al, 2016; Howarth, et al, 2018). However, further investigation regarding this methodological approach led me to question its utility for my research.

Action research has been identified as a collaborative approach to research (Willis, 2007; Cohen, et al, 2007). Hence, whilst it is possible for an individual to undertake action research into their own practice, more commonly it involves a collection of practitioners working together (Willis, 2007). As a collaborative process it takes into account the views of all involved (Cohen, et al, 2007).

This suggested initially to me that it would enable the voices of student-participants to be heard. As teaching-learning is a collaborative process (section 1.2), this felt like an appropriate aspect to consider. However, the aspect of collaboration held two specific issues of concern. Firstly, the collaboration is typically documented as being undertaken between individuals who carry out the same activity (Willis, 2007). This suggested to me that if collaboration were to take place then it would need to be undertaken with academic colleagues. As my research is a PhD study, it has been necessary for me to protect the design and use of the teaching tool in order to preserve my unique contribution to the field. However, Bowling (2009) discusses the use of action research involving the collaboration of patients within healthcare research. Hence, I did not immediately dismiss action research as an option, considering instead whether collaboration was possible between me and student-participants. Yet, I also noted that those who collaborate should be involved in all aspects of the

research. This would include the design, execution and analysis of the data (Willis, 2007). My main group of participants were to be occupational therapy students; the investigation would focus on the teaching-learning using the teaching tool that they participated in. Hence, involving student-participants within my research would support them to develop perspectives of how the teaching tool could or should be used. This would alter the aim of my research, which was to investigate the fundamental influence of the teaching tool as it was initially designed. This concern was further confirmed in that action research findings are also shared with the participants in order that any subsequent phases of investigation can be shaped through their discussions (Green & Thorogood, 2014). Again, with my aim of developing knowledge and understanding of the essence of the teaching tool and its influence within the teaching-learning process, I was concerned that active involvement of student-participants in any subsequent stages of research would alter my research focus.

My final motive for not selecting an action research approach is that the process is informed by a theoretical framework based on a defined body of literature (Atkins & Wallace, 2012). My design and creation of the occupation focused teaching tool was not based on a theoretical framework. Neither was

there a defined body of literature that I had drawn upon during its creation. This combination of concerns and reservations regarding the utility of action research resulted in my ongoing investigation of research methodologies.

5.4 Narrative Inquiry

Narrative inquiry is a methodology by which the data is gathered through use of stories. The stories are used to gather the thoughts and feelings regarding events with the aim of developing insights into the meanings of the lived experience (Willis, 2007). The upmost concern of narrative researchers is developing understanding of the meanings that the stories portray rather than attempting to identify facts or truths of an event (Wang & Geale, 2015). This is a key aspect of narrative inquiry, with "… *the subjective truth of the individual, …"* (Clouston, 2003, p. 137) being given greater emphasise and import than the factual elements of the event. Narratives also enable connections within events to be explored, providing insight regarding the motivations and intentions of the individual recounting the story (Mattingly, 1991).

The terms of narrative and storytelling have been used interchangeably (Brooks & Parkinson, 2018). However, narratives have been identified as being concerned with how a story is told; the impact it has on the meaning of an event. Whilst storytelling is an explanation of the event as it took place from the perspective of an individual (Johnston, Parker & Fox, 2017). When employing narrative methods, the researcher can work in conjunction with participants, facilitating them to tell their story. Through conversations undertaken in narrative enquiry shared meanings are developed (Andrews, Squire &

Tamboukou, 2013). Hence, narrative inquiry can enable multiple perspectives regarding an event to be heard (Willis, 2007), leading to a broader understanding of a subject.

This methodology appealed to me as it is in line with my research stance of social constructivism (section 4.2); that meaning is created through social interactions and dialogue. I also felt an affinity to narrative inquiry as the use of narratives, in a variety of forms, has been part of my practice skills for many years. Illness narratives, previously employed by occupational therapists, enabled individuals to tell their story of their illness and how they experience it (Clouston, 2003). Occupational narratives, more recently utilised, enable individuals to conceptualise their identities through the stories of the occupations they participate in throughout their lives (Kielhofner, Borell, Freidheim, Goldstein, Helfrich, Jonsson, Josephsson, Mallinson, & Nygård, 2002). Hence, narratives have been embedded within my practice for many years.

A narrative inquiry approach involves gathering data through the undertaking of conversations with participants and gathering of their stories. This can be through use of unstructured or semi-structured interviews. Data can also be collected via written documentation of stories using journals, diaries and, more recently, through media such as blogs (Green & Thorogood, 2014).

The use of interviews had raised concern for me when I had considered a phenomenological approach. In order to undertake interviews, student-participants would be removed from the teaching-learning process. They would have had time to reflect on and evaluate their experience, thus altering the information gathered according to their reflections. In addition, students may want to be seen in the best light in relation to their learning of the core concept of their chosen profession. This may lead to them providing a more positive perspective of their learning experience rather than capture their learning as it occurred in action. Hence narrative inquiry whilst useful as a methodology, would not necessarily enable me to capture authentic insights regarding the learning as it occurred were interviews to be used.

My earlier selection of recorded observations I believed would enable me to capture student learning in action; enabling me to capture their experiences as their stories unfolded. A decision I undertook from my first data capture event was to leave the audio recordings running after the teaching-learning events technically ended. I allowed student-participants to ask any questions they wished and discuss the teaching-learning event and the teaching tool. Student-participants were aware that the sessions were being recorded. Thus, this

enabled me to use an unstructured focus group format for gathering their perceptions, views and elaboration of their stories.

Focus groups and natural groups are both methods of data collection utilised in qualitative research. Focus groups are identified as recruiting participants who are unknown to each other prior to the research, whereas natural groups bring together participants who have a prior relationship (Green & Thorogood, 2014). Due to the samples of student-participants I intended to recruit I could use a combination of natural and focus groups. The natural groups would involve the recruitment of student-participants who were in the final year of their education. Hence individuals would have had opportunity to study together and potentially have formed relationships. First year student-participants I would recruit at the commencement of their education. These student-participants would be in the early stages of meeting peers from within their cohorts. Thus, it would be possible to assume that relationships had not yet form. This would result in my use of focus groups.

Inclusion of the focus / natural group element of data collection proved to be highly beneficial. It was often during this part of data capture events that student-participants discussed their preferred learning styles and gave their opinions of why they found the tool beneficial or why they thought the tool challenging for use within their own learning process. This enabled me to gain rich and varied data of their learning experiences.

However, use of narrative inquiry, like phenomenology, would focus my research predominantly on the lived experience, limiting my ability to investigate the pedagogic properties of the teaching tool. Therefore, whilst I captured some elements of data through a narrative approach my considerations of methodologies lead finally to my consideration of a grounded theory approach.

5.5 Grounded Theory

Grounded theory, as a research methodology, enables theory to be generated through the analysis of qualitative data. A fundamental principle for grounded theory is that the emergent theory is firmly situated in the data (Charmaz, 2014). As a methodological approach, it is recognised as allowing for data to be captured in a naturalistic setting. As a result, the data and resultant theory encompasses the interconnectedness and complexity of people's everyday actions (Cohen, et al, 2007).

Glaser and Strauss (1967), founders of grounded theory, aimed to develop strategies for use in qualitative research to support development of theoretical frameworks and advance conceptual understanding of specified phenomena (Charmaz, 2014). The use of this methodology focuses on generating theory grounded in the data rather than aiming to verify theory already in existence (Glaser & Strauss, 1967).

Charmaz (2014) identified Glaser and Strauss's (1967) classic grounded theory as having strong positivist assumptions, emphasising the emergent data without consideration of the perspectives of the researcher(s) or participants. Furthermore, the context in which the research was situated was not of concern. However, also noted of Glaser and Strauss's

seminal work, is the absence of explanation of the philosophical underpinnings on which they based their grounded theory methodology (Charmaz, 2014; Mills & Birks, 2014).

Glaser and Strauss (1967) did set out key procedures to be undertaken when completing grounded theory research (Birks & Mills, 2015). Identified as an iterative process, grounded theory research requires the researcher to commence data coding early within the research process (Willis, 2007). In addition, a grounded theory approach requires the researcher's use of constant comparative analysis; defined as "*… joint coding and analysis …[used] to generate theory"* (Glaser & Strauss, 1967, p. 102). Hence, concurrent data coding and analyse are a hallmark of grounded theory research.

Strauss, in conjunction with Corbin, later developed grounded theory research supported by an interpretivist perspective (Charmaz, 2014). This form of grounded theory, sometimes referred to as evolved grounded theory, is underpinned by symbolic interactionism (Mills & Birks, 2014). Based on the philosophies of pragmatism and interactionism, their grounded theory approach recognised the actions of individuals as being embedded within the interactions undertaken with others (Corbin & Strauss, 2015). Individuals being believed to draw on personal experiences, situated in their own unique sociocultural, historical and political contexts, thus creating unique meanings of events (Corbin & Strauss, 2015). The use of symbolic interactionism, as an underpinning philosophy, emphasises the role of language and communication within social contexts. As a result, the interactions are recognised as "*… inherently dynamic and interpretive … [addressing] … how people create, enact, and change meanings and actions*." (Charmaz, 2014, p. 9).

Charmaz developed an alternative grounded theory approach known as Constructivist Grounded Theory (Mills & Birks, 2014). Noted as a second-generation grounded theorist

(Birks & Mills, 2015) Charmaz (2014) identified the constructivist approach as an alternative to the objectivist approach of Glaser and his colleagues. She identified the constructivist grounded theory approach as philosophically underpinned by interpretivism (Mills & Birks, 2014), of which there are two threads: rationalism and relativism (Willis, 2007). Rationalism emphasises the processes of thinking and reflection, identifying individuals as coming to know about the world through their thought processes. Relativism recognises that the realities that are created are shaped by the culture and experiences of the individual, hence being constructed in the context of social groups (Willis, 2007). Thus, interpretivism acknowledges the subjective experiences of the individuals. Constructivism, as a form of interpretivism, emphasises that interpretation of experiences and information is socially constructed and only understood in context (Willis, 2007). However, Mills and Birks (2014) also highlight differentiation between the research of constructivists and constructionists. They identify constructivists as focusing on meaning as it is created *"… by those who experience it …"* (p. 20) as oppose to constructionists who *"… place greater emphasis on defining meaning within the [social] relationships."* (p. 20).

In recognising the subjective creation of meaning, constructivist grounded theory research enables multiple voices to be heard within the research (Mills & Birks, 2014). Presentation of participants' voices as well as context is thus essential within the constructivist approach. However, in addition to the multiple voices of participants with research, Charmaz (2014) also discussed the voice and position of the researcher. She stated that the emergent *"… theory depends on the researcher's view; [that] it does not and cannot stand outside of it."* (Charmaz, 2014, p. 239). The stance taken by the researcher, and processes undertaken, are acknowledged as influencing the analysis of data and resultant theory. Hence, the resultant grounded theory is constructed by the researcher from concepts that emerge from the data.

The processes undertaken, and researcher's stance, must therefore be made transparent within the reporting of the research in order to illustrate the influence they have on the emergent theory.

Recognition and acknowledgement of the researcher's presuppositions requires the employment of reflexivity (Charmaz, 2014; Birks & Mills, 2015). Reflexivity requires the researcher to articulate their own place within the research in terms of how they relate to, and with, participants. The researcher's place within the researcher is then articulated and presented in final the text of the research (Charmaz, 2014). Hence, constructivist grounded theory research asserts that the emergent theory is constructed by the researcher based on analysis of the *"… stories that are constructed by research participants who are trying to explain and make sense out of their experiences and lives, both to the researcher and to themselves."* (Corbin & Strauss, 2015, p. 26). Knowledge of a subject is therefore constructed from the analysis of the data by the researcher rather than discovered by objective identification of what emerges from the data as proposed by Glaser and Strauss (1967).

Adoption of a constructivist grounded theory methodology appealed to me for several reasons. Firstly, it aligned well with my stance as a researcher, that of social constructivism, whereby I perceive knowledge as being co-constructed through social interactions (Section 4.2). Secondly, congruent with the philosophical underpinnings of my profession of occupational therapy, use of constructivist grounded theory would enable multiple voices to be heard within

my research; those of numerous student-participants, and that of myself. This presented as being of particular importance to me. My experience as an academic enabled me to recognise students as having their own unique modes of learning, and hence their own stories of learning experiences. Adoption of a constructivist grounded theory approach would enable me to capture the stories of participants' learning as they unfolded, as well as the stories used pedagogically within the teaching-learning process. Furthermore, adoption of grounded theory methodology could provide me with the opportunity to encompass phenomenological aspects in addition to investigating the pedagogic properties of the teaching tool; to develop knowledge of its perceived form and function; their roles within the development of knowledge of the concept of occupation. Finally, my employment of recorded observations allowed for capturing the teaching-learning in a naturalistic stetting. Hence, my method of data collection would enable me to be part of the data whilst also being open to what might emerge from the data. The process of reflexivity enabling me to manage my preconceptions during the research process (section 6.1.1). However, whilst developing my knowledge of processes utilised within grounded theory research, my initial impressions created some anxiety.

Whilst differences relating to philosophical underpinnings occur between each grounded theory approach, commonalities of types of processes and procedures do exist (Glaser & Strauss, 1967; Charmaz, 2014; Corbin & Strauss, 2015; Birks & Mills, 2015). In addition to commencing data coding early, and employing constant comparative analysis, as previously identified, undertaking processes of theoretical sampling, memoing and diagramming are noted as defining features of grounded theory research (Charmaz, 2014; Birks & Mills, 2015). However, just as differences in philosophies exist between forms of grounded theory, so do differences in interpretation of some of the processes.

Theoretical sampling is a process by which, following initial data collection and analysis, further sampling and data collection would be undertaken. The subsequent sampling would be shaped by gaps in the data or questions arising from analysis of the initial data. This process of theoretical sampling and data analysis would continue until theoretical saturation had been achieved. Glaser and Strauss (1967) set out specific requirements in relation to the completion of theoretical saturation. They identified theoretical saturation as occurring when nothing further could be discovered regarding each category that had emerged from the data (Glaser & Strauss, 1967). The occurrence of theoretical saturation resulting in creation of a theoretical framework or conceptual understanding of the phenomenon having emerged (Green & Thorogood, 2014). Alternatively, Charmaz (2014) presents a more flexible approach within constructivist grounded theory. In contrast to Glaser and Strauss (1967), she identified the achievement of theoretical saturation as being decided by the researcher's method of qualitative research. Charmaz (2014) discusses the perspectives of a range of grounded theory researchers, acknowledging misinterpretation and disparities in the collective understandings of the term theoretical saturation. This results in her concluding that theoretical saturation can be determined by the judgement of the

researcher on condition several questions have been considered and can be adequately addressed. The questions she posed are:

- *"Which comparisons do you make between data within and between categories?*
- *What sense do you make of these comparisons?*
- *Where do they lead you?*
- *How do your comparisons illuminate your theoretical categories?*
- *In what other directions, if any, do they take you?*
- *What new conceptual relationships, if any, might you see?*" (Charmaz, 2014, p. 214).

Fulfilment of these questions, with a resultant conceptual understanding and or theoretical framework, enables theoretical saturation to be identified as having occurred.

Further procedures included within grounded theory research are the recording of decisions and thought processes that take place, referred to as memoing (Charmaz, 2014; Green & Thorogood, 2014; Birks & Mills, 2015), and the creation of images of the ideas and categories that emerge; a process known as diagramming (Charmaz, 2014). Diagramming can take the form of maps, charts or figures, whereas memos are written text. Two forms of memo are created during the research process: operational and theoretical. Operational memos document the steps taken and decisions made during the research process. Theoretical memos are the recording of the researcher's ideas about what is emerging from the data (Green & Thorogood, 2014). Memos and diagramming each support the development of insights regarding the data and emergent categories and theory. Furthermore, their inclusion in the final reporting of the research provides aspects of

transparency regarding the process as it was undertaken (Charmaz, 2014; Birks & Mills, 2015).

To employ a research process that relied on codes, categories and, ultimately, conceptual and theoretical understanding to emerge from the data felt unstructured and vague. However, as a methodology it presented an ability to address several of the limitations I had identified as likely to occur if I were to use any of the previously considered research methodologies.

Adoption of a constructivist grounded theory approach maintained my option to include quantitative data if this emerged as an aspect that could be developed. It also would allow me to capture the processes that were occurring and code them qualitatively if this presented as more appropriate. Furthermore, it would allow me to expand my investigation through theoretical sampling, to consider the role of the teaching tool in the development of understanding as well as knowledge development of the concept of occupation. i.e. I could follow the data and adjust my focus as required. Unlike an action research approach, grounded theory research would allow me to reflect on the pedagogic functions of the teaching tool without my attempting to fit it into a theoretical framework from which it was not developed or drawn.

My selection of recorded observations as a method for data collection was to enable me to gather data within naturalistic settings. Commensurate with a constructivist grounded theory approach the use of observations would allow me to "*look directly at what is taking place in situ rather than relying on second-hand accounts*" (Cohen, et al, 2007, p.396). The recorded observations were to focus on teaching-learning events in which I utilised the teaching tool to teaching occupational therapy students the professional knowledge of the concept of occupation. The teaching-learning sessions already had a predetermined form. However, the design of the recorded observations was left unstructured (section 5.1). Thus, I conceived of the recorded observations as being unstructured with semi-structured activity being the focus of investigation. Teaching-learning sessions that are semi-structured, have been identified as useful for the generation of hypotheses and theory (Cohen, et al, 2007), and were therefore a commensurate method to use within a constructivist grounded theory approach.

Recorded observations as my chosen method of the data collection (section 5.1) would enable me to capture the teaching-learning process as it occurred, rather than as it was reflected upon by student-participants if I utilised an interview method of data collection. It would also allow me to exploit the methods of focus group and natural groups for data generation, providing student-participants with opportunities to reflect on and discuss the uses of the teaching tool. Finally, a grounded theory approach would allow me to consider and acknowledge to my research stance and reflect this in my research.

5.6 Summary

Within this chapter I have presented my consideration of a variety of research methodologies. I have outlined the advantages and disadvantages each offered in relation to my research subject. I have concluded with explanation of my ultimate selection of a constructivist grounded theory approach, the completion of which is presented in chapter 6.

6.0 Design of a Grounded Theory Study

My research aimed to investigate critically the pedagogic utility of a newly developed occupation focused teaching tool. I aimed also to explore critically its impact on the development of pre-registration occupational therapy students' knowledge and understanding of the concept of occupation.

The research method I selected was that of a grounded theory approach (section 5.5), which requires specific processes to be undertaken. This chapter illustrates my use of grounded theory processes and explanation of the final research design and its implementation.

6.1 Essential Processes of Grounded Theory Research

I begin this chapter with consideration of three processes that have been identified as fundamental for use in grounded theory research; reflexivity, memoing and diagramming; their importance within grounded theory research. I follow with an explanation of my implementation of a grounded theory approach to my research.

6.1.1 Reflexivity in Research

Reflexivity is a process whereby the researcher aims to develop awareness of their pre-conceptions of a subject and acknowledge them in their work (Charmaz, 2014). It is an active process, consciously engaged in, that enables the researcher to develop insights into their investigation. Furthermore, it can assist the researcher to shape future actions to be undertaken (Birks & Mills, 2015).

Reflexivity differs from the process of reflection (Clouston, 2003; Etherington, 2004). Reflection can occur internally or externally. Internal reflection remains at the researcher's

conscious level. It enables the researcher to draw on what they already know of themselves whilst being open to developing new insights. External reflection occurs when those reflections are shared and discussed with others. Through dialogue new meanings can be co-constructed, again resulting in new insights (Etherington, 2004). Researcher reflexivity in contrast to reflection, allows for examination of *how* experiences and contexts inform the research process and resultant findings (Etherington, 2004). It enables the researcher to examine how they hear and interpret participant stories (Clouston, 2003). Furthermore, it acknowledges the researcher-participant relationship as being one of collaboration (Etherington, 2004).

The reflexive process is undertaken in an attempt to understand and minimize the influence a researcher's pre-conceptions can have within the research process and reporting of it. Charmaz (2014) identifies the undertaking of reflexivity as essential when completing constructivist grounded theory research. She stressed the necessity of acknowledging pre-conceptions and providing transparency as to how they influence the researcher's actions. This concurs with the views of Etherington (2004) and Birks and Mills (2015). However, Etherington (2004) also cautioned that use of reflexivity needed to be carried out with care, ensuring points of inclusion be intentional. This is to ensure that reflexive accounts provided insights regarding how processes were undertaken rather than providing a platform for the researcher to promote their own perspectives. Charmaz (2014) also discusses the employment of reflexivity as being particularly important during the stage of focused coding. This is because it is during this stage that the formulation of codes begins to shape the analysis.

Reflection, as a required skill of an occupational therapist, was a process familiar to me. Whilst I had encountered the term reflexivity, it was a concept that I had not investigated. Developing my knowledge of reflexivity, and understanding it's use within research, enabled me to become open about myself within my research.

Initially I found this to be an uncomfortable process. This stemmed from my previous research experience, my academic expectations and practice. Shaped by my previous researcher experience in the field of psychology (section 1.3.1), I had been guided to develop an objective voice within my work. I therefore was surprised, and somewhat shocked, when my supervisors commented that they could not hear my voice within my research.

I began to read around reflexivity and attempted to implement the process as I progressed my research. However, my early attempts feel, to me, rather mechanical; lacking authenticity. I perceive them as reflective reports and struggle to 'hear' my voice when I re-read them.

Not until the codes of storytelling began to emerge (section 8.3.1) was I able to become comfortable with my use of reflexivity. My recognition of the presence of

stories in my practice, and within my growing conceptual understandings of the teaching tool, led me to recognise and value the power of my voice, not just those of my participants.

6.1.2 Memo Writing

The writing of memos is an implicit practice in grounded theory and identified as a fundamental aspect of grounded theory research (Charmaz, 2014; Birks & Mills, 2015). Memos provide written records of a researcher's thinking as they progress through the research process. Charmaz (2014) identified the process of recording memos as being shaped by the individual and recommended the recording to be a free flow process. This allows flexibility and freedom in capturing the progression of the research.

Memo writing has a variety of functions. The creation of written records creates concrete information. The researcher's reflections can then be more readily engaged with. This enables the development of ideas and influences the occurrence of theoretical sampling (Charmaz, 2014). Glaser and Strauss (1967) in their seminal work on grounded theory, advise routine memo-writing to commence from the point when research is first being conceptualised. They also advise that creation of memos should take priority over other research activities, and if necessary, halt other research activities (Glaser & Strauss, 1967). Further to this, once a memo has been created it should not be reflected upon and closed too early as this *"… can result in prematurely closing an analytical pathway*" (Birks & Mills, 2015, p. 43). Charmaz (2014) concurs with the perspective of early commencement of memo-writing concurs. She identified that in the absence of early memo-writing the researcher should maintain a reflective journal, detailing the development and progress of

the research. The reflections can be drawn on later for the construction of memos which inform the research process and data analysis. Memo-writing enables the capture of connections and comparisons during analysis; it facilitates the focusing of direction and questions (Charmaz, 2014). Hence, the process supports an increased level of abstraction of the data (Charmaz, 2014).

As a novice researcher, I was initially unsure of the requirements and the role of memoing. However, my experience as a reflective practitioner enable me to recognise that memoing was an implicit aspect of my work. I have long since developed a habit of recording my thoughts as I explore literature and create learning experiences; reflections I utilise in my academic practice.

Birks and Mill (2015) discussed the importance of commencing memo writing as initial ideas of research form. Whilst I did not commence this research until 2013 (section 1.3.1) I had recorded my thoughts regarding the teaching tool from my initial use of it in my 2009, providing me with a rich source of information. Revisiting those documents enabled me to reflect on my use of the teaching tool. It allowed me to explore decisions I had made regarding its design and use, resulting in my development of this research.

On commencement of this research I began a more formal recording of memos. Most memos I recorded in a written format. However, use of a digital recorder enabled me to capture ideas as they occurred, which were often when I was away from my computer. Digital recordings were transcribed verbatim to ensure I captured the essence of my thinking and not accidentally doctor my essential ideas through the crafting of grammatically correct records.

Whilst many of my memos were created during coding and analysis, I have also draw on memos created following discussions that occurred during supervision as well as during my exploration of literature. One key memo (Appendix 2), originating from an early supervision discussion related to the teaching tool as being an analogy for the concept of occupation. I maintained and developed the memo throughout the remainder of my research. Whilst on various occasions I believed my thinking regarding the subject of the memo to be complete, only upon the creation of the grounded theory of the functionality of the teaching tool did it become apparent that my original thinking captured within the memo was incorrect (section 8.8). This demonstrated the importance of allowing memos to remain open for as long as possible as advocated by Birks and Mills (2015).

6.1.3 Diagramming

The production of conceptual visual records during the analysis process has been termed diagramming (Corbin & Strauss, 2008; Birks & Mills, 2015). As with memoing and reflexivity, diagramming is an important activity, essential to grounded theory research (Corbin & Strauss, 2008; Charmaz, 2014). The creation of visual representations of codes and categories enables inferences and potential relationships within the data to be explored. This supports conceptualisation of a subject as it develops and emerges (Birks & Mills, 2015). The diagrams created by the researcher evolve as the analysis progresses, leading to the creation of new and varied visualisations. As a result, continuous use of diagramming provides an additional record of analytical thinking, supporting and being supported by related memos.

The practice of diagramming enables the identification of gaps within the developing theory. Whilst it is a process that it noted as being particularly important to undertake during focused coding, early use of diagramming can also support identification of potential theoretical sampling (Charmaz, 2014). Diagramming can also be used in presentation of the final outcome of the research (Birks & Mills, 2015).

Diagramming can take many forms; mind maps, storyline creation, figures or charts (Corbin & Strauss, 2008; Williams & Keady, 2008; Birks & Mills, 2015). It can be completed manually or through functions provided by Computer Assisted Qualitative Data Analysis Software (CAQDAS; Bringer, Johnston & Brackenridge, 2006). Selection of the form in which diagramming is performed is at the discretion of the researcher, though should be congruent to their style of learning. This is a point discussed by Birks and Mills (2015). They identified use of the diagramming functions available via CAQDAS are particularly beneficial

for researchers with a preference for a kinaesthetic learning mode. However, they do not elaborate on this point or provide justification for this recommendation (Birks & Mills, 2015).

Uncomfortable with the thought of drawing diagrams I opted to employ the functions available to me through the CAQDAS system I had chosen to use to support my analysis (section 6.10). I am aware that my learning mode is predominantly kinaesthetic. Whether this accounted for my preference of utilising the software functions as suggested by Birks and Mills (2015) I cannot account for.

I commenced diagramming early in my research whilst I was exploring the functions the software afforded to me. Continual creation of visuals throughout my analysis enabled me to explore and consider my data in increasingly complex forms, supporting my final conceptualisation of the role of the teaching tool. I present a wide variety of my diagrams throughout chapter 8 to illustrate the journey of my analysis, whilst also presenting additional examples in subsequent chapters on occasions where they best support my discussions.

6.2 Design of my Research

The design of my research utilised unstructured participant observations (Cohen, et al, 2007). Two methods of unstructured participant observation were employed for data

collection. These are referred to as Phase I and Phase II. Phase I consists of twelve recorded teaching-learning events, each being one hour in duration (section 6.3.1). Phase II consists of four recorded collaborative-learning events (section 6.3.2), also one-hour in duration. Audio-visual data was captured of all sixteen data generation events. Semi-structured observations have been identified as appropriate for theory generating (Cohen, et al, 2007). Hence, this method was noted as commensurate with a grounded theory approach (Charmaz, 2014). Ethical considerations are discussed in section 6.6.

Data was collected during sixteen recorded teaching sessions, using the teaching tool, with different groups of occupational therapy students; group numbers ranging between two and ten. Repeated audio-visual data capture enabled me to investigate whether learning was replicated with different student-participant groups (Cohen, et al, 2007). This enabled me to identify data saturation as having been completed.

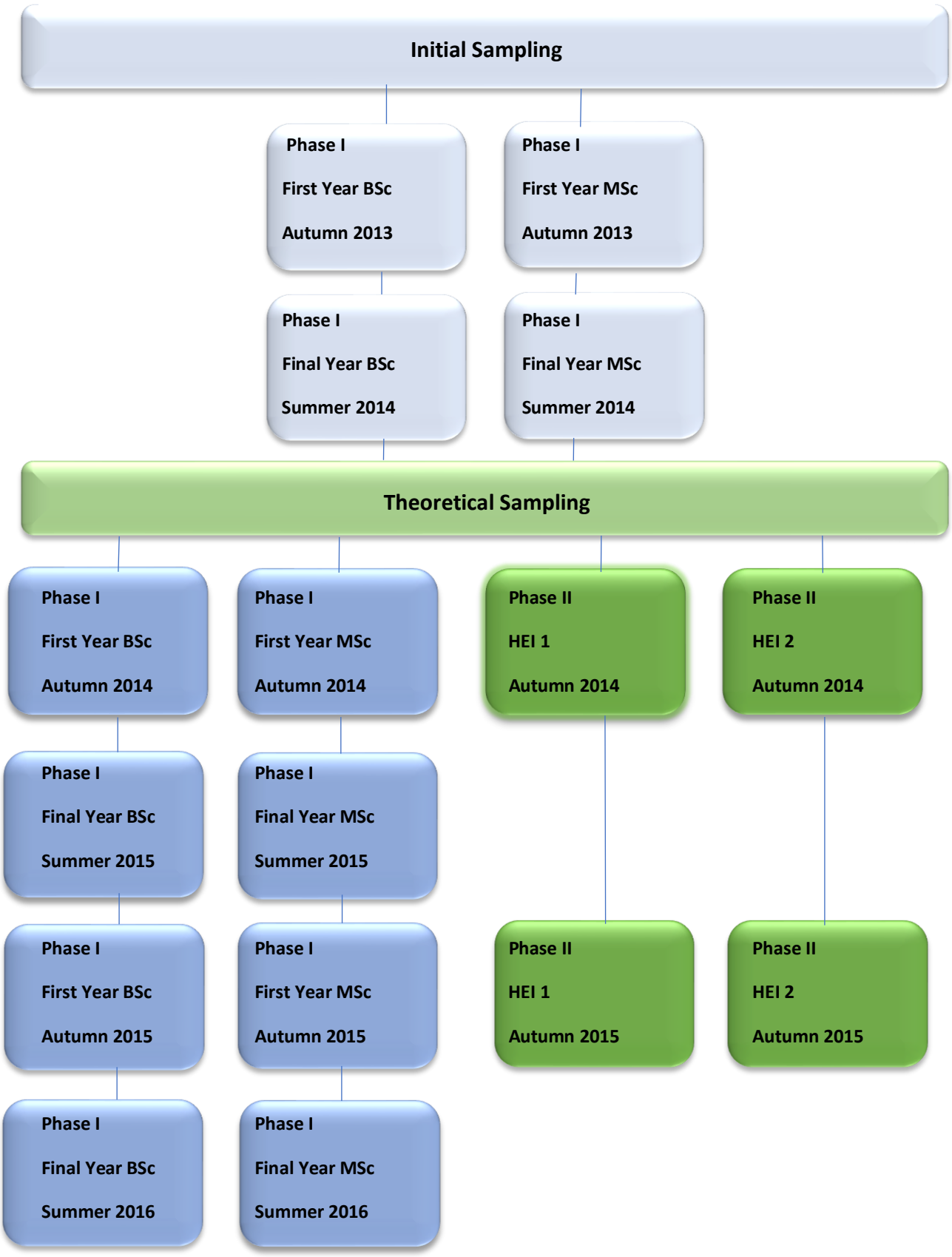
I act as participant-researcher during my research (section 6.5.3), undertaking the role of academic during all sixteen recorded sessions. Participant observation is noted as advantageous when studying small groups. It allows for detailed information regarding what occurred to be captured (Atkins & Wallace, 2012). However, undertaking research as a participant-researcher raised ethical and methodological concerns (Atkins & Wallace, 2012). Consideration and management of these concerns are presented in section 6.6.6.

6.3 Phases of Data Generation

Two separate phases of data collection were undertaken throughout this study (Figure 7). Phase I, the initial data collection, recorded my use of the teaching tool to teaching student-participants about the concept of occupation (section 6.3.1). These data generation events all occurred at one selected U.K. H.E.I. (referred to as H.E.I. 1). Phase II of my research

captured use of the teaching tool, predominantly by student-participants, for collaborative learning (section 6.3.2). The Phase II data generation events took place within two separate U.K. H.E.I.s. Student-participants from H.E.I. 1 were again recruited to Phase II, as were student-participants from a second H.E.I based within the U.K. (H.E.I. 2). My inclusion of student-participants from a second H.E.I. related to my theoretical sampling (section 6.4.2).

Figure 7: Flowchart Representation of Data Collection Events



Data for Phase I was gathered across a three-year period (Figure 7). Data for Phase II was gathered across a two-year period (Figure 7). Data generation events took place during different academic years. In the U.K. the academic year commences every August completing in July of the following year, thus spanning two calendar years. For the purpose of this research the academic years are generally identified as a combination of the years in which the academic calendar commenced and completed; 2013/14, 2014/15, 2015/16. Student-participants recruited for both data collection phases were all full-time occupational therapy students (section 6.5).

Occupational therapy education programmes in the U.K. are required to be reviewed and updated on a regular basis (COT, 2014). This is to ensure curricula content is contemporary and reflective of the needs of the population (COT, 2014). Accordingly, the majority of students complete their education through enrolment on one version of a programme. However, on some occasions enrolled students may be transferred to an updated version of occupational therapy education. For student-participants involved in my research, all data gathering was completed whilst student-participants were enrolled on one version of their validated programme of education. Therefore, student-participants from each respective university experienced an education programme common to all student-participants within their data capture group.

6.3.1 Design of Phase I

A maximum one-hour teaching session was undertaken for each occasion of data generation. Detailed explanation of how the teaching-learning was delivered during data generation is presented in this section. In the initial design of the research I aimed to focus on my use of the teaching tool; to compare my use of the teaching tool in the initial

knowledge development of first year occupational therapy students to my use of it during knowledge development of students in their final year of occupational therapy education. Hence, audio-visual recordings of these data capture sets focused on me, in the role of academic, using the teaching tool. This enabled me to capture my verbal and non-verbal communications.

Communication and use of language are noted as important within the learning environment (Kolb & Kolb, 2005). Hence, capturing interpersonal verbal communication between me and the student-participants was also essential. Therefore student-participants' verbal interactions were audio captured.

On completion of the one-hour teaching-learning sessions the visual recording equipment was switched off. However, I used two Dictaphones, in addition to video equipment, to record the verbal communications. These devices continued to record discussions until student-participants left the classroom. Student-participants were aware of this continuous recording. Continued recording enabled my collection of their thoughts, questions and reflections regarding the use of the teaching tool for teaching the concept of occupation. This facilitated the gathering of rich data. Phase I data was collected through the recruitment of first year students and final year students from H.E.I.1 (section 6.5.1).

6.3.1.1 Phase I Data Generation Procedure

The data generation procedure employed in Phase I (outlined below) was an exact reproduction of my use of the teaching tool as it occurred in my academic practice prior to the commencement of my research. During the data generation process I undertook the role of lecturer and hence act within the research as participant-researcher (section 6.5.3). The data generation event began with my request for students to consider, and if required,

alter their seating position in the room in order that they could clearly view a table that was positioned at the front of the teaching-learning environment. Upon the table was placed the occupation focused teaching tool (Figure 4).

The teaching-learning commenced with my identification of occupation as being a central concept of occupational therapy, used as both the methods and intended outcome of intervention (Crabtree, 1998). Acknowledgement that occupation can be understood as simple, everyday human activities was provided. I proceeded to identify that for the profession of occupational therapy, occupation is recognised as a highly complex concept. I acknowledged that within literature there exist many definitions of occupation; many of which describe what occupation does rather than what it is (Howarth, et al, 2018). There followed an introduction to the definition of occupation upon which the teaching tool is designed.

> "*Occupation is a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance*." (Nelson & Jepson-Thomas, 2003, p. 90).

This section of the teaching-learning event was supported with use of PowerPoint slides (Appendix 3).

Acknowledging that the authors of the definition themselves identify the definition as abstract and requiring further unpacking (Nelson & Jepson-Thomas, 2003) I directed student-participants to view the teaching tool in order to focus their attention to the box on the table in front of them. I requested student-participants to imagine the teaching tool as representing occupation; any form of human occupation they could imagine. At this point I ceased the use any further PowerPoint slides.

With the intent of providing contextual understanding, I explained to student-participants that for the purpose of teaching-learning I would draw upon the knowledge of one of my own occupations, that of gardening. Throughout the teaching-learning event I continuously related the factual information to my example of gardening. This resulted in my telling the story of gardening as an occupation for myself, providing context for student-participants' knowledge development. A full explanation of how I used the teaching tool is illustrated in Appendix 4.

Once all the blocks (75 in total) were unpacked from the teaching tool and constructed in tower form (Figure 6), I identified that student-participants had in front of them a physical representation of the concept of occupation, within which the concepts of activity and purposeful activity are housed.

The tower representing concept of occupation is constructed in the same format as the game of 'Jenga®' (Figure 6). Pertinent to the definition used is the aspect that "*Occupation is a **dynamic relationship** among an occupational form, a person with a unique developmental structure, subjective meanings and purposes* (Nelson & Jepson-Thomas, 2003, p. 90). Utilising the dynamic property of the game, the blocks within the tower are moveable. Hence, the dynamic aspect of occupation is captured in the tower. Furthermore, physical movement of the blocks, once the tower is constructed, demonstrates that movement of one block results in movement of alternative blocks. Thus, an interdependent relationship between components of occupation is demonstrated.

The final property the form of the tower demonstrated, in relation to occupation, was that with notable movement, or removal of a block, the tower or occupation, became unstable or could collapse. Parallels to the fragility of occupation were articulated and demonstrated.

This resulted in my final articulation that occupational therapists require knowledge of all the components that together form an occupation. That in addition to the knowledge of the components, occupational therapists also require understanding of the interdependent relationships each component has to others. Comprehensive understanding being essential for an occupational therapist to be able to alter, or adapt, components within occupation to re-establish its stability and enable occupation to occur in an individual's life.

Once the teaching-learning event was completed the visual recording equipment was turned off. However, the audio recording equipment remained on. Audio-recording ceased once student-participants exited the room. All audio-data was included in analysis (Chapter 8).

6.3.2 Design of Phase II

Phase II of my research was designed for student-participant groups to be provided with an occupational therapy focused clinical case scenario (Appendix 5) and access to the teaching tool. Student-participants were free to use the teaching tool as they wished to explore the impact of a clinical condition on the occupational performance of a fictional client. During the exploration of the case scenario student-participants were able to ask for guidance and direction from myself if they wished to. Hence, I again took the role of participant-researcher (Finlay, 2005). Each of these data capture sets were again a maximum of one-hour in length. A key alteration relating to data capture for this phase of the research was the visual recording of actions and interactions of the group. Hence, student-participants of Phase II were required to provide consent for them to be visually recorded during learning as well as audio recorded (Appendix 6). Provision of full anonymity was thus not possible.

Management of student-participants' confidentiality and anonymity is explained further in section 6.6.3.

A second question, raised from review of initial data was whether, having received some education in occupational therapy without the use of the teaching tool, would student occupational therapists recognise the tool as representing their professional understandings of occupation? As all student occupational therapists at H.E.I. 1 received teaching from me using the teaching tool it was necessary for me to recruit student-participants from an alternative H.E.I.

There are 36 H.E.I.s with the U.K. that provide occupational therapy education (RCOT, 2019). Hence, I approached the occupational therapy course leader at an alternative H.E.I. (H.E.I. 2) to seek permission to recruit students as participants (section 6.6.2.2; Appendix 7). As with the student-participants being recruited to Phase II from the first H.E.I. it was necessary for these individuals to have professional knowledge of the concept of occupation as well as clinical conditions and their impact on occupational performance. Once permission was obtained, I recruited student-participants from an MSc occupational therapy programme who had received education regarding both occupation as a concept and the impact of clinical conditions. Inclusion of student-participants from H.E.I. 2 also enabled me to introduce a level of bias management (section 6.6.5), as I had no relationship with these participants prior to, or following, my research. Data gathering for Phase II was completed over a two-year period (Figure 7).

6.3.2.1 Phase II Data Generation Procedure

The procedure employed in Phase II, unlike that of Phase I which was predominantly didactic, was tutor-supported collaborative-learning. This consists of a teaching-learning

event in which students work together on a set topic or problem supported by an academic. The role of the academic being to provide guidance and prompts as the teaching-learning takes place (Light, et al, 2009).

Phase II data generation was undertaken with groups of student-participants from two different H.E.I.s. Each student-participant group had received a different form of education regarding occupation (sections 6.3.2.1.1 and 6.3.2.1.2). Hence, the data generation procedure for student-participant groups of each H.E.I. differed slightly. Each data generation procedure is presented below. The rational for the difference in the procedures is also presented.

6.3.2.1.1 Phase II Research Procedure – H.E.I. 2

Data generation through Phase II of the research commenced 2014/15, with a student-participant group recruited from H.E.I. 2. I chose to begin with H.E.I. 2 as this was the first student-participant group recruited who had no knowledge of the teaching tool.

One aim of Phase II was to investigate student-participants' perception of the teaching tool and what they believed it to represent. My secondary aim was to investigate student-participants' use of the teaching tool in relation to their learning about occupation using a case scenario.

Commencing with H.E.I. 2 student-participants my intent was to discover whether these student-participants would recognise the teaching tool as representing occupation commensurate with occupational therapy understanding of the concept. I was unable to predict whether these student-participants would identify the tool as representing occupation, and if they did, how long a period this would take. Hence, whilst I also designed Phase II to investigate student-participants' use of the teaching tool to explore a case

scenario, the time allocated to this second aspect in subsequent data generation events would be influenced by the period the first aspect required. During the data generation process I undertook the role of academic, again acting as a participant-researcher role (section 6.5.3).

Student-participants were seated around one table in order that they could work together. The teaching tool was placed in the centre of the table. I stood to one side to observe the interactions and be as unobtrusive as possible. Student-participants were informed that I was present as an academic tutor and they could ask questions of me if they wished to do so. Student-participants had been informed that the teaching tool related to occupational therapy education (Appendix 6). They were not informed that the teaching tool represented the concept of occupation.

I invited the student-participants to explore the teaching tool in any manner they wished; to discuss what they thought the teaching tool was and considered what its' use might be. The teaching tool, for the purpose of the research, had no identifying term on the lid of the main box (Figure 4). Hence, there was no written indication as to what the teaching tool might represent. Student-participants commenced their exploration. I allowed their exploration and discussions to continue until the student-participants verbalised what they believe the teaching tool to be. Once the student-participant group verbalised their interpretation of the teaching tool as being a representation of the concept of occupation I verbally confirmed their interpretation as correct. This identification took a period of ten minutes.

The second aspect that had resulted in theoretical sampling was to investigate the utility of the teaching tool when used by students in conjunction with a case scenario. Each student-participant was provided with the same written case scenario and allowed time to read the

information (Appendix 5). Student-participants were free to read all the information provided before using the teaching tool to explore and reflect on the case scenario. Alternatively, they were at liberty to commence use of the teaching tool having read only a portion of the information, returning to consider the remaining case scenario information at alternative points if they wished.

I remained present to observe the discussions and behaviours. Furthermore, I identified that they were able to request my input at any time. Hence, I undertook the role of participant-researcher in Phase II, albeit with less direct input than I had undertaken during Phase I (section 6.5.3). I aimed to maintain my role as academic within the teaching-learning event as I would normally in my practice. Whilst observing the student-participants I could have documented my observations. However, this is not an activity I would undertake during my everyday practice. Thus, I chose not to create notes and memos during the data capture events of Phase II. Furthermore, whilst student-participants were aware of my observing them during the session I did not want to alter their learning behaviours any more than was necessary. Collaborative learning is used within occupational therapy education (Sadlo, Piper & Agnew, 1994; Price, et al, 2017). Hence students become familiar with tutors observing their learning and interjecting at the academic's own discretion. Audio-visual recording of each data generation event allowed me to watch the sessions later and record my observations, thus creating memos.

Student-participant-led investigations continued for the remaining fifty minutes of the one-hour data generation event. As with the data capture events of Phase I, at the end of the hour the visual recording equipment was turned off. Audio recording equipment remained on until student-participants exited the room. Student-participants involved in Phase II were

aware of the continued audio recording and inclusion of their discussions within the data. This aspect of the procedure was repeated with the second H.E.I. 2 group in 2015/16.

6.3.2.1.2 Phase II Research Procedure – H.E.I. 1

All H.E.I. 1 student-participants recruited to Phase II had received teaching-learning regarding the concept of occupation through my use of the teaching tool. Hence, the two H.E.I. 1 groups of student-participants were already aware that the teaching tool was designed to represent the concept of occupation. The first data generation event undertaken with H.E.I. 2 student-participants (outlined above) resulted in the first ten minutes of the one-hour session being used to explore and identify what the teaching tool represented. I therefore allocated the first ten-minute period of the sessions with H.E.I. 1 to exploration and reflection.

Student-participants were seated around one table to work together with the teaching tool. At the commencement of the one-hour session I invited student-participants to explore the teaching tool in any way they wished, verbalising any recollections of the use the teaching tool during the first year of their education. Each H.E.I. 1 group were provided with a ten-minute period in which to verbalise and discuss their recollections. This matched the time period the H.E.I. 2 groups used to explore and identify the teaching tool. As with the H.E.I. 2 groups, after ten minutes the case scenario was introduced and the procedure for data generation completed in the same manner. Hence, whilst the first ten-minute period differed between data generated with H.E.I. 1 groups and H.E.I. 2 groups, the remaining fifty-minute period was replicated across Phase II.

The case scenario (Appendix 5) used within this research was sourced from pedagogic material use within the curricula of H.E.I. 1. I chose to source a case scenario that was in

already in use within occupational therapy education to ensure the student learning reflected that which I knew to be normally undertaken. As I had planned to involve student-participants who were in the second year of their programme (H.E.I. 1) in addition to student-participants in their final year (H.E.I. 2), I selected a case scenario form a year 2 module of the curriculum.

6.4 Sampling and Theoretical Sampling

The occupation focused teaching tool was developed for use in education of occupational therapy students. In identifying potential student-participants for my research, I began by using purposive sampling. My use of purposeful sampling allowed me to select the sample based on a common characteristic (Cohen, et al, 2007), i.e. all participants were students enrolled on a U.K. higher education programme of occupational therapy. The use of purposive sampling also ensured that the participants involved within the research all had rudimentary knowledge of occupational therapy.

6.4.1 Initial Sampling

Phase I of the research focused on the potential impact of the teaching tool on the development of students' knowledge and understanding of the concept of occupation (section 6.3.1). Whilst the sampling was purposeful, I also employed convenience sampling to recruit initial student-participants for data collection in Phase I. Convenience sampling involves use of participants who are readily available (Cohen, et al, 2007). H.E.I. 1 provided me with direct access to two cohorts of first year occupational therapy students annually. A weakness of convenience sampling has been identified as being that the sample can only represent the group from which it is drawn, and findings cannot be generalised to broader populations (Cohen, et al, 2007). However, the teaching tool was designed fundamentally

for use in the education of occupational therapy students. Therefore, transferability of findings to other occupational therapy student populations would be possible. Hence, purposeful, convenience sampling for the initial sampling stage was decided upon.

Phase I Inclusion Criteria:

- First year pre-registration occupational therapy students enrolled on the Bachelor or Master occupational therapy programmes at the H.E.I. at which I am employed.
- Pre-registration occupational therapy students in the final year of the Bachelor or MSc Occupational Therapy programme at H.E.I. 1.

Phase I Exclusion Criteria:

- Pre-registration occupational therapy students in the second year of the BSc (Hons) Occupational Therapy programme.
- Students enrolled at the H.E.I. who were not occupational therapy students.
- Occupational therapy students enrolled at alternate H.E.I.s.

6.4.2 Theoretical Sampling

Theoretical sampling is a grounded theory process used to pursue and collect data necessary for the development and refining of initial categories that emerge through data analysis (Charmaz, 2014). It occurs as an outcome of preliminary data coding and analysis (Charmaz, 2014). This form of sampling is used to develop the data analysis from coding, through conceptual development, to theoretical construction. Theoretical sampling is noted as differing to other forms of sampling used in research in that the intent is not to create findings that are statistically generalisable. Nor is it used to discover findings that are

representative of an identified population (Charmaz, 2014). The purpose is to facilitate the scrutiny of concepts from multiple perspectives and interrogate how they relate to the construction of theory.

According to Charmaz (2014) theoretical sampling begins from the point when initial categories have been created. The process arises from consideration and questioning of the initial categories. For categories where data is noted as being limited, theoretical sampling enables further data to be generated. This is identified as an ongoing process until a point where that category becomes saturated with data (Charmaz, 2014). Hence, theoretical sampling is undertaken to advance the properties of categories. However, Birks and Mills (2015) content that theoretical sampling can commence from the first collection and consideration of data. They identify that ideas and potential concepts can emerge during the preliminary stage of data analysis. Hence, theoretical sampling can commence earlier that Charmaz (2014) proposes.

Whether theoretical sampling commences during the early analysis or from the creation of categories within the data, it is important that the process is methodical and focused (Charmaz, 2014; Birks & Mills, 2015). During initial coding and analysis, areas emerge that require further investigation or development. Recognition of the areas or subjects enables identification of where further data may be sourced. Data may be generated through inclusion of additional participants, re-interviewing of previous participants, or may involve the creation of the research in alternative settings (Birks & Mills, 2015).

Review of my initial data revealed student-participants identification of additional uses of the teaching tool within occupational therapy education (Figure 33). I was curious as to the impact the teaching tool may have when used by occupational therapy students whilst

exploring a case scenario. Hence theoretical sampling commenced through design of Phase II.

Phase II Inclusion Criteria:

- Second year Bachelor occupational therapy students enrolled at H.E.I. 1.
- Final year Master occupational therapy student at H.E.I. 2.

Phase I Exclusion Criteria:

- Pre-registration occupational therapy students in the first or final year of the Bachelor occupational therapy programme at H.E.I. 1.
- Pre-registration occupational therapy students in the first year of the Master occupational therapy programme at H.E.I. 2.
- Occupational therapy students enrolled at alternative H.E.I.s.
- Students enrolled at either H.E.I. who were not occupational therapy students.

All student-participants involved in the research were voluntary participants. All students enrolled on the relevant occupational therapy programmes were initially made aware of my research using the relevant H.E.I. electronic communications systems. Following an explanation of the research topic, students were requested to contact me via my work email to indicate their willingness to be involved in the research.

6.5 Participants

My research involved a total of eighty-two participants; eighty-one student-participants and me as a researcher-participant. The student-participants were all enrolled occupational

therapy students of a U.K. H.E.I. Of the eighty-one student-participants, nine were male and seventy-two were female.

Table 1: Profile of Student-Participants recruited to Phase I and Phase II

Phase of Data Collection	HEI	Academic Programme	Academic Year of Study	Number of participants
Phase I	1	BSc (Hons) Occupational Therapy	First Year	8
	1	MSc (pre-reg) Occupational Therapy	First Year	14
	1	BSc (Hons) Occupational Therapy	Final Year	17
	1	MSc (pre-reg) Occupational Therapy	Final Year	18
Phase II	1	BSc (Hons) Occupational Therapy	H.E.I. 1 Second Year	8
	2	MSc (pre-reg) Occupational Therapy	H.E.I. 2 Final Year	16

No criteria had been set out to precluded individuals from participating in more than one aspect of the study (section 6.4). Therefore, it is acknowledged that two student-participants each took part more than one aspect of the data collection. One individual took part during the first year and final year of their education, both episodes occurring in Phase I. The other student-participant took part during the first year of their education during Phase I data collection, and again as a student-participant during the second year of their education, in Phase II. Whilst data relating to each student-participant was examined

individually as well as in relation to wider data, no notable findings emerged. Hence, their repeated participation is acknowledged but not considered further.

6.5.1 Phase I Student-Participants

All student-participants recruited in Phase I were pre-registration occupational therapy students from one identified U.K. Higher Education Institute (H.E.I. 1), at which I am employed. Student-participants were enrolled on either a bachelor or master pre-registration occupational therapy programme during the period of my research.

The BSc occupational therapy programme is open to applications from individuals who hold appropriate academic qualifications and seeks to become an occupational therapist. It is a three-year full-time programme. In contrast the MSc programme requires that applicants have successfully completed a bachelor's degree in an alternative subject. This is a two-year full-time programme. Both programmes teach students the professional knowledge and skills required of an occupational therapist. The fundamental difference between the programmes is the level of academic skill development. Students undertaking the MSc are required to achieve an advanced level of skills in the areas of critical appraisal and research.

I decided to collect data from each programme separately. This was to facilitate comparison of data from student-participants of different levels of academic skill. Hence, recruitment of student-participants to a research group from each programme annually, across a three-year period providing six participant groups.

A total of fifty-seven student-participants were recruited in Phase I of data collection (Table 1). Of the fifty-seven student-participants twenty-two were in the first year of their programme; eight BSc students, fourteen MSc students. The remaining thirty-five student-

participants took part during the final year of their education; seventeen BSc students and eighteen MSc students.

6.5.1.1 First Year Student-Participant Groups

The first two data capture sets were completed with one first-year student-participant group from each programme (Figure 7). Initial findings that emerged related to the tool being memorable. This led me to question why student-participants believed it to be memorable; was it the teaching tool or the knowledge that was memorable; how this might relate to students' knowledge development as they had progressed through the programme. My inclusion of final year student-participants, taught previously through my use of the teaching tool, provide the opportunity for data related to this point to be collected.

6.5.1.2 Final year Student-Participant Groups

I had commenced my use of the teaching tool within both occupational therapy programmes at H.E.I. 1 in 2009/10 (Figure 1). Consequently, final year students of both programmes had been taught through my use of the teaching tool during their first year of study. Hence, I was able to include final year students from each programme in my research to explore the aspect of whether the tool had supported their knowledge retention.

The process of undertaking the data capture sets with programme-specific groups was maintained as with first year groups, i.e. final year BSc students were recruited as participant groups separately to MSc participants groups. This again provided the opportunity to compare findings of first year to final year in addition to comparisons between bachelor and master levels. Data was collected over a three-year period (2013-

2016), from 6 different groups; one first year group and one final year group being collected annually (Figure 7).

6.5.2 Phase II Student-Participants

Student-participants were recruited from two different U.K. H.E.I.s. A total of twenty-four participants were involved in Phase II of data collection (Table 1). Eight student-participants were enrolled on a bachelor programme of occupational therapy at H.E.I. 1, with the remaining sixteen student-participants being enrolled on a master programme in occupational therapy at H.E.I. 2.

6.5.2.1. H.E.I. 1 student-participants

All student-participants included within the Phase II, H.E.I. 1 groups, were enrolled in the second year of a bachelor programme. These student-participants were familiar with the teaching tool, having been taught by me during the first year of their education. Like the characteristics of Phase I final-year student-participants, this group being able to provide data regarding their memories of the teaching tool.

6.5.2.2 H.E.I. 2 student-participants

Student-participants recruited to Phase II H.E.I. 2 groups were enrolled on a master programme of education. All had received education regarding the professional conceptualisation of occupation and the impact of medical conditions. However, none of these student-participants had prior knowledge of the teaching tool.

6.5.3 Participant-Researcher; Taking an Insider Stance

Charmaz (2014) recommends awareness on behalf of the researcher in coming to the data with their own prior viewpoints. Rather than attempting to take an objective stance, as

required in quantitative research (Willis, 2007), the aim is for the researcher to be open to seeing their own perspective as being only one of several possible perspectives. This requires the researcher to acknowledge the stance they take within the research. In being open within this approach the researcher is thus more likely to develop new insights regarding the concepts they apply during the analysis. Hence, use of constant comparative analysis supports the development of an emergent theory that is grounded in the data (Birks & Mills, 2015).

6.5.3.1 Insider Research

Investigation of my use of the teaching tool necessitated my undertaking of insider researcher; becoming a participant-researcher. Insider researcher refers to occurrences in which research is undertaken within the researcher's own practice area (Brannick & Coghlan, 2007; Costley, Elliott & Gibbs, 2010). The role an insider researcher adopts can vary between being a peripheral member, active member or complete member of the research (Wall, 2006; Brannick & Coghlan, 2007). The position I held within my research altered in relation to each phase of data collection. It was impossible for me to be a complete member as this refers to undertaking the same role and tasks as other participants (Brannick & Coghlan, 2007). However, I was present as an active member of the research, undertaking my role as academic. Whilst I participated fully as an active member in Phase I, my position altered in Phase II. Within those data collection events whilst I undertook some active involvement I held more of a peripheral membership; waiting to be called upon by student-participants as they undertook the activity. Mercer (2007) discussed the position of a researcher as being on a continuum of insider-outsider researcher. Hence, the position I took on the continuum altered according to the form of data collection.

The relationship an insider researcher holds with participants can facilitate rapport and has been noted as increasing the level of disclosure from participants (Conneeley, 2002; Mercer, 2007). Conversely, due to the power relationship that can exist between the researcher and participants responses can also be more reserved (Conneeley, 2002; Mercer, 2007). My insider position during data collection could have resulted in either aspect; student-participants to whom I was known may have been more open knowing me as an academic that encouraged questions and debate. Alternatively, first- and second-year student-participants could have felt it necessary to be more reserved or candid in their responses due to the ongoing academic relationship post-research. These issues regarding relationship did not occur with student-participants recruited from H.E.I. 2 in that I had no contact with them pre or post-data collection. However, in being unknown to those student-participants may have produced similar issues of being reserved.

Insider research has been noted as problematic as the researcher often has a vested interest in the research (Wall, 2006). This results in issues of subjectivity, which are not possible to neutralise (Conneeley, 2002). For research to be deemed reliable and valid it is therefore essential that issues of subjectivity and bias be acknowledged (Conneeley, 2002). In addition to having a vested interest in investigating a tool that I had created; I held the position of participant-researcher; becoming part of the data. This increased the likelihood of subjectivity entering the analysis of the data. Management of subjectivity can be supported through the use of reflexivity (Etherington, 2004; section 6.1.1), recognition of bias (section 6.6.5) and transparent reporting of processes, which I present throughout my research.

6.6 Ethical Considerations

The completion of ethical research relates not only to maintaining the confidentiality and anonymity of participants. It also accounts for the respect and care of those individuals who participate (Atkins & Wallace, 2012). Ethical education-based research is compulsory, requiring the approval of the educational institutions in which the research is to be conducted. At the commencement of my research, the U.K. Data Protection Act (1998) governed the management research and participant data. In 2018, this was superseded by a reviewed Data Protection Act (2018) which came into force alongside the European Union General Data Protection Regulations (GDPR, 2018).

GDPR requires research to be undertaken lawfully, and in a fair and transparent manner. Six lawful bases are outlined; the most common related to education-based research being that the research is undertaken "*in the public interest*" (GDPR, 2018, n.p.). Enabling occupational therapy students to develop enhanced knowledge and understanding of occupation for use in their practice constitutes improved health care services. Hence, my research is identifiable as research undertaken in the interest of the public.

GDPR (2018) requirements also state that for research to be deemed as fair the rights of participants are to be respected and maintained. This is undertaken by providing transparency within the research process. Information provided to participants is to be clear, easily understood and of relevance to the participants. Within this section (6.6) I provide an explanation of the ethical processes I undertook to ensure I completed lawful, fair and transparent research.

6.6.1 Ethical Approval Phase I and Phase II

Ethical approval was sought and gained from each of respective H.E.I.s through which I recruited student-participants to my research. Each H.E.I. required separate submission of an application for ethical approval to be submitted (Appendices 1 & 8). However, as both H.E.I.s were U.K. based, each were subject to the same research ethical requirements identified through the DPA (1998), and subsequent GDPA (2018) requirements. These included gaining informed consent, maintenance of confidentiality and anonymity of participants, consideration of issues of coercion and acknowledgement and management of bias.

6.6.2 Informed Consent

The principle of informed consent is for participants to take part in the research on a voluntary basis (Green & Thorogood, 2014; Denzin & Giardina, 2016). Hence, participants should not be coerced, induced or persuaded in any form. For participants to be informed it is necessary to disclose all relevant aspects that will occur within the research. For participants to be acknowledged as giving consent it is expected that they are able to make a rational decision about their involvement, and that no coercion (section 6.6.4) has influenced their choice (Cohen, et al, 2007; Green & Thorogood, 2014).

6.6.2.1 Phase I Informed Consent

In Phase I potential participants of relevant cohorts were informed of the research whilst they were together at the commencement of a taught session of their programme. I provided verbal explanation of the scope of the research and the role required of student-participants. All potential participants were advised that if they wished to consider participation, they were to email me as the researcher to indicate their interest; my

university email address was provided. All individuals who emailed expressing their consideration of involvement were emailed the 'Participant Information' sheet and 'Consent Form' (Appendix 9). I also informed potential student-participants of the day, time and room in which the research would be conducted. All individuals had a minimum of 48 hours between receiving the participant information and consent form and the commencement of the data capture session. This was to enable potential participants to have a period of reflection prior to agreeing to be involved in the research.

6.6.2.2 Phase II Informed Consent

The procedures employed in Phase I to support student-participants to undertake informed consent was replicated for recruitment of student-participants of Phase II for those enrolled at H.E.I. 1. As I had no contact with potential student-participants from H.E.I. 2 prior to my research the initial contact and dissemination of information required a different approach.

Once ethical approval had been provided from H.E.I. 2 I contacted the programme leader for the MSc (pre-registration) Occupational Therapy programme to seek permission to disseminate information regarding my research with students enrolled on the relevant programme (Appendix 7). The programme leader, on my behalf, provided the student cohort with introductory information regarding my research, providing them with my email contact details. As with Phase I student-participants, those individuals who considered participation contacted me via email and were provided with Participant Information and a Consent Form (Appendix 6). Potential student-participants had a period of time similar to those recruited from H.E.I. 1, to reflect on their decision to participate.

Individuals who chose to participate in each phase of my research attended the identified room located within their own university campus at the planned day and time. Prior to the

commencement of data collection student-participants were given the opportunity to ask questions prior to being requested to sign and submit the Consent Forms. The right for participants to withdraw from the study at this point was re-stated. I explained that there would be no consequences to them or their ongoing education if they were to withdraw from the research. I also explained that it would not be possible to withdraw their data from the study once the data capture of their session had been completed. My rationale for this point was that learning occurs as a verbal interaction between myself and the student-participants as well as verbal interactions between student-participants. Thus, removal of data of one participant in a group could alter the meaning of discussions within the data set.

Potential participants were also informed that the data collected may be shared with my supervisory team and used in related publications. All signed consent forms were collected prior to the research commencing. Signed consent forms have been stored in a locked filing cabinet, located within a secure room within the home university of the researcher, and will be destroyed upon completion of the study.

6.6.3 Confidentiality and Anonymity

Management of confidentiality and anonymity provide elements of fairness and transparency as required under GDPA requirements (2018). Maintenance of anonymity within research requires that participants identities are protected. Whereas confidentiality refers to the researcher having knowledge of who participated whilst ensuring no information, provided publicly, could result in identification of those participants (Cohen, et al, 2007).

Transparency for student-participants was provided via provision of participant information sheets prior to consent to participate being requested (Appendices 6 & 9). Identification

that no personal data would be collected was articulated within the information. Student-participants involved in both Phases of my research were made aware that audio-recording would be undertaken, and that these recordings may be shared with my supervisory team. Student-participants recruited to Phase II were also made aware that visual recordings of their interactions would additionally be undertaken. Again, the sharing of this data being restricted to me and my supervisory team. During the process of data analysis, it became apparent that inclusion of visually coded data within my research would breach anonymity of some of the student-participants. This was a result of student-participants originating from different ethnic groups. I therefore decided not to include visually coded data. However, carefully selected examples of student-participants actions are presented in the discussion of findings (section 9.2.2.1)for the purpose of providing examples of the coded actions (Figure 37).

On occasions that student-participants referred to each other by name during the data collection events, names were redacted within the data transcripts. This was undertaken to further protect the identity of individual student-participants. Hence, through clear articulation of data collection methods, no personal identifying data being collected, and names redacted within the data, confidentiality and anonymity of student-participants was ensured. The only participant who can be identified is myself, through having undertaken my research as a participant-researcher (section 6.5.3). Examples of the coding of my predominant action is presented in Figure 23. However, the visuals are only of aspects of my actions and do not include the actions of student-participants.

6.6.4 Coercion

No forms of coercion were employed. All potential student-participants were informed that participation or non-participation would have no impact on their education (Appendices 6 & 9). Only those students who email their intent to participate were provided with further information. This procedure was completed for recruitment of student-participants in both phases of my research. No incentives were offered to student-participants from either H.E.I.

6.6.5 Bias

Bias refers to aspects within research that can call into question the validity and or reliability of the investigation (Bowling, 2009). As a qualitative researcher I acknowledge and work with biases as they cannot be avoided (Etherington, 2004; Bowling, 2009; Atkins & Wallace, 2012). However, management of bias, when possible, was undertaken.

Recruitment of student-participants on a voluntary basis may give rise to positive bias. Cohen, et al, (2007) caution that participants can volunteer for a variety of their own reasons. One reason for participation can include wishing to support and assist the researcher when they are known to each other. All fifty-seven student-participants involved in Phase I, and eight student-participants recruited to Phase II were known to me. Whilst it is not possible to confirm their reasons for choosing to be involved, as an academic involved in the delivery of their education I held a position of authority. Hence, some bias is likely to have been present within the student-participant data. The remaining sixteen student-participants involved in Phase II, recruited from H.E.I. 2, were unknown to me. They had no relationship with me prior to, or following, the research. Therefore, inclusion of these student-participants supported the management of bias.

Alternatively, positive bias can arise because participants have a specific interest in the topic being researched (Cohen, et al, 2007). All student-participants involved in my research were enrolled on occupational therapy education programmes; their aim being to become occupational therapists. As the concept of occupation is core to the knowledge of the profession of occupational therapy it can be assumed that all student-participants had an interest in the topic. Hence, positive bias relating to interest in the topic is likely to be present in the data.

A further element of bias to be considered is that of researcher bias. This form of bias can occur when the researcher has a vested interest in generating positive results from the data (Willis, 2007). This could create expectancy effects, where the researcher expects to find certain behaviours (Cohen, et al, 2007). As the sole creator of the teaching tool I acknowledge that I have a vested interest in the outcomes of my research. To manage this bias, there was the option for another member of academic staff to be educated in the use of the teaching tool and to act as tutor within data collection events. However, as the teaching tool is the subject of my PhD study, sharing this knowledge with an academic colleague would remove the original contribution I aim to demonstrate. Therefore, I acknowledge an element of researcher bias within the data analysis of Phase I and Phase II is likely to be present. Management of researcher bias can be supported by use of reflexivity and processes such as the use of member checking. Whilst I undertook reflexive activity through the completion of my research, I did not undertake the process of member checking.

6.6.5.1 Member Checking

Member checking, also referred to as respondent validation (Green & Thorogood, 2014), is a process by which the researcher engages the participants to review data coding and analysis to comment whether it provides a true reflection of their commentary and or comment on the findings (Birks & Mills, 2015). Alternatively, Etherington (2004) identifies member checks as requesting participants to review transcripts for accuracy of content rather than comment on the analysis. She identifies that this process can add additional layers to the data, particularly when discourse of the transcripts is undertaken. However, Etherington's (2004) work focused on the narratives and lived experience of participants. Birks and Mills (2015), in contrast, discuss the use of member checking as it relates to grounded theory research.

Grounded theory research aims to develop conceptual and theoretical understanding of a subject rather than capture and present the lived experience (Birks & Mills, 2015). This raises challenges regarding the process of member checking. People's perception of events commonly alters over time, which can result in member checking being unreliable (Birks & Mills, 2015). Furthermore, not all participants included in a study experience all the processes that can be encapsulated within categories. Hence, participants may be providing commentary on processes that do not relate to them (Charmaz, 2014). Therefore, member checking is not required in grounded theory research (Charmaz, 2014; Birks & Mills, 2015).

I did not undertake member checking as an aspect of my research. My decision was threefold. In line with a grounded theory approach my intent was to complete a conceptual analysis of the influence of the teaching tool rather than

explore the lived experience of students during teaching-learning. My recruitment of numerous student-participants invariably meant that not all student-participants would have experienced all the processes conceptual categories accounted for.

Secondly, more than one student-participant was recruited to each teaching-learning event that was employed for data generation. This resulted in student-participants being together whilst their learning process occurred. Whilst providing student-participants with the analysis and conceptual categories would enable them to provide their perspective, it also opened the data of peers to each other. Hence, student-participant review of the analysis may provide them insights not only to conceptualisation occurring within the research, but also insights to the progression of learning of their peers. My experience resulted in my knowledge that students learn at different rates and to different depth. I believed it would be inappropriate to highlight these variations to their peers.

A final aspect that influenced my decision was a pragmatic issue related to student-participants in the final year of their education and those recruited from H.E.I. 2. The time period between gathering of data and my analysis went

beyond the period of their enrolment on their respective programmes of education. I had not gathered identifying information of student-participants or contact details. All student-participants had been communicated with via their respective university systems during recruitment. Hence, I had no way to contact the student-participants once their programme of education was complete.

Whilst member checking was not used as a form of bias management, alternative criteria of trustworthiness, credibility and empathetic validity, identified as suitable for use in qualitative research, were employed to support the reliability of my research.

6.6.6 Trustworthiness, Credibility and Empathetic Validity

Yardley (2000; 2017) identified four characteristics which can be applied to qualitative research in order to evaluate and demonstrate its trustworthiness and resultant quality.

1. Sensitivity to context;
2. Commitment and rigor;
3. Transparency and coherence; and
4. Impact and importance.

Likewise, Lincoln and Guba (1985) had previously identified a range of methods that could be employed to support the credibility of qualitative research. Each characteristic identified by Yardley (2000; 2017) is discussed in relation to my research. Where relevant, the methods described by Lincoln and Guba (1985) are also considered. As a final measure of

credibility, I consider the occurrence of empathetic validity (Dadds, 2008), its place in support of the validity and reliability of my research.

6.6.6.1 Sensitivity to Context

The social context in which qualitative research is undertaken can create a power dynamic whereby the researcher is perceived to be in a more powerful position than the participants (Yardley, 2000). This is in part due to the knowledge of the subject the researcher brings to the research process. Sensitivity to context requires that those power relationships be attended to and manged. Yardley (2000) highlights the importance of using explicit procedures that enable the voices of participants to be heard and valued within the research as a way of managing the power dynamics.

I consciously chose to use a combination of natural and focus groups at the end of each data gathering event in both Phase I and II to allow student-participants to express their opinions regarding the utility and design of the teaching tool. These were explicit procedures I employed in order to gather perceptions of student-participants regarding the impact and function of the teaching tool within their own learning process. I encouraged expression of all opinions, and during data analysis, ensured that I attended to any challenges or negative perceptions as well as positive responses present in the dialogue. Few challenges emerged from the data. However, in order to present an open account of the utility of teaching tool I specifically consider those challenges

within my work (Section 8.7). Further to this, I employed reflexivity throughout my research (Section 6.1.1) to acknowledge and manage the power dynamic created by my role as tutor in addition to that of researcher. This supported my consideration, and where possible, management of power, and provide transparency to the processes I undertook.

6.6.6.2 Commitment and Rigor

According to Yardley (2000) commitment within the research process requires the researcher to sustain *"… prolonged engagement with the topic …"* (p. 221), not only as the researcher but also in a capacity that relates to the subject of investigation. Lincoln and Guba (1985) had also identified prolonged engagement of the researcher as a method by which distortions within the research can be identified and considered, thus enhancing credibility of findings. In their discussion of prolonged engagement, Lincoln and Guba (1985) further identified three aspects that required consideration: importance of the learning culture, testing for misinformation, and building trust with research participants.

I have twenty years of experience in the delivery for occupational therapy education, and specifically in the teaching of the professional conceptualisation of occupation. Hence, I have been embedded within the learning culture and developed extensive knowledge of the challenges of teaching occupation over a prolonged period. Regarding the use of the teaching tool as the specific subject of my research, prior to undertaking this research, I engaged with the teaching

tool in my academic capacity for four years. Hence, I have had prolonged engagement with my topic; twenty years in my capacity as an academic of the subject, with four years use of the teaching tool prior to a subsequent six-year period as both academic and researcher.

In relation to testing for misinformation, whilst recording the perceptions of student-participants regarding the function and impact of the teaching tool on student learning, I paid close attention to any occurrences of participant distortions within the data. This behaviour occurred naturally for me, as it would within any teaching-learning events, to ensure students' correct knowledge development. One key example of student misinformation arose during a Phase I data generation event involving final year student-participant from a BSc cohort. The student-participant stated their perception of the teaching tool was that it had been designed for use in explaining gardening as an occupation, as opposed to enabling the teaching-learning of all forms of occupation. Having developed an open dialogue within the data capture events, I was able to invite the student-participant to test their assumption by exploring an alternative form of occupation, one of their choosing. This resulted in the student-participant group utilising the teaching tool for themselves and

confirming that the teaching tool did in fact enable them to consider alternative forms of occupation.

The open dialogue provided student-participants with an opportunity to test their assumptions. Their active engagement and confidence to challenge and testing the utility of the teaching tool within the event demonstrated a level of trust between me and student-participants.

The second element that Yardley (2000) advocated was that of rigour, which she related to *"… the resulting completeness of the data collection and analysis …"* (Yardley, 2000, p. 221). From a constructivist grounded theory perspective, this equates to undertaking theoretical sampling and demonstration of theoretical saturation.

My introduction of Phase II of data collection enabled my use of theoretical sampling. This secondary phase of data generation had been introduced to investigate whether the teaching tool represented the professional conceptualisation of occupation. In addition, it enabled exploration of the impact of the teaching tool on the development of understanding of occupation as well as that of knowledge development.

Completion of the analysis of my research data and resultant conceptualisation of the role of the teaching tool (Chapter 8) demonstrates theoretical saturation

to have been achieved within my research. Hence, completeness exists through my use of theoretical sampling and theoretical saturation.

6.6.6.3 Transparency and Coherence

Transparency in qualitative research requires that the processes by which the research was completed by made explicit to the reader (Yardley, 2017). Furthermore, the reporting of the research process should not only provide clarity but also be persuasive of the truthfulness of the resultant findings. Lincoln and Guba (1985) identify that this can be supported by the researcher's use of persistent observation. This requires the researcher to document, in detail, not only the processes employed during the research, but also *"… describe in detail how the process of tentative identification and detailed exploration was carried out"* (p. 304). However, Lincoln and Guba (1985) also cautioned that a pitfall of persistent observation can be when a researcher draws conclusions too soon. This is reflective of Charmaz's (2014) caution relating to the use of memos during data analysis and the importance of not closing them too early in the research process.

I employed reflexivity as a key process throughout the completion of my research. This enabled me to document and present the processes I utilised for the design of my research and collection of data. Furthermore, it enabled me to describe my use of constant comparative analysis, creation of codes and categories and my resultant conceptualisation of the form and function of the teaching tool. My selection of constructivist grounded theory as a research methodology also enabled my use of memos to document my thought processes.

One memo, relating to the teaching tool as an analogy (Appendix 2), became particularly important in my findings. Mindful of Charmaz's caution to allow memos to remain open, I maintained the memo until the point at which I developed my conceptual understanding of the teaching tool. This supported my management of the pitfall of persistent observation, enabling me to avoid drawing conclusions about my findings prematurely.

6.6.6.4 Impact and Importance

The final measure discussed by Yardley (2000; 2017) is the impact and importance of the research, specifically in relation to the field in which the research is situated. Yardley (2017) identifies the criterion of importance as being *"… the requirement for all research to generate knowledge that is useful – whether in terms of practical utility, generating hypotheses, or … changing how we think …"* (p. 296).

Prior to dissemination of my findings, measurement of the importance of my research within the wider field of occupation-focused education is not possible. Requests received from academic colleagues (Appendix 12) following a publication in which I introduced the development of the teaching tool (Howarth, et al, 2018), suggests there is an interest in the potential utility of the teaching tool. Whilst this does not demonstrate impact and importance

within the academic community, an additional area of concern is the impact and importance of the teaching tool on student learning.

Whilst the principle focus of my research was investigation of the pedagogic utility of the teaching tool, I also explored the impact of the teaching tool on development of student-participants' knowledge, and understanding, of the concept of occupation. Whilst challenges relating to the design of the teaching tool were noted in the data, the predominant response from student-participants related to the positive impact of the use of the teaching tool. This was expressed by those in the first year of education, developing initial knowledge of the concept; as well as those in their second and final years of education who were progressing to develop understanding of occupation. The positive impact was also reflected in the data of student-participants recruited from H.E.I. 2 who had no prior, or ongoing, relationship with me as academic tutor. Hence, my research demonstrates impact and importance to those studying the concept of occupation for whom the teaching tool was developed.

6.6.6.5 Empathetic Validity

The final criterion I applied to my research was that of empathetic validity. Described by Dadds (2008), empathic validity can come into existence when, through completion of the

research process and identification of resultant findings, *"… the emotional dispositions of people towards each other …."* (p, 280) are positively transformed.

There are two forms of empathetic validity, internal and external. The occurrence of internal empathetic validity results in a positive emotional change for the researcher and research participants. Whereas external empathetic validity refers to the positive influence on the audience with whom the research findings are shared (Dadds, 2008).

As with the criterion of impact and importance, the influence of the research on the intended academic audience is not possible to assess until research findings have been disseminated. However, the creation of internal empathetic validity did occur for me as my own knowledge and insights developed during completion of my research. A specific example related to my developing knowledge of threshold concepts.

One of the eight characteristics that a threshold concept can hold is that of liminality (Section 2.6). A period of liminality for students can occur, during which their knowledge of a subject can fluctuate between new knowledge and previous understandings they have held (Baillie, et al, 2013). This led me to reflect on occasions when I had encounter students who on some occasions presented as having develop accurate knowledge of the concept of occupation to then later verbalised knowledge of occupation that was not commensurate with

the professional conceptualisation. This insight led me to consider the different areas within occupational therapy curricula in which students could revisit the concept of occupation; to identify the importance of repeated use of the teaching tool to reinforce their knowledge development, as highlighted by (Clouston, 2003). Emergent from the data was also student-participants identification of different areas of their curriculum in which they perceived re-use of the teaching tool would be beneficial.

The facility of the teaching tool to visually illustrate the complex nature of the concept of occupation also resulted in student-participants acknowledgement of the challenge of teaching the concept. Final year student-participants had experience of explaining the concept of occupation to others (clients and colleagues) during their practice-based learning experiences. They expressed empathy for academics who teach the concept, identifying the teaching tool as having utility in explain not only the concept of occupation, but also the practice of occupational therapists. Hence, internal empathetic validity emerged during my research process.

6.7 Process of Data Analysis

Written transcripts of the data recordings were created for analysis alongside the audio-visual recordings. All audio data was transcribed by me verbatim to maintain integrity of the spoken word. Combined transcribing and examination of the written transcripts and listening to the recordings enabled me to hear the data in context to try to maintain the meanings within the data (Willis, 2007). The written transcripts were reviewed repeatedly during analysis (Willis, 2007) allowing for constant comparative analysis.

Before I commenced initial coding, I created groups, or families, of transcripts. A transcript group, or family, brings together different transcripts according the commonalities amongst the participants groups (Friese, 2014). This process was undertaken to enable comparison of data from different student-participant groups in the later analysis.

Phase I and Phase II data were coded separately. This was due to variation in the teaching-learning activities used in each phase. In Phase I my role was to lead the teaching-learning process, delivering theoretical information. In Phase II my role was more observational. I provided the student-participant groups with the tool and allowed them to take the lead in the learning experience. I therefore analysed each phase of research separately to explore whether different forms of learning emerged through the varied use of the teaching tool. However, codes that were created during my analysis of each phase were considered and applied to the alternate phase where appropriate.

6.8 Concurrent Data Generation, Coding and Analysis

Grounded theory research utilises a constant comparative process throughout the analysis of data, through to theoretical construction (Charmaz, 2014). An iterative process that constitutes the simultaneous collection, coding and analysis of data. Use of constant

comparative analysis is noted as a crucial method employed in grounded theory, distinguishing the approach from other methods of qualitative research (Birks & Mills, 2015).

6.8.1 Constant Comparative Analysis

The process of constant comparative analysis commences during the initial coding stage (section 6.9.1). The aim is to identify similarities and differences in the coded data and then compared to back to the "raw" data. Birks and Mills (2015) explain that data to data comparisons can occur within an individual data capture set as well as across different data capture sets.

Reflections undertaken by the researcher can result in identification that some codes applied to the data can encapsulate a view of processes or actions that are different to the view held by participants regarding the action. Charmaz (2014) stresses the importance of recording these ideas as they occur through the creation of memos (section 6.1.2). The content of the memos may then support the emergence of previously hidden meanings or actions that occur within the data. Thus, repeated movement of the researcher back and forth through the data facilitates the constant comparison analysis (Birks & Mills, 2015).

Use of a constant comparative analysis method was new to me. My previous research experiences comprised of collecting all planned data before analysis commenced. Hence, initially I found this progress challenging. As with the use of theoretical sampling, it raised concerns for me that I may skew the findings of the research. However, as I progressed through data analysis and conceptual

ideas began to emerge, I became more comfortable with the process. I was able to liken the process to my previous experience of using semi-structured interviews. During these interviews I allowed myself to hear what a participant was saying, and on occasion appeared to not be saying, altering and adding to my supplementary questions accordingly. Allowing myself to be open to the data and follow emerging lines of enquiry in this research enabled me to move repeatedly back and forth through my data and guide my analysis and theoretical sampling.

6.9 Developing Levels of Coding leading to Theoretical Categories

Coding is the process by which data is compartmentalised to identify occurrences of similarity or difference in the information. Through coding, information or processes that occur repeatedly are identified and captured (Birks & Mills, 2015). Each code applied represents a preliminary conceptual understanding of the data that enables the researcher to make sense of the information. Identification of each code enables the researcher to interrogate the data and uncover its potential meanings (Charmaz, 2014).

Charmaz (2014) explains two stages in the process of coding; initial and focused coding. Initial coding, as implied, is the first stage of organisation of the data. It can be undertaken in a variety of ways; word-by-word, line-by-line or incident-by-incident (Birks & Mills, 2015). Each technique enables the researcher to begin to identify what is taking place in the data and apply a label to represent what is occurring. Whichever approach is applied the intent is to remain close to the data and the meanings it holds (Charmaz, 2014). The second stage of

coding is referred to in literature as either focused or intermediate coding (Charmaz, 2014; Birks & Mills, 2015). I selected to use the term focused coding in my research in line with the understandings presented by Charmaz (2014). The intent of focused coding is identification of patterns and relationships that exist between initial codes.

6.9.1 Initial Coding

Initial coding requires close examination of the data. Word-by-word coding offers a highly detailed approach. It supports a thorough consideration of what participants say. Often captured through the application of in vivo codes, concepts that are repeated in the data can be identified (Birks & Mills, 2015; Saldaña, 2016). Alternatively, Charmaz (2014) identified line-by-line coding as being a common first step in grounded theory research. The intent of line-by-line coding is to uncover and identify patterns that exist within the data. As patterns emerge, they can be analysed to consider what occurs, as well as how and why (Charmaz, 2014). Ideas that occur to the researcher during this process are recorded through memos, which become the foundations upon which the grounded theory is built.

When undertaking line-by-line coding, vivo codes can still be employed. This allows the researcher to utilise the word(s) of the participants to code the data. Commonly used in grounded theory research, in vivo codes are noted as valuable for retaining the voice of participants and maintaining the inherent meaning (Saldaña, 2016).

An alternative to the use of in vivo codes during initial coding is the application of process codes. Process codes, referred to by some authors as gerunds (Charmaz, 2014; Saldaña, 2016), are verbs which are used as nouns and applied to capture a process. Hence process codes allow the researcher to emphasize the action or processes that take place within the data. An advantage of applying process codes is that the researcher focuses on what is

occurring rather than capturing types of participants. Furthermore, it restrains the researcher from develop theoretical conceptions too early in the analysis process (Charmaz, 2014).

I commenced initial coding using the word-by-word approach with the intent of employing in vivo codes to maintain the perspectives and experiences of the student-participants (Saldaña, 2016). On completion of the initial coding of my first four transcripts, whilst I had identified and applied a small number of in vivo codes, I was anxious about the lack of codes I had created. Hence, I revisited the data and began to utilise line-by-line coding and employ process codes to capture actions and events in addition to applying in vivo codes. Use of a line-by-line approach resulted in a greater wealth of codes being created. Ashwin (2012) conceptualises of teaching-learning as a process that occurs through the actions and interactions of individuals (section 1.2). Hence, examination of the data for the application of process codes was a nature progression of my coding.

During initial coding Charmaz (2014) advises the researcher to remain close to the data and being open to seeing all potential theoretical directions the data may lead. She presents the following set of questions for researchers to use to support their initial coding:

" What process is at issue here? How can I define it?

How does the process develop?

How does the research participant act while involved in the process?

What does the participant profess to think and feel while involved in the process? What might his or her observed behaviour indicate?

When, why, and how does the process change?

What are the consequences of the process?" (p. 127).

Use of these questions during initial coding and analysis facilitated my consideration of the data. It allowed me to consider a range of potential explanations regarding what was occurring when using the teaching tool in each phase of data collection. Their use became notably influential once I had commenced theoretical sampling (section 6.4.2).

Initial coding also highlights areas of information where data is insubstantial. Construction of grounded theory requires robust evidence (Charmaz, 2014). Hence it is essential for the researcher to identify areas that require further data to illuminate the issue. This prompts the commencement of theoretical sampling for the collection of additional data. An initial code identified within my first set of transcripts raised a question regarding whether the design of the teaching tool provided authentic representation of occupation. This prompted me to commence theoretical sampling. As I progressed through initial coding of further Phase I transcripts questions grew from the final year student-participant transcripts as to whether the teaching tool could be utilised by students for collaborative-learning, again resulting in theoretical sampling.

6.9.1.1 Initial Coding of Phase I Data

In the initial coding of Phase I data eighty-three codes were created (Appendix 10) and applied across the transcripts. Codes were created as each transcript was analysed. As later transcripts were reviewed, and new codes created, I returned to previous transcripts to ensure later codes were applied where appropriate. Hence, producing my constant comparative analysis.

In each one-hour data capture event the focus was on my teaching of the concept of occupation using the teaching tool. However, toward the close of each data capture event student-participants were provided with opportunity to ask questions regarding the research. In addition to asking questions regarding the research student-participants chose to make comment on their impressions of the teaching tool in relation to their learning and its' potential use in occupational therapy education. This data was recorded and included in all transcripts.

6.9.1.2 Initial Coding of Phase II Data

I began by transcribing the verbal communications of first Phase II data set. Whilst this process enabled me to become familiar with the data, I also noted that my transcripts were only capturing the verbal communications for coding and analysis. As the teaching tool is a physical entity and the learning process occurred in a social context, I noted non-verbal communications and actions occurring in each session that may also require examination.

A wealth of non-verbal communication and action was observed as occurring for the student-participants during the data capture event. Hence, I decided to attempt to code the visual data in addition to the written transcripts. To support my coding and analysis of data I had chosen to undertake computer aided analysis, utilising the data analysis software of

ATLAS.ti (https://atlasti.com/ ; section 6.10). This allowed me to upload visual recordings of the data capture sets alongside the written transcripts. I then began initial coding of the visual data. However, exploration of the facilities available within the software lead me to note that whilst it was possible to link codes within the system, the addition of the visual data did not add new insights.

Creation of the initial visual coding enabled me to identify two key issues that I had to consider; confidentiality and anonymity, and, limited enhanced insight of the data. Confidentiality and anonymity of student-participants had been articulated during the process of gaining ethical approval. I had stated that whilst student-participants would be visually recorded during Phase II their confidentiality and anonymity would be protected in relation to my research report and any related publications. Thus, as I created initial codes it was necessary to create doctored visuals for the codes to exclude any student-participant defining features. A further challenge became apparent as I noted that any student-participants who originated from Non-Caucasian background would be more identifiable that their peers. Initial visual codes I created captured the hands of student-participants. As the ethnic origins of the student-participants was not broad, inclusion of visual codes would result in some student-participants potentially being identifiable, breaching their anonymity and confidentiality.

Secondly, the non-verbal communications I aimed to capture were action based. The static screenshots produced using the ATLAS.ti system did not capture the dynamic actions of participants. Hence, inclusion of this facility of coding did not add to either my understanding or articulation of the analysis. Furthermore, when reviewing the coding I

noted that the static shots did not reflect variety between codes. This resulted in confusion for me when progressing through the initial coding process.

As a result of these insights gained during initial coding of Phase II data, I did consider whether there was visual data to be coded in Phase I. Thus, I moved back through Phase I data in exploration. A key difference in the recording of Phase I and Phase II was that in Phase I student-participants were not recorded visually, only audio recorded. Hence, the visual data was only of myself. I therefore undertook initial coding of the visual data of Phase I. However, it once again became apparent that insights were limited due to the static nature of the recording of the codes. One key aspect did emerge and is presented with examples of the visual codes in section 8.3.1, Figure 23.

Whilst I did not progress with the creation of visual initial codes within either phase, I did proceed with initial coding of Phase II data in the same manner as I had undertaken for Phase I data. As processes and actions emerged during initial coding, so sub-categories and categories surface, leading to focused coding.

Once several initial codes had been created, I began to allocate colours to different initial codes (Table 2). Colours were allocated to codes that appeared to share the same properties. I began this process early in the initial coding as it enabled me to see when different issues appeared to come together in groups, or sub-categories. Whilst this relates to the later development of categories for some code groups, I was also mindful to not move into focused coding too early in the process. A further advantage I discovered of having applied colours to codes was that it highlighted that a number of codes belonged to more than one category. This identification became useful during my focused coding process (section 8.3).

Table 2: Colour Allocation of Initial Codes

Colour	Sub-category	Description of Sub-categories
Green	About the Teaching Tool	Applied to codes where properties of the teaching tool are identified and perceived to support learning.
Yellow	Behaviours of Student-Participants	Applied to codes that aim to capture the (learning) behaviours displayed by student participants.
Purple	Knowledge Development	Applied to codes where student-participants are noted as verbalising their learning.
Blue	Different Formats	Applied to codes when student-participants identify different formats that they would like to see the teaching tool developed into for support of their learning.
Red	Uses in Education	Applied to codes when student-participants identify and suggest different uses for the teaching tool, separate from teaching about the concept of occupation, purposeful activity and activity.
Orange	Behaviours of Tutor-Participant	Applied to process codes that aim to capture behaviours of the tutor-participant.
Pink	Utility	Applied to codes that identify different uses of the teaching tool
Brown	Complex	Applied to codes in which challenges to learning the concept of occupation are identified
Grey	Challenge Design	Applied to codes in which student-participants challenge the design and/or utility of the teaching in support of their learning.
Turquoise	Prompts Reasoning	Applied to codes that capture when student-participants appear to specifically draw on professional reasoning skills.
Black	Features	Applied to codes that relate the design features to the specific features of occupation as a concept.
White	Nothing Applicable	Codes that remain unlabelled did not appear to me as sharing a property of similarity to other codes.

N.B. The colours allocated to initial codes in Phase I data were maintained and applied to codes that were also employed in Phase II, and visa-versa.

As initial coding progresses categories of data emerge and, on occasion, certain code labels come to the attention of the researcher more than others. These codes can develop to form categories enabling conceptualisation of data for the researcher (Birks & Mills, 2015). This leads to the next stage, that of focused coding.

6.9.2 Focused Coding

Focused coding is the process by which codes, sub-categories and categories are synthesized. Focused coding takes place as the researcher begins to group emergent data according to their relationships. It allows the researcher to examine and identify conceptual patterns (Birks & Mills, 2015). As codes and categories are analysed and synthesized larger portions of data begin to take conceptual form. Focused coding can commence early during the initial coding phase. This occurred within my research through my allocation of colours to differentiate the properties of initial codes as they were created (Table 2). Thus, I commenced elements of focused coding during my initial coding, but without moving too early to the development of formalised categories.

Charmaz (2014) presented the following questions to assist the researcher in determining which initial codes and preliminary categories might be pertinent for use as focused codes;

- *"What do you find when you compare your initial codes with data?*
- *In which ways might your initial codes reveal patterns?*
- *Which of these codes best account for the data?*
- *Have you raised these codes to focused codes?*
- *What do your comparisons between codes indicate?*

- *Do your focused codes reveal gaps in the data?"* (p. 140-141)

When creating focused codes Charmaz (2014) noted that novice researchers can hold the belief that it is necessary that an initial code appears in the data repeatedly for it to be relevant as a focused code and potential future category. However, she cautions against this belief. Initial codes that appear infrequently or only on one occasion, nevertheless, can provide significant insight to what is occurring within the data (Charmaz, 2014).

Once focused coding has been undertaken the researcher can progress to axial coding for the creation of categories. This is done by application of "*… an analytic frame to the data*" (Charmaz, 2014, p, 149). However, Charmaz (2014) warns that this process can impede the development of the researcher's insights and prohibit development of fundamental codes and categories. Birks and Mills (2015) concur, identifying the stages of initial and focused coding as being sufficient for category development leading to theoretical conceptualisation.

Birks and Mills (2015) identify categories and sub-categories as possessing definable properties. Identification of the properties of categories enables insights regarding the meanings and categories and leads to conceptual development. A further function of focused coding is to gain insights as to relationships that exist between early sub-categories. As with reviewing of initial coding, focused coding of early sub-categories can result in their merger to form categories that lay the foundations of the resultant grounded theory (Birks & Mills, 2015).

Literature explaining the process of Grounded Theory coding presents examples from previous research that utilised participant interviews for data generation (Charmaz, 2014; Birks & Mills, 2015). As a result, I found that I initially struggled to relate the explanations of the grounded theory process to my process of coding teaching-learning events and use of the teaching tool. I was not able to always see the process of just one individual in my data due to teaching-learning being a process that occurs between two or more people simultaneously. Neither did I ever teach one student at a time. Whilst this may have enabled me to more clearly capture the learning process of an individual. It would not provide a realistic picture to teaching-learning as it occurs in practice. Hence was not an option for my research.

What I was able to do was code behaviours that emerged during the teaching-learning and consider them as processes. I then looked to compare the behaviour processes as well as other processes in the data. I was then able to consider when and why the behaviour occurred. In addition, I was able to consider whether the behaviour(s) were also occurring across data sets, within other student-participant groups.

An example of this is when I had created the initial code of 'Prior Knowledge'. The code was applied whenever a student-participant drew upon their prior knowledge and applied it to the new knowledge being taught. I then considered what was happening in the data that might account for the student-participants drawing on their prior knowledge and applying it; what was happening that might account for this occurrence? What role, if any, did the teaching tool appear to play when this occurred. Findings related to this analysis are presented in *section 8.1.1.1*.

Analysis and coding of data in grounded theory is multi-layered and multifaceted. Creation of memos, creation of sub-categories and elevation to categories leading to theory construction is complex. It requires large quantities of complex data to be managed and examined in different ways. To complete the process effectively I utilized a computer-assisted analysis tool to support and facilitate my investigation.

6.10 Software Assisted Analysis

Grounded theory research is an iterative and evolving process of investigation. Use of this approach aims to gather rich data on a subject (Charmaz, 2014). Whilst a variety of research methods are available for use, the approach itself requires rigorous use of specified methods (Birks & Mills, 2015). These include the creation of memos, use of constant comparative analysis, as well as initial, intermediate and advance coding of data. Constant comparative analysis, used in conjunction with memoing, adds layers of complexity to the

process. Hence, a wealth of data and actions are undertaken when completing grounded theory research (Birks & Mills, 2015).

Birks and Mills (2015) discuss the extensive amount of material generated through conducting grounded theory research. They advocate for the researcher to utilise systems that facilitate the recording, storage and retrieval of each element as the research progresses. They identify the availability of Computer Assisted Qualitative Data Analysis (CAQDAS) tools as useful for managing the data.

In addition to their storage capacities, CAQDAS tools support the processes of coding and categorising data (Green & Thorogood, 2014). As codes and categories are created a further grounded theory process, that of diagramming can be undertaken (section 6.1.3). Viewing codes and or categories together in visual form allows the researcher to reflect on, and identify relationships that exist between codes, sub-categories or categories. CAQDAS tools also provide the ability to diagram the data (Birks & Mills, 2015).

A range of CAQDAS tools are available and include packages such as NVIVO and ATLAS.ti (Cohen, et al, 2007; Bowling, 2009; Green & Thorogood, 2014). The use of packages such as these have been identified as supporting researchers in making their thinking processes more visible, thus adding rigour to their research (Green & Thorogood, 2014).

Advice from my supervisory team was for me to explore and select a CAQDAS tool that would support my analysis of data. With no experience in using such software I decided to explore the potential use of ATLAS.ti (Friese, 2014). My

choice was a pragmatic one; I had access to individuals who were experienced in using ATLAS.ti who could support my skills development.

ATLAS.ti software has been identified as being suitable for use with qualitative and quantitative data (Friese, 2014). It is also noted as supporting the building of theory (Green & Thorogood, 2014; Friese, 2014; Birks & Mills, 2015). Hence, its use was commensurate for employment in grounded theory research. Good and Thorogood (2014) identify use of ATLAS.ti specifically as enabling the researcher to engage more directly with direct quotes embedded within the larger data sets in addition to working with codes.

Friese (2014) discusses the facility of ATLAS.ti in providing a computer-aided analysis process referred to as 'Noticing things, Collecting things and Thinking about things' (N.C.T.). Comparable to the constant comparative analysis approach employed in grounded theory research, the N.C.T. approach is not necessarily linear. Rather Friese (2014) advocates writing memos alongside the noticing, collecting and thinking. The continuous and varied movement between the noticing, collecting and thinking, alongside the creation of memos, is noted as facilitating a holistic approach to the analysis of data. The facility to create memos alongside the coding is a function of ATLAS.ti again reflecting the specified methods required of a grounded theory approach.

6.11 Summary

Within this chapter I have presented an explanation of the processes I undertook through the completion of my research. I have identified my use of processes fundamental to grounded theory research. Furthermore, I have provided justification for the choices I made as my research progressed. Having earlier introduced the area of concern which led to my

development of the teaching tool (Chapter 2), introduced the teaching tool (Chapter 3) and outlined my research process (Chapter 6), I now present the predominant literature review focused on pedagogic philosophies and methods (Chapter 7).

7.0 Literature Review

Literature reviewed within grounded theory research often results in exploration of literature across diverse disciplines and subjects (Charmaz, 2014). This is noted as being a result of the processes undertaken within grounded theory research whereby the literature selected is directed by the codes, categories and themes that emerge during data analysis. As a consequence, the literature review is commonly integrated into the discussion of the findings (Birks & Mills, 2015). However, presentation of a separate literature review is also noted as enabling the researcher to set the scene of the research process that is presented in subsequent chapters (Charmaz, 2014). In this chapter, I present my principle literature review to provide an initial explanation of a variety of subjects and theories prior to integrating the literature into my discussion of findings.

Emergent from my analysis of data were three distinct strands of literature that I investigated. Whilst each strand is distinguishable from the others, each also interlinked and informed the other strands. The three strands of literature I conceptualised were pedagogic theories, pedagogic methods and additional factors that impact on learning. Initial topics emergent from my data were coded as ‘Active Learning, ‘Analogy’ and ‘Visual Aide’.

The code of ‘Active Learning’ led to my investigation of pedagogic philosophies and theories related to learning through activities and actions. My search terms included key theorists such as “Dewey”,” Vygotsky” as well as the terms “learning through doing” and “active learning”. The code of ‘Analogy’ resulted in my exploration of literature focused on pedagogic methods. In addition to searching for “analogies in learning” as further data was coded and preliminary categories emerged, I included search terms such as “storytelling in education”. The third initial topic that emerged was “Visual Aide”. This code accounted for

the physical form of the teaching tool as providing a visual representation of the concept of occupation. This led me to include the search terms of “visual learning”, “learning styles” as well as “memory formation”.

A further topic I included relates to the development of knowledge and development of understanding. This element of my literature review emerged from supervision-based discussions. During an early supervision session, in which initial data was being reviewed, I discussed the potential of the teaching tool to develop knowledge and understanding of occupation. This resulted in my identification of knowledge and understanding being separate, but related, concepts. Hence, I also included “developing knowledge” and “developing understanding” in my search terms.

The process I adopted for my principle literature review was an iterative approach. I allowed myself to be led by emergent topics and themes from the data and supervision. Furthermore, I followed topics within the literature that related back to the teaching-learning processes that were emergent. I employed the use of the electronic data base Library Plus to support my process. This database enabled several databases to be included in one search. The additional databases included CINAHL, ScienceDirect, Science and Social Science Citation Index and Medline. Further to this I undertook focused searches of individual journals as relevant literature presented itself through my reading of initial articles. As a result, my principle literature review explores critically a selection of pedagogic philosophies and methods that could support the development of knowledge and understanding of the complex concept of occupation (section 2.4). In addition, factors of student motivation and styles of learning that can also influence teaching-learning are considered.

7.1 Teaching and Learning for Understanding

Hocking (2009) has advocated for the development of students' understanding of the concept of occupation to assist them in advancing a greater appreciation of the interdependent relationship between occupation, health, well-being and life satisfaction. The H.C.P.C. (2013) also required that occupational therapy students develop understanding of occupation to promote and develop health. To develop understanding, students need to be facilitated to become actively engaged with the subject to empower them to use the knowledge in innovative ways (Newton, 2012). Developing understanding is important because it allows for *"... flexible use of knowledge in novel situations and … retention of the learned material"* (Newton, 2012, p.6). This is important as occupational therapists are employed in a wide variety of health and social care settings, as well as private and voluntary organisations (R.C.O.T., 2019b). Thus, necessitating development of an ability for occupational therapy students to utilise occupation as a therapeutic media in novel situations.

Attainment of knowledge has been noted as differing from the development of understanding of a subject (Entwistle, 2009). Knowledge attainment is the acquiring facts of a subject. Whereas developing understanding enables an individual to use the knowledge to present a comprehensive explanation of the subject, and flexibly adjust the conceptual ideas in new and varied contexts (Entwistle, 2009).

Glaser (1984) explored the role of knowledge and teaching of thinking skills for the acquiring of new knowledge. He identified knowledge development as requiring the delivery of a knowledge structure; a framework for organising subject-specific facts. In addition, establishment of a knowledge structure can enable an individual to utilise large quantities of

information of a subject (Glaser, 1984). The provision of an explicit, organised structure can thus support the development of new schema of a subject. Once created, the mental schema can also facilitate knowledge retrieval (Glaser, 1984).

However, Entwistle (2009) identifies that for the creation of an accurate schema of a concept, it is essential for students to be supported to recognise a concept's defining features. Identification and recognition of defining features requires students to actively use their prior knowledge and experience of a subject. Further to this, students require knowledge of variations that exists within the defining features. Once knowledge of the defining features, and their variations, have been constructed development of understanding of a subject can take place.

An important characteristic of understanding is the creation of a comprehensible whole of a subject. This allows information and ideas to be linked or related (Newton, 2012). Whilst knowledge can be transmitted to a student, for understanding to develop students must become personally engaged with the subject. This requires the support of an academic of the subject.

Teaching is noted as the use of interactive dialogue between academics and students, in which shared meanings are created (Light, et al, 2009). Use of interactive dialogue enables students to be supported to make connections between different elements of a subject and draw appropriate conclusions (Newton, 2012). Wallace and Louden (2003) discussed three fundamental principles for development of understanding. Firstly, students must develop comprehension of subject knowledge. Secondly, academics must act as directors and partners in the construction of knowledge. Thirdly, the learning environment must be supportive, enabling students to test their developing understandings (Wallace & Louden, 2003). Within the teaching-learning event, academics must illuminate relationships that

exist between factual knowledge of the subject. This can support students' construction of mental images of those relationships (Newton, 2012). Thus, development of understanding can be identified as utilising a social constructivist approach (section 4.2), where academics and students create shared meaning of the subject (Light, et al, 2009). Entwistle (2009) identifies this as the creation of *"meaningful learning"* (p. 16). He notes this as best supported when students are facilitated to construct new knowledge by linking to their prior knowledge. Thus, students are enabled to make sense of the knowledge for themselves.

Fry, Ketteridge and Marshall (1999) identify that for understanding to develop deep learning must occur. Deep learning assists students to relate new concepts to their prior knowledge, enabling facts to be learnt within the context of personal experience (Fry et al, 1999). Therefore, the teaching of occupation needs to draw upon students' prior knowledge and their personal experience of occupational participation.

Occupational therapy conceives of individuals as occupational beings, and *"… all students come to their education with multiple, varied experiences of occupation"* (Howarth, et al, 2018, p. 146). Occupational therapy academics can thus draw on students' prior knowledge when developing professional conceptualisations of occupation.

7.1.1 Deep Learning verses Surface Learning

Knowledge can be attained through use of a surface learning approach. Students who employ a surface approach develop ability to reproduce fact-based information. However, they have been noted as struggling to relate different aspects of knowledge to each other and display a tendency to compartmentalise the learnt facts. The result being a difficulty in making sense of new ideas or applying the facts to novel situations (Light et al, 2009).

Alternatively, students have been noted as utilising either a strategic approach or a deep approach to learning. Students who employ a strategic approach are identified as undertaking a deeper manner of learning. However, their learning tends to be assessment and achievement focused (Light et al, 2009). Thus, whilst they are motivated to learn about the subject, they attend to learning the content of the curriculum best required to successfully achieve the set assessment. Development of understanding is best facilitated when students exploit a deep approach to learning.

Deep learning requires students to explore relevant evidence as well as the relationship between ideas of the subject. Entwistle (2009) identifies this as a holistic approach to learning. This approach leads students to form comprehension of a subject. It requires students to integrate the facts of the subject and relationship between those facts. Entwistle (2009) concluded that on the occasion students engage a deep learning approach they additionally gain understanding of the subject as it is situated in its field of knowledge. Occupation is recognised as a core concept of occupational therapy (RCOT, 2019a). Understanding of the concept is known to be fundamental to successful completion of a programme of education and key for future practice (section 2.2) Furthermore, having a vocational objective is noted as a motivating factor, resulting in students searching for direct significance of the information for their learning (Entwistle, 2009) (section 2.7).

Supporting a deep learning approach necessitates academics to present opportunities for students to draw upon prior knowledge and for personal meaning to be attached to the subject. Facilitating students toward active engagement with a subject enables students *"… to understand ideas for themselves"* (Light et al, 2009, p.52). This results in transformed learning and conceptual development.

7.1.2 Role of Memory in Transformational Learning

Conceptual development occurs when students engage with deep, or transformational, learning. For this to occur, information must be held and processed in short term memory. For knowledge to enter short term memory, students must firstly know which aspects of information are most important to attend to (Entwistle, 2009; Baddeley, 1981). Once these aspects are clarified students can begin to process the information within their working memory. However, working memory is noted as being of limited capacity, with facility for processing only a few items at a time (Newton, 2012). In assistance of working memory, prior knowledge is drawn from long term memory, and a comprehensible mental construct can be developed incorporating the new information (Entwistle, 2009). Whilst capacity is marginally increased there remains a limit. Hence, development of understanding becomes restricted when the volume of information to be processed outweigh the resources of working memory. This can occur when learning about a complex concept (Newton, 2012). According to Nelson and Jepson-Thomas (2003) occupation is a dynamic relationship between multiple constituent parts, including the attachment of subject meanings. Development of knowledge of each constituent part, followed by the need to comprehend the influence each part can provoke on another, constitutes a wealth of required learning. Mayer and Moreno (1998) offer evidence that working memory includes an auditory working memory and a visual working memory. They noted that an explanation provided through the printed word together with pictures may exceed the capacity of the visual working memory. This interrupts development of understanding due to information overload. However, when pictures are complimented with a verbalised narrative, an individual can utilise both their visual and auditory working memory. This enables a greater amount of information to be retained, and processed, with the working memory system

(Mayer & Moreno, 1998). This concurs with the work of Baddeley (1981), who researched the visual and auditory elements of working memory, naming them as the visuo-spatial sketchpad and phonological loop. Mayer and Moreno's (1998) research aimed to investigate the occurrence of split attention during multimedia learning. Whilst being a relatively small study (N= 146) participants were split into two separate experiment groups. Findings from each group showed correlation thus strengthening the findings. Additionally, the participants were adult learners thus providing some transferability of findings to alternative higher education students. This suggests that by harnessing the phonological loop and the visuo-spatial sketchpad both auditory and visual working memory could become engaged during teaching of the occupation, better supporting students' development of understanding of the concept.

Newton (2012) discussed additional factors that have been noted as impeding development of understanding. In concurrence with Entwistle (2009), he identified that construction of a comprehensive mental conceptualisation may be interrupted when students fail to grasp which elements they should attend to.

A variety of pedagogic approaches have been employed in occupational therapy education, one of which has been a didactic approach (Hooper, 2006). Didactic teaching methods utilise a lecture format, which is identified as transmission of knowledge (Light, et al, 2009). Whilst lectures utilise both visual presentation of information alongside verbal explanation Sadlo, et al, (1994) raised concern that this format requires only passive engagement and processing of information obstructing development of understanding.

Newton (2012) discussed two forms of information processing; controlled and automatic. Controlled process occurs when information is intentionally focussed upon, whereas automatic processing takes place when less attendance to the information is required. The

ability to undertake automatic processing has been noted as developing with experience and familiarity with the subject. Novices require more controlled processing due to the novelty of the information (Newton, 2012). This suggests that in addition to utilising pedagogic methods that engage both audio and visual working memory, students need not only to be directed to which aspects of information to attend but also to become actively engaged with material to maintain conscious focus.

7.2 Established Pedagogic Methods of Occupational Therapy Curricula

Fry et al (1999, p.85) identified individuals as better able to learn when they actively engage with a subject rather than simply be apprised of the information. Occupational therapy academics have employed a variety of pedagogic approaches, endeavouring to develop students' knowledge and understanding of occupation. Approaches have included didactic methods, experiential activities and use of a problem-based learning approach (Hooper, 2006).

As previously discussed (section 7.1.2), a didactic approach is merely a transmission of information. This results in difficulty for students in knowing what to attend to and thus a passive receipt of knowledge (Light et al, 2009). In contrast, experiential learning approaches and P.B.L. both require active engagement with the subject. This suggests both as having potential benefits for the development of knowledge and understanding.

7.2.1 Experiential Learning

An experiential approach aims to develop student knowledge and understanding through the lived experience, and reflection on those experiences (Kolb, 2015). Kolb (2015) identified this learning approach as having emerged from the works of theorists such as John Dewey (1859-1952), Kurt Lewin (1890-1947) and Jean Piaget (1896-1980). Lewin is

cited as emphasising the significance of concrete experience, used to test and validate theoretical concepts, in conjunction with integration of information feedback. Each element of the learning being of equal importance (Kolb, 2015). Dewey's perspective is noted as similar to Lewin's, though with greater emphasis on learning as a natural developmental process to be harnessed (Kolb, 2015). Piaget is also noted as emphasising the developmental aspect related to learning. Though his theory is more focused on the process of cognitive development and creation of schemas. Schemas developed through accommodation of lived experience and assimilation of new information into existing schemas (Kolb, 2015). The works of Dewey, Lewin and Piaget have been noted as commonly cited in relation to experiential learning (Colucci & Colombo, 2018), and to that of active learning theory. However, Miettinen (2000) contends that Kolb was selective in his use of those theories to support the development of his own model of experiential learning. Pedagogic theories of Dewey and Piaget, and their relevance to my research are discussed further in section 7.3.

Occupational therapy curricula have utilised experiential learning approaches. Such approaches require students to participate in a variety of human activities (Price, et al, 2017). Activities for learning are selected by occupational therapy academics, and in some instances, by the students themselves. Commensurate with Dewey's proposal of employing commonly occurring occupations (section 7.3.1), activities such as cooking, art and gardening, have all been used within occupational therapy curricula (Sadlo, et al, 1994). Experiential learning additionally aims to facilitate interaction between students and the academic (Sadlo et al, 1994), with learning focused on the activity undertaken. Once completed, academics strive to support students to transfer their learning from the selected activity, applying it to all human activities. However, this can be challenging, particularly

when human activities can present as notably disparate, e.g. transferring knowledge of the performance requirements of painting a picture to those required when driving a car. Difficulties with use of interchangeable terminology (section 2.4.1) and inability to ensure students participate in occupations rather than purposeful activities (section 2.3) as previously discussed can also impede the learning process.

7.2.2 Problem-Based Learning

Problem-based learning (P.B.L.), as an alternative approach, presents students with a real-life problem of their field of study. This approach presents students with an identified problem for which solutions are to be developed. Development of solutions requires students to research literature, investigate the characteristics of the problem, and develop strategies to redress the problem. The investigations required for the task result in development of knowledge of the subject (Light, et al, 2009).

Occupational therapy is concerned with enabling occupational participation and occupational engagement for individuals, and communities, who experience occupational dysfunction and or forms of occupational injustice (W.F.O.T. 2012). Hence, occupational therapists encounter problems that require solutioning continuously within their practice. This would suggest that a P.B.L. approach to education would be an ideal basis for occupational therapy curricula. In addition, within the W.F.O.T. Minimum Education Standards (2016) is requirement for students to develop problem solving skills. This is reflected in findings of Nicola-Richmond et al (2016) who identified reason skills being acknowledged as important by academics, clinicians and students alike, and likely to be a threshold concept of occupational therapy.

Whilst entire curricula can be designed around a problem (Light et al 2009), problem focused methods have been noted as only one of a variety of pedagogic approaches within curricula of occupational therapy. Sadlo, et al (1994) advocated for use of a P.B.L approach in occupational therapy education. Use of this approach can support students' skills development in problem identification and solutioning required for practice. This essential learning supports students' abilities in analysing the impact occupational dysfunction and occupational injustice can have of the occupational participation of individuals and communities. However, as with experiential learning students may struggle to relate the learning of one problem across the myriad of problems they can encounter in practice. Furthermore, in considering occupation as a discrete concept, no problem exists that requires a solution. Hence, the use of a P.B.L. approach for teaching-learning the conceptualisation of occupation has limited applicability.

Summary

Contemporary discussions regarding occupational therapy curricula design and pedagogic methods place greater emphasis on occupation-focused education (section 2.3). This has resulted in recognition of the importance of developing students' understanding of occupation as a discrete concept; one that is complementary to the relationship occupation has to health. The experiential learning and P.B.L. approaches both have merits in teaching students regarding the relationship between occupation and health; essential knowledge for students undertaking education to become occupational therapists. However, occupational therapy practice is not the focus of this research. Rather the area of concern is development of student understanding of occupation as a discrete concept. The following sections will

explore educational philosophies of active learning, and pedagogic methods which may support teaching-learning of the complex concept of occupation.

7.3 Pedagogic Theories

In this section I explore three educational approaches; Learning through doing, activity theory and schema development. The occupation focused teaching tool as a physical entity provides the opportunity of active learning. Hence, my consideration of active learning theories. Employment of the teaching tool is to support occupational therapy students to construct new knowledge and understanding of the concept of occupation. Thus, consideration of how knowledge is constructed through the creation of schemas provides insights as to how prior knowledge can be reconstructed into new knowledge. I begin this section with consideration of the educational philosophies of John Dewey, an influential figure during the inception of the profession of occupational therapy (Peloquin, 1991).

7.3.1 Learning through Doing

> *"I believe that [occupations] … are not special studies which are to be introduced over and above a lot of others in the way of relaxation or relief, or as additional accomplishments. I believe rather that they represent, as types, fundamental forms of social activity; that it is possible and desirable that the child's introduction into more formal subjects of the curriculum be through the medium of these activities"* (Dewey, 1897, p. 232).

John Dewey (1859-1952) was concerned with the education of children. He advocated for children to be educated through interaction with others through use of everyday occupations that are of interest to the child, e.g. sewing and cooking. He identified use of occupations would develop children's knowledge and understanding of corresponding

subjects, and their importance in everyday life. For example, through engaging a child in the occupation of cooking, a teacher could support development of knowledge of mathematics through the weighing out of ingredients. In addition, children could learn the science of chemistry through the cooking of those ingredients and the resultant production of a loaf of bread. He believed that through an individual's actions and motor processes children developed knowledge of the world, i.e. learn by doing. Dewey believed the development of knowledge required *"… not just the intellect but the body interacting with the environment"* (DeFalco, 2010, p. 85). This was noted as of import as it allowed the child to manipulate aspects of the occupation, test and verify the outcomes, thus resulting in understanding of the subject.

Dewey's philosophy of learning through doing is commensurate with occupational therapy philosophies and practice on several levels. Firstly, his use of the term occupation is corresponding to contemporary understandings of the concept used within occupational therapy. DeFalco (2010) cites Dewey as distinguishing his conceptualisation of occupation as being different to activities of employment. Whilst employment activities could be utilised to educate a child for a trade, Dewey stressed that choice of activities for learning should be those activities that were of value to the child and enable the creation of personal meanings (Dewey, 1897). Thus, the occupations utilised should not be those which only have *"… external utility"* (DeFalco, 2010, p. 85, cites Dewey, 1897). Another corresponding principle is Dewey's holistic view of learning; that it is facilitated through biological and psychological capacities in a sociological context. Shared understandings of occupation, and perspectives of learning, between Dewey's philosophy and occupational therapy is unsurprising, as Dewey is noted as having been influential on founders of the profession (Peloquin, 1991).

In his seminal work, Democracy in Education (1903), Dewey further discussed learning as being socially constructed through the interactions of the child with the teacher during the occupation. Northedge (2003) concurred with Dewey's emphasis on teacher-student dialogue. He identified that for students *"… to internalise the frames of reference"* (p. 173) of a subject, repeated discourse between experts of the field and students were required for creation of shared meanings. The design of the teaching tool, and its' required construction (Chapter 3), facilitates continuous dialogue. Northedge (2003) referred to this as the creation of intersubjectivity. For this to occur he identified the teacher as first having to capture the attention of the students. Dewey's solution to capturing the attention of the child was to select an occupation of the child's own interest. Furthermore, he proposed that doing of an occupation creates a realistic image of the subject, which *"… is the great instrument of instruction*" (1897).

Dewey's use of occupations for the teaching of other subjects, could be viewed as use of analogies. Parallels can be drawn between segments of the occupation and processes that occur during those segments. In contemporary teachings of various subjects, analogies utilising occupations appear prevalent. However, the analogies are documented as being presented verbally rather than through practical completion of occupations (Newton, 2012). Underlying reasons for choosing to use verbal explanation of an occupation rather than practical undertaking is not discussed, and thus cannot be theorised upon.

Thus, adopting a Deweyan approach to learning promotes the use of occupations, and for them to be used to some extend as analogies for other subjects. However, the core subject to be learnt within occupational therapy is occupation itself. As discussed previously (section 7.2.1) students can find it challenging to draw parallels between occupations.

Hence, for analogy to be of benefit in learning the concept of occupation, it is likely that an alternative medium is required for the creation of an analogy.

7.3.2 Activity Theory

Activity Theory has been explained as a descriptive theory of how people achieve goals through interactions with 'mediating artefacts' in social, cultural and historical contexts (Cornet, Voida and Holden, 2018). Woll and Bratteteig (2018) identify activity theory in contemporary use as being in its third generation. There are numerous theorists in the field of activity theory, though predominantly Vygotsky (1978) is noted as a founding theorist, Leont'ev as a notable second-generation theorist, and Engström as a third-generation theorist in contemporary understandings of activity theory (Woll and Bratteteig, 2018).

7.3.2.1 Vygotsky

Vygotsky (1978, 1984), like Dewey, believed that learning is socially constructed through participation in communally active environments. Vygotsky focused on the socially, culturally and historically situated individual and explored knowledge development as facilitated by other individuals who held greater knowledge than the student (Kolb, 2015). Vygotsky (1978) is cited as believing didactic pedagogic methods as being passive and prohibitive of teacher or peer involvement in the learning process. He concurred with Dewey regarding everyday activities as presenting information necessary for the development of understanding of theoretical concepts. Hence, more conceptual subjects could come to be understood through transformed understandings of commonplace concepts (Moll, 2014). Vygotsky asserted that *"… cognition is always situated in activity*" (Berk & Winsler, 1995, p. 27) and required assisted discovery. Learning was said to take place through the interactions between students and teachers in social contexts (Entwistle, 2009). Through the enactment of activities, with reflection and discussion on and of those

experiences, learning would take place (Kolb, 2015). For the learning activity to be completed successfully, it would be necessary for the academic to carefully structure the learning, gradually building the students' knowledge. This technique was referred to as 'Scaffolding' (Kolb, 2015).

A key concept of Vygotsky's theoretical work was creation of the 'just-right-challenge'; for learning to take place within the Zone of Proximal Development (Z.P.D.) (Berk & Winsler, 1995). The 'just-right-challenge' requires the academic to have awareness of students' current level of knowledge and design the teaching activity to move student knowledge just beyond where is was currently situated. This would require the student to draw on prior knowledge and stretch it beyond what was currently known (Berk & Winsler, 1995). In scaffolding the learning, the academic's careful construction would need to facilitate the information to be increased, whilst ensuring material presented was not so complex as to require a student to move beyond their capacities of learning (Moll, 2014). The Z.P.D. refers to the gap between the student's current knowledge and the intended knowledge to be acquired. Vygotsky (1978) explained the Z.P.D. as an area in which the student's original abilities are situated within social contexts and, through development of learning, are conveyed into a personal sphere of knowing. Fundamental principles of activity theory can be noted in contemporary occupational therapy education and practice. Yerxa (1998) cited Vygotsky (1978) when discussing the importance of occupational therapy students *"Learning how to assess people's current ability in order to pose a "just right challenge" or "zone of proximal development""* (p. 370).

Whilst Vygotsky (1978) acknowledged the historical and sociocultural dimensions of learning, a key criticism of his work was the predominant focus upon the individual in the learning process, i.e. the student (Engström, 2001).

7.3.2.2 Leont'ev

Leont'ev built upon Vygotsky's work and incorporated the actions of other actors involved with the activity. He noted people's actions as acting on, but distinguished as different to, the activity. He believed activities to afford descriptions of shared tasks, with the purpose of the activities being greater than merely the actions of the individual (Ashwin, 2012).

Leont'ev introduced the aspect of 'division of labour' to activity theory (Ashwin, 2012). He asserted that an activity could not be undertaken without a collection of individuals completing their own tasks and contributing them to the activity. An illustration of this within the context of learning would identify the activity as being the learning undertaken by an individual, bringing with them their prior knowledge situated in their sociocultural and historical experiences. The division of labour would therefore relate to the tasks of others involved. This could include the teaching tasks of the academic, questions and debates raised by fellow students, creation and publication of theories of the subject on which the academic draws, etc. Hence, the actions of others support the completion of the activity of the individual.

The perspective of Leont'ev was of teaching and learning being related but individual activities. Engeström, as a third-generation activity theorist, conceived of teaching and learning not as being separate entities; rather each being one end of a continuum (Ashwin, 2012).

7.3.2.3 Engeström

According to Engeström (2001) within an 'activity system' a person's activity is directed by them toward an object and transformed, through the creation of meaning, into an outcome. Building upon the principles of activity theory, outlined by Vygotsky and Leont'ev, Engeström devised his theory of expansive learning (Woll & Bratteteig, 2018). He discussed

knowledge transformation as emerging, through use of a 'mediating artefact', during teaching-learning events.

Engeström (2001) drew on Vygotsky's notion of *"cultural mediation of action"* (p. 134) when developing his theory. The culture of the individual was believed to facilitate and influence their actions. Engeström is identified as acknowledging that other media could also modify and shape actions within the activity (Ashwin, 2012). Hence mediating artefacts could take many different forms, such as culture, language, other people, physical or virtual objects. The teaching tool is a physical object and may be conceived of as a mediating artefact through which teaching-learning is focused and transformed. However, Engeström noted language as of particular importance as it was believed to facilitate a student's internal dialogue and regulate learning behaviours, and influence metacognition (Newton, 2012). Metacognition refers to an individual's knowledge, their ability to regulate their cognitive processes and the aspects of knowledge that can be discussed with others (Newton, 2012). Metacognitive experiences can include emotions such as bewilderment occurring during the learning of complex concepts and contentment following development of new insights (Newton, 2012, p. 118). Hence metacognition relates to language and influences the discourse used in the teaching-learning process. Furthermore, metacognition has an influence on the motivations of the individual undertaking the activity.

7.3.3 Schema Development and Learning

Concerned with the development of children's cognitive abilities, Piaget's theory has not always been recognised as immediately relevant to education. Yet, there exists a growing consideration of the role of schema creation in relation to learning (Bormanaki & Khoshal, 2017), specifically of adult learning and the development of more sophisticated schemas (Orr, 1991; Ewing, Foster & Whittington, 2011; Bormanaki & Khoshal, 2017) Kolb (2015) also

noted the importance of schema creation and understanding the cognitive-developmental process in relation to adult learning. He identified Piaget's work as important for understanding the occurrence of learning through experience (Kolb, 2015).

Piaget believed that a child's physical interaction with their environment held a central role in cognitive development and knowledge creation (Orr, 1991). Piaget, unlike Dewey and Vygotsky, emphasised children's learning as occurring through independent exploration of their world. He believed that concepts could not be taught to children. Rather children constructed their conceptual knowledge by building on their own prior knowledge (Aubrey & Riley, 2016). Situated in their personal historical context, every action of a child involved a cognitive and affective aspect (Piaget, 1947). Thus, provision of an environment that presented challenge, and stimulated curiosity, resulted in cognitive engagement and effective learning (Aubrey & Riley, 2016).

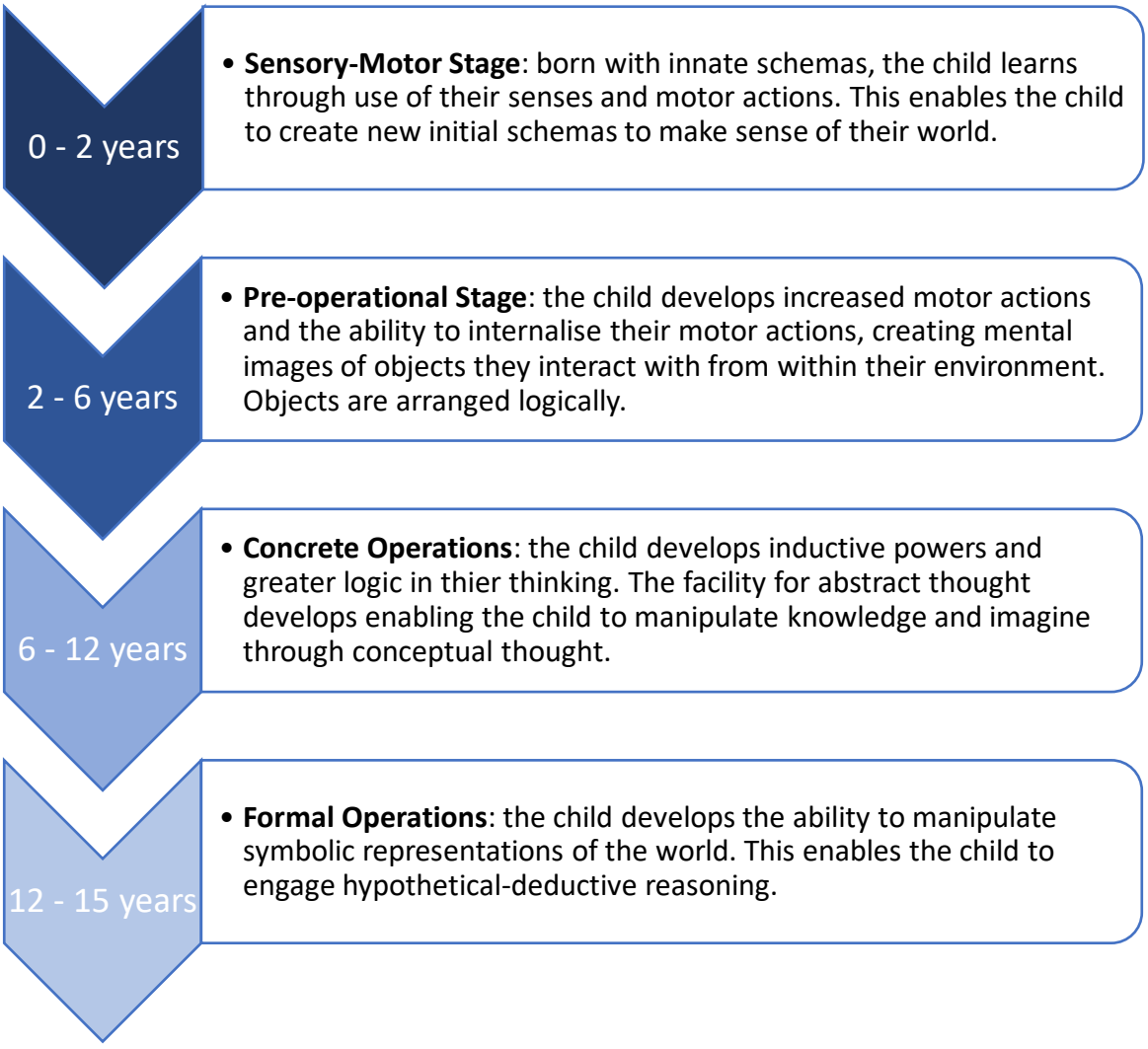
The following section is a consideration of Piaget's Cognitive-Developmental Theory and its' relation to adult learning. Initially, I provide information regarding Piaget's theory and the role of schemas in learning, before highlighting the importance of the design of teaching-learning environments and methods employed in adult education supplementary to those created for children (Ewing, et al, 2011).

7.3.3.1 Piaget's Cognitive-Developmental Theory

Piaget focused on the development of children's cognitive processes through their creation of schemas. Schemas are mental representations that enable an individual to store knowledge about their world (Aubrey & Riley, 2016). Piaget's Cognitive Developmental Theory identified four stages of cognitive growth (Figure 8) during which schemas are developed, adapted and reconstructed.

Piaget believed the four stages of cognitive development to be sequential; that all individuals progress through each stage at the identified ages. However, he also identified not all individuals as progressing to the formal operations stage, with cognitive development for many individuals culminating at the stage of concrete operations (Kolb, 2015).

Figure 8: Piaget's Cognitive Developmental Stages



A fundamental aspect of Piaget's theory is the child's creation, formation and reformation of schemas; distinct pieces of information held by an individual that enable them to make sense of their world. When an individual has created schemas and formed an understanding of their world they are said to be in equilibrium (Bormanaki & Khoshal, 2017). Conversely,

when new or unfamiliar information or experiences are encountered disequilibrium occurs. It then becomes necessary for the individual to alter existing schemas. Adding new information to an existing schema is referred to as assimilation (Bormanaki & Khoshal, 2017). The process through which assimilation occurs is that of accommodation, where the original schema is adjusted to incorporate new learning. Kolb (2015) identified greater occurrences of assimilation occurring once an individual has reached the operations stages (Figure 8), due to their ability to manipulate knowledge abstractly.

Orr (1991) discussed Piaget's theory in relation to nurse education. He identified motivation for learning as originating from students' intrinsic curiosity about their environment. For students' motivation to be enacted upon the surrounding environment the subject of learning needed to present a close match to their current capacities (Orr, 1991). Bormanaki & Khoshal (2017) concurred, identifying that when students encounter excessively alien information, they demonstrated a tendency to disregard or overlook the information. Hence, new schemata being neither created nor old ones accommodated. Thus, the design of learning environments requires provision of opportunities for students that enable them to make connections with knowledge they already possess (Orr, 1997). Whilst direct social interactions were less influential in Piaget's Cognitive Developmental theory he is noted as also highlighting the influence academics can have on student motivation to engage with a subject through the learning experiences they design (Ewing, et al, 2011).

Ewing, et al (2011) explored teaching strategies used in adult education in relation to Piaget's Stages of Cognitive Development. Repeated observations of taught sessions in conjunction with student reflections of their engagement with the learning were both analysed through use of Bloom's Taxonomy of Learning (1956). Findings identified the use of

didactic teaching methods as only engaging students on the lowest cognitive levels. Analysis of student reflections also identified students as being engaged with the teaching for less than half the taught session where didactic methods were employed. The research was undertaken within one subject area potentially limiting transferability of findings to other subjects. However, use of didactic teaching methods are common across disciplines (Light, et al, 2009) including occupational therapy (Hooper, 2006). Thus, findings that demonstrated the importance of actively engaging students with the subject material for learning to take place is of note. Academics' consideration of the stage of cognitive development that students have achieved has implication for the design of teaching and learning strategies. More sophisticated teaching strategies being necessary when engaging students working in concrete and formal operations (Ewing, et al, 2011).

The concept of occupation is complex, and definitions used in occupational therapy education have been acknowledged as abstract (Nelson & Jepson-Thomas, 2003). Thus, to grasp knowledge of the complex conception of occupation it is necessary for students to have progressed in their cognitive development to be within the concrete operations stage. For occupational therapy students to then employ occupation as a therapeutic medium, applying their knowledge in novel situations (Hocking, 2009), requires abstraction of conceptual knowledge. Thus, the need for occupational therapy students to have achieved development to the formal operations stage.

Commensurate with the philosophies of Dewey, and Activity Theorists such as Vygotsky and Engström, active and interactive learning approaches employed in adult education can support schema development by provision of challenging and motivating environments. However, supporting students' development of more sophisticated schemas also requires

facilitation to enable them to draw on their prior knowledge for the creation of new knowledge (Ewing, et al, 2011).

7.4 Pedagogic Methods

In the following section I consider different pedagogic methods that are commensurate for use within an of active learning approach. I explore the utility of methods of analogy, storytelling and games; their role in development of knowledge and understanding. However, I begin with consideration of theory of threshold concepts, and its relevance to the concept of occupation.

7.4.1 Threshold Concepts

Research into the potential threshold concepts of occupational therapy proposed several concepts for consideration (section 2.6) of which occupation may be one (Nicola-Richmond, et al, 2016). This section focuses on the pedagogic understandings of threshold concepts and their potential utility for development of understanding.

Meyer and Land (2006) identify threshold concepts as those that are core to a subject. Threshold concepts are noted to hold common characterises. Initially five characteristics were set out, each of which may be attributed to a threshold concept. Though it was acknowledged that not all five have to be present for a concept to be deemed as threshold (Meyer & Land, 2006). The five characteristics applied to identify a threshold concept are transformation, irreversibly, integrative, bounded and troublesome (section 2.6).

Transformative: Conceptual development occurs when students engage with deep and transformative learning (Fry, et al, 1999). The transformational power of a threshold concept means that once understanding has developed students' perception of a subject undergoes a significant shift. This change in a student's understanding of the topic can result

in altering their world view (Meyer & Land, 2006). Furthermore, the transformation of perception is said to enable innovative thinking. An individual can then take notice of the subtle nuances of a subject. Furthermore, an individual's expression regarding the subject that can be seen to reflect professional thinking of a disciple (Meyer & Land, 2006). The Royal College of Occupational Therapists (2019a) recognise the transformative nature of the concept of occupation, emphasising the importance of student occupational therapists' knowledge development of the subject during their education.

Irreversible: Once the transformation of knowledge has concluded the altered perspectives of the subject cannot be unlearnt; it remains memorable (Morgan, 2012). This is particularly important when a threshold concept is key to a specific discipline that requires constant use of the knowledge, such as the concept of occupation as used in occupational therapy. Transformed knowledge resulting in occupational therapy students viewing individuals and societies through an occupational lens.

Integrative: Threshold concepts are noted as potentially possessing an integrative nature. This is said to exist when gaining knowledge of a threshold concept additionally reveals the subject's interrelatedness with other subjects. Alternatively, a threshold concept can contain its own internal interrelatedness, through the relationships between subordinate concepts that together combine to create the overarching concept. The awareness of the integrative functions within a concept enable the integration of knowledge and development of expertise (Nicola-Richmond, et al, 2016). Nelson and Jepson-Thomas (2003) identified the integrative nature of occupation through defining it as a dynamic relationship between three internal concepts; occupational form, unique development of an individual and attached subjective meaning.

Bounded: A concept that is said to be bounded will occupy a conceptual area that borders onto those of supplementary threshold concepts (Meyer & Land, 2005). Thus, acquiring understanding of one threshold concept can begin to open ways to developing insights into those accompanying concepts. Debate has developed within occupational therapy to identify the threshold concepts of the profession (section 2.6). Both occupation and an occupational perspective of health having been proposed. As each concept borders conceptual areas of the other, both have the potential to be considered as threshold.

Troublesome: Troublesome knowledge are concepts and information which students find challenging to make sense of (Morgan, 2012). Perkins (2006) identified five forms of troublesome knowledge; ritual, inert, conceptually difficult, foreign and tacit. To address these different forms of troublesome knowledge he also discussed the use of various constructive pedagogic approaches (Perkins, 2006).

Ritual knowledge is noted to be habitual and, at times, potentially hollow in character (Fortune & Kennedy-Jones, 2014), for example, knowledge of dates of historical events. A constructivist approach to making the ritual knowledge more meaningful may be to illuminate the event with explanation of the social context and description of actors within the event, i.e. to create a story of the event. Inert knowledge refers to knowledge individual's hold but rarely draw upon. An example being speed of transformation of a substance through varied application of temperature, as in the occurrence of combined solid and liquid ingredients being transformed into a solid cake once it has been baked. The individual may hold formal knowledge of chemical reactions but does not necessarily relate their scientific knowledge to everyday tasks. Perkins (2006) identified the use of P.B.L. techniques as beneficial for drawing the inert knowledge to the surface for active use.

Conceptually difficult knowledge requires cognitive reconstitution. This enables new information to be assimilated with previous knowledge, accommodating it through a new schema. Use of experiential learning techniques can assist in enabling students to test and construct for themselves understandings of the concept. Foreign or alien knowledge is that which originates from a perspective that is divergent from previously held understandings (Morgan, 2012).

A constructivist approach to the challenges of foreign knowledge is to create learning activities that require students to explore the topic from a different perspective. The use of role-play scenarios has been noted as enabling students to develop insights into the circumstances and perspectives of others. Tacit knowledge has been described by Perkins (2006) as skills, ideas and experiences that people have but are not codified. Tacit knowledge may not be easily expressed as it is acquired through motor processes rather than through use of language (Baillie, et al, 2013), hence it can be considered as embodied knowledge (Hébert, 2015). Perkins (2006) discusses the use of experiential learning techniques as suitable for the development of tacit knowledge. Hence, through the development of physical skills students can develop knowledge of a subject. Initially, tacit knowledge could be construed as learning developed through doing, commensurate with the work of Dewey. However, Hébert (2015) contends that Dewey believed knowledge developed not simply from the completion of actions. Rather, knowledge being created through reflective consideration of the actions after they have occurred; reflections undertaken in social context (section 7.3.1).

Whilst not formally identified as a form of troublesome knowledge, Perkins (2006) also discusses knowledge that is complex, and thus problematic. He notes that the learning of

complex concepts can require gaining knowledge of a myriad of aspects of information. He further discusses that this could be supported by active and methodical organisation of the pieces of information. New information can then be related to what is already known by the student and finding internal patterns within the wealth of information. Thus, the academic needs to draw upon students' prior knowledge to develop understanding of complex concepts. Occupational therapy students bring prior knowledge of occupations to their learning (section 7.1); knowledge that can be harnessed during teaching-learning events. The occupation focused teaching tool enables an active and methodical explanation of occupation to be provided (Chapter 3; Figure 6). Hence, use of the teaching tool provides the academic with opportunities to demonstrate the many interrelated components that together form occupation whilst harness students' prior knowledge of occupation.

Land, Rattray and Vivian (2014) highlight that new understandings of threshold concepts are continually emerging. Whilst Meyer and Land (2006) began by outlining five characteristics, as presented above, Baillie, et al, (2013) added a further three; ***reconstitution, discourse*** and ***liminality***.

Reconstitution refers to an alteration in the student's self-identity. Hence the transformative nature of a threshold concept not only relates to transformation of knowledge, but also has transformative influence on the student's identity of who they are and who they are becoming (Meyer & Land, 2006). Knowledge of a threshold concept within a disciple gives rise to a collective knowledge; one that can define a profession. Gaining understanding of the collective knowledge can give entry into the professional community (Irvine & Carmichael, 2009). This concurs with the findings of Clouder (2005) who discussed caring as a potential threshold concept within health professions. She drew on the findings

from two investigations, one undertaken with occupational therapy students, and the other with a combination of occupational therapy and physiotherapy students. In both professions, caring was identified as an important threshold concept for students to understand and, contributed to the creating of their self-identity as health professionals. In discussion of the reformation of identity, which occurs through reconstitution, Land, et al, (2014) discussed the impact on both thinking and language. They identified that reconstitution is inseparable from language. Hence discourse was also identified as a characteristic of threshold concepts.

Discourse is believed to be a characteristic of threshold concepts due to their discursive nature (Meyer & Land, 2005). The acquiring of a threshold concept inevitably brings new subject specific terminologies, thus expanding the student's language repertoire.

During the learning of a threshold concept there can occur a period of time where students move fluidly between their previous knowledge of the concept and their development of new understandings of the concept. This is referred to as a period of liminality. Liminality is conceived of as a state of flux, where the student is neither fully in one space nor another. Clouder (2005) discusses behaviours displayed by students who were noted as experiencing liminality. She identified students in a liminal state displayed behaviours of anxiety, hostility and defensiveness. Progression through the liminal space required those students to be supported through use of ongoing discourse with peers and academic staff (Clouston, 2003).

Issues of discourse, reconstitution and liminality were each discussed in Meyer and Land's 2006 text. At that time these characteristics were discussed as still emerging and developing within the theory of threshold concepts. Baillie, et al, (2013) are acknowledged as formally identifying each as a further characteristic of threshold concepts.

However, for a concept to be classed as threshold it is not necessary for it hold all eight characterises (Irvine & Carmichael, 2009). The transformative nature of the concept is the only required characteristic. Of the remaining seven listed characteristics, each threshold concept may or may not contain those elements.

Whilst further investigation of occupation as a threshold concept is not the primary concern of my research, it is worth noting the growing discussion regarding the characteristics or properties of threshold concepts; how knowledge of their properties may inform pedagogic methods employed in education.

Irvine & Carmichael (2009) researched perspectives of academics from eight discipline-specific subject areas. In the identification of subject specific threshold concepts disciplines were noted to place different emphasis on each of the original five characteristics. All participants agreed threshold concepts as having the potential to be useful pedagogic tools. However, Irvine and Carmichael (2009) suggested that rather than conceive of these aspects as characteristics it may be more beneficial to view them as measures, against which a potential threshold concept can be evaluated. The characteristics that Meyer and Land (2005) placed greatest emphasis on were troublesome and transformative (Barradell, 2013).

Regardless of whether threshold concepts are defined according to characterises, properties, or a combination of both, what is of concern is student learning. Barradell (2013) stated that regardless of the evolving theory of threshold concepts, *"Fundamentally, the intent behind threshold concepts is to improve the learning experience of students"* (p, 269).

Exploration of literature focused on the defining of a threshold concept, and specifically the characteristic of troublesome knowledge, has highlighted several pedagogic methods that could be employed to support student teaching (Perkins, 2006). The following sections

critically explore a selection of these and other pedagogic methods that may support students' learning of a complex concept.

7.4.2 Analogies in Education

Mayo (2001) identified analogies as commonplace vehicles, used in education, to support students' learning of new concepts. An analogy constitutes use of an explanation, diagram, or object, which a student is familiar with, to explain a new concept (Wallace & Louden, 2003). Use of analogies, particularly within scientific education, have been identified as the only way in which some abstract concepts can be understood (Iding, 1997; Wallace & Louden, 2003). Analogies have been identified as beneficial in supporting students' creation of a mental image for an abstract concept, resulting in information being more effortlessly retained (Bishop, 2006). This concurs with Dewey's belief in the value of creation of mental images within the learning process. However, for students to effectively utilise analogies in learning it is necessary to ensure they have progressed to the Formal Operations stage of cognitive development (Newton, 2012).

Bishop (2006) advocated for use of analogies in education. He identified learning of new concepts through use of analogies as *"… an inherent part of human cognition"* (Bishop, 2006, p. 186). This concurs with the work of Robert Oppenheimer (1904-1967), who in his paper 'Analogy in Science' (1956), identified that in coming to learn something new it is necessary to draw on knowledge of the past. The aim of employing an analogy is to support conceptual development by transference of prior knowledge toward developing knowledge of a new concept (Iding, 1997; Mayo, 2001; Bishop, 2006). This process is known as analogical transfer (Bishop, 2006). It can be enabled through use of a conceptual model presented as either a visual image, verbal narrative, flow-chart or physical representation

(Iding, 1997). The analogical conceptual model is employed to direct students to notice the similarities that exist between the familiar concept and the new. This process is known as structural mapping (Gick & Holyoak, 1983; Iding, 1997), and enables a natural phenomenon to be simplified (Iding, 1997) for the purpose of learning. Analogies demonstrate an imprecise resemblance between two disparate areas of knowledge. Hence, for analogies to be used successfully they must be carefully selected to ensure they facilitate access to the new concept, enable structural mapping to take place, and analogical transfer to be completed (Iding, 1997; Bishop, 2006; Pena & de Souza Andrade-Filho, 2010).

Gentner (1983) explained the creation of an analogy through use of *base* and *target* domains. Bishop (2006) described a base domain as being information that is already known to the student, i.e. prior knowledge. A target domain is the subject, or concept, to be learnt.

For structural mapping to be achievable it requires the presence of several similar threads, originating from the base domain, all of which lead to the target domain (Gentner, 1983). In addition, the threads need to function harmoniously and support each other to add to the development of understanding (Bishop, 2006). Providing students with numerous threads between the domains supports construction of a precise picture of the *target* domain, supporting analogical transfer.

The principles of analogical learning are noted as sharing many parallels with the concept of schema induction (Bishop, 2006). First introduced by Gick and Holyoak (1980), schema induction refers to new schemas being produced through analogical learning. This is commensurate with Piaget's explanation of schema creation (section 7.3.3), where through the processes of accommodation and assimilation schemas are created. Wallace and Louden (2003) also discuss the processes of accommodation and adaption of novel

experiences as creating learning. They explored development of understanding and the role of analogies. Their findings demonstrated that utilisation of analogies for development of understanding was problematic. However, they also acknowledged that teaching for understanding without the use of analogies is also problematical (Wallace & Louden, 2003). Use of multiple analogies have also been identified as useful in preventing students developing misconceptions of the concept (Iding, 1997). This is particularly important when students lack comprehensive knowledge of the base domain (Mayo, 2001).

Analogies can be either teacher-generated or student-generated (Mayo, 2001), and require clarity to be effective learning tools. Wallace and Louden (2003) identified that it is important for the teacher to select carefully the analogies used. Failure to select an appropriate base domain results in difficulties in understanding the target domain (Gentner, 1983; Iding, 1997; Bishop, 2006), as lack of clarity results in students' inability to ascertain the similarities required for structural mapping (Mayo, 2001). To combat this Mayo (2001) suggested supporting students to generate their own analogies of the subject. However, student-generated analogies still require input from an expert in order that genuine similarities be drawn (Iding, 1997). Use of analogies, be they teacher-generated or student-generated require the input of an expert and are thus noted as provide scaffolding in the learning process (Iding, 1997). The identification of the need to select analogies carefully, ensuring enough links between base and target domains exist, also suggests that the teacher needs to locate the analogical learning within the students' zone of proximal development. This suggest that analogies can be used within an activity theory approach; being used as language- based mediating artefacts (Engeström, 2001; Newton, 2012).

Iding (1997) discussed different forms of analogy and their impact on developing understanding. He identified the base domain as being either a *near* or *far* domain. Near domain analogies hold a close resemblance to the target domain. Whereas a far domain analogy does not display close similarity to the target domain. Use of far domain analogies have been noted as more beneficial in the learning of complex concepts (Iding, 1997) and supports retention of knowledge. Halpern, Hansen & Riefer (1990) account for this, noting that a far domain analogy required a greater reorganising of schemata. This in turn generated a more distinct memory. This concurs with the findings of Gentner (1983). However, it must be noted that their research examined only the use of text-based analogies.

Analogies can be presented in a variety of forms, text-based, pictorial, narrative and concrete objects (Iding, 1997). Bishop (2006) identified use of concrete object- based analogies as of particular benefit as they act as a visual aide-mémoire. Aide-mémoire provide an abridged record of the information to be learnt (Petty, 2014). Presented in conjunction with a verbal explanation supports the use of both visual and auditory working memory, which is necessary particularly when learning large amounts of information (section 7.1.2). Spezzini (2010) explored the relationship between use of a visual analogy and student learning achievements. A picture-based analogue was used in conjunction with verbal explanation of theory with adult learners. The research was undertaken with only one group of students, limiting the generalisability of findings. However, it did show use of a visual analogy, with explanation, as having a positive impact on student learning (Spezzini, 2010), again suggesting employment of both forms of working memory to be advantageous.

Goswami (1992) discussed a variety of categories of analogies as used in different subject areas. The range of analogies considered were categorised as either proportional or storytelling analogies.

7.4.2.1 Proportional Analogy

Proportional analogies are those created in relation to domains that have a high degree of shared attributes (Bollegala, Gota, Duc & Ishizuka, 2013). They are commonly presented in the form of 'A is to B as C is to D'. These types of analogies can be geometric, between domains that share geometric characteristics, or lexical, which focus on the relationship between words (Turney, 2011). Proportional analogies provide simple analogical representation and are also commonly employed within problem solving and intelligence testing (Jani & Levine, 2000; Mullally & O'Donoghue, 2006). As the concept of occupation has been identified as highly complex, it is likely that use of proportional analogies would have limited benefits.

7.4.2.2 Storytelling Analogy

Storytelling, as a pedagogic method, has been employed in the education of a range of health professions (Clouston, 2003; Ventres & Gross, 2016; Johnston, et al, 2017). Their use has been identified as enhancing learning in educational simulations (Johnston, et al, 2017), and is proposed to enhance client care (Ventres & Gross, 2016).

Storytelling analogies are those presented through a verbal narrative (Bishop, 2006). They are noted as often containing multiple extrapolations between the base domain and target domain. However, this is identified as necessary for the development of understanding of complex subjects (Bishop, 2006). Storytelling analogies present students with a large amount of descriptive information, in which the factual aspects are contextualised (Miley,

2009). The wealth of detail delivered can result in confusion for students, particularly in differentiating which elements to pay attention to and which are merely an enhancement of the story. Hence, the construction of a story-based analogy requires careful construction to focus attention on knowledge to be learnt and minimise the story embellishments (Bishop, 2006).

7.4.3 Storytelling and Narratives

A subject, or idea, is identified as being more memorable when a story is constructed around it (Moon, 2010). Stories and narratives have been discussed as tools that enable individuals to make sense of the world (Wright-St Clair, 2003; Gray & Stuart, 2012). They have been noted as a method for new knowledge to be constructed, and for development of broader and deeper understandings of a subject (Miley, 2009; Moon, 2010).

Stories can be fact or fiction based, whereas narratives are typically used to refer to lived experiences (Moon, 2010). Clouston (2003) differentiated narratives further identifying them as either life histories or life stories. Life histories being used to indicate historical facts of a life; life stories being a subjective reflection and telling of personal experiences (Clouston, 2003). Story and narrative are both used to identify a tale being woven and recounted for illumination of the important features of a subject. Hence both terms are used in this review of literature.

7.4.3.1 Story and Narrative in Occupational Therapy

There exists a wealth of evidence of use of stories and narratives in occupational therapy practice (Mattingly, 1991, 1998; Fazio, 1992; Clouston, 2003; Wright-St Clair, 2003; Finlay, 2005; Hasselkus, 2011). Story and narrative have been employed to gain insights into clients' occupational lives (Finlay, 2005), and, as a form of clinical reasoning, used to

understand and guide intervention choices (Mattingly, 1998). Narrative enquiry has been utilised in research to understand the lived experience of occupational performance (Kielhofner, et al, 2002) as well as develop insights into the concept of occupation itself (Molineux & Richard, 2003). In contemporary practice a narrative approach is advocated for the completion of occupational formulation (Brooks & Parkinson, 2018). Mattingly (1998) identified all occupational therapists as storytellers, thus, as an occupational therapist, it is not surprising to acknowledge my use of story and narrative in my education practice.

Mattingly (1998) noted narratives as having multiple uses in relation to occupational therapy practice. In addition to developing understanding of a client's lived experience, storytelling has been noted as facilitating client engagement in the therapeutic relationship (Mattingly, 1991). Creation of meaning through storytelling within a therapy encounter can enable client and therapist's co-creation of a therapeutic relationship (Crabtree, 1998; Clouston, 2003; Wright-St Clair, 2003). Fazio (1992) discussed use of metaphors, told as fables, fairy tales or poems, for connecting with children in the therapeutic process.

Furthermore, stories situate an individual within their sociocultural and historical context (Clouston, 2003) which is important for a therapist's understanding an individual's occupational participation. Kielhofner, et al, (2002) suggesting that people articulate the place of occupations in their lives through their narrative accounts, and term such stories as occupational narratives. In listening to, and reflecting on, an occupational narrative, occupational therapists can utilise occupational "emplotment" to support an individual to reconstruct their occupational identity (Clouston, 2003). Occupational emplotment being defined as the creation of clinical stories, by occupational therapists in practice as an aspect

of clinical reasoning and make sense of their clinical experiences (Mattingly, 1991; 1998; 2010; Bonsall, 2012).

Use of narrative and storied approaches are also evident in the research of occupational therapy and occupational science (Molineux & Richard, 2003; Wright-St Clair, 2003; Finlay, 2005; Bonsall, 2012). Hence, use of occupational narratives, be it in practice or research are *"… a fundamental tool in the repertoire of skills for the occupational therapist"* Clouston, 2003, p. 139).

Whilst story and narrative are much discussed for their value in practice and research, evidence of the benefits of their use in the education of health professions is also present (Ventres & Gross, 2016; Johnston, et al, 2017) as discussed further below.

7.4.3.2 Story and Narrative in Education

Moon (2010) discussed a key benefit of storytelling in education as being its ability to transmit knowledge to students in a meaningful way. Gray and Stuart (2012) concurred, identifying individuals as more engaged in learning new knowledge and concepts when the information is delivered through a story. Mitchell (2005) accounted for this as being due to the inherent tradition of storytelling as a vehicle for passing knowledge between generations. This concurs with Maguire (1998) who identified storytelling as embedded throughout human history as a way of sharing knowledge and connecting to others.

Employment of stories and narratives enables new knowledge to be assimilated with prior knowledge and accommodated as new knowledge with enhanced insights of a subject being created (Miley, 2009; Moon, 2010). This is commensurate with a constructivist view of learning where new knowledge is either correlated into the new cognitive construct or excluded due to lack of relevance (Moon, 2010).

For accommodation and assimilation to occur successfully Moon (2010) emphasises the importance of the storyteller's carefully orchestration and expression of the story. As with analogies (section 7.4.2.2) meticulous construction of the story it is essential. Advanced attention to detail then enables the academic to guide students through the telling of the narrative, directing their attention to the principle features of the subject, thus scaffolding the learning. Ventres and Gross (2016) advocated for use of storytelling in the education of general medical practitioners. They identified thoughtful creation and delivery of stories as not only developing knowledge but enabling academics to model additional aspects of client care. Their findings showed that storytelling in practice emphasised client-focused practice rather than prioritisation of a client's clinical condition or the trauma experienced. Furthermore, they discussed the power of story sharing as a process of forming connections with people and enhancing the therapeutic relationship. Hence, heeding client stories would develop more thoughtful clinicians (Ventres & Gross, 2016). This concurs with the work of Clouston (2003) and Lehtola (2007) who asserted use of client stories increased engagement of students in learning and enhancing understanding of the individual in context.

Johnston, et al (2017) also explored the use of storytelling in education of health professionals. Their research explored use of stories in conjunction with clinical simulation utilising manikins in undergraduate nurse education. Whilst use of manikins has been noted as beneficial for practical skills training, students expressed difficulty in perceiving the manikin as they would a real person. Audio-visual narratives were introduced in conjunction with clinical simulations to explore the impact on learning. Moon and Fowler (2008) identified use of audio-visual narratives as a method for developing deep learning. Whilst unable to demonstrate that the incorporation of narratives enabled students to better perceive the manikins as they would clients, findings did identify that inclusion of narratives

was supportive for nursing students' ability to transfer learning into the practice setting (Johnston, et al, 2017).

Occupation is defined by the attachment of subjective meaning to a human activity (Nelson & Jepson-Thomas, 2003). Developing understanding of occupation as situated in the occupational lives of clients is essential (Clouston, 2003). As a pedagogic method, well-constructed and articulately delivered stories enable students to develop new knowledge and frame their understandings (Northedge, 2003). Furthermore, employment of stories in education may enhance students' ability to develop therapeutic relationships and relate theory to practice.

7.4.4 Use of Games in Learning

Games, like stories, have and are used as pedagogic tools by many subjects taught in higher education to enhance student learning (Blakely, Skirton, Cooper, Allum & Nelmes, 2009; Thompson, Ford & Webster, 2011; Suvajdzic, 2016; Masek, Boston, Lam & Corcorant, 2017). Evidenced in the literature is occupational therapists' use of games in a variety of occupational therapy practice settings (Neistadt, McAuley, Zecha & Shannon, 1993; Thompson, et al, 2011; Rand, Givon & Avrech Bar, 2018). The purpose of the games used in occupational therapy vary widely from developing client understanding of work factors that create stress and ill health (Morin, 2008) to games used to increase and maintain range of movement and mobility (Thompson, et al, 2011). Also evident in the literature is discussion of the employment of games in occupational therapy curricula for both as a medium for learning (Blakely, et al, 2009; Hook, Bodell & Griffiths, 2015) and for use in assessment of learning (Lim & Rodger, 2010).

Types of games employed have varied widely, including board and card-based games, to quiz formats (Blakely, et, al, 2009), and with emergent technologies, use of virtual reality and computer gaming (Hook, et al, 2015). Use of games in clinical practice has shown their use to positively impact on clients' motivation and improve skills required for occupational performance. In addition, clients appeared better able to transfer their learning to alternative occupations and purposeful activities (Rand, et al, 2018).

The use of games in higher education is noted as beneficial. A key element that appears common to all formats of games is the facilitation of active learning. Whitton and Moseley (2012) related the facilitation of active learning to Kolb's (1984) Experiential Learning Cycle. They discussed games as facilitating student discovery and supporting students to develop personal understandings of a subject. This concurs with the findings of Thompson et al (2011), Hook, et al (2015) and Suvajdzic (2016).

Whitton and Moseley (2012) also discuss 'collaborative learning' where students interact verbally discussing and debating information to create shared understandings. They identify that this form of learning utilises Vygotsky's use of the Zone of Proximal Development (section 7.3.2.1) where learning is facilitated and enhanced through social interaction with peers and receipt of guidance and support of others. This concurs with the findings of Rand, et al (2018), though it is noted that their research focus on the use of games in a clinical setting rather than within education.

A finding that was common across all the research reviewed identified the use of games as impacting on motivation. Most of the evidence discussed the positive influence game usage had on the learning process (Neistadt, et al, 1993; Blakely, et al, 2009; Thompson, et al, 2011; Rand, et, al, 2018). However, Rand, et al (2018) also discussed a negative impact being the creation of competition, and its interference with the learning process. Their research

investigated use of a group-based video game with individuals who had experienced prolonged negative impacts on occupational performance following a stroke. Their findings demonstrated that whilst new skills developed, the competitive element of the game for some clients resulted in reduced focus on the relearning of skills (Rand, et al, 2018).

This issue was reflective of the findings of Hook, et al (2015) who investigated the use of a virtual environment game and its impact on student learning. Their findings identified competition between students being evident and for some students resulting in anxiety. A limitation of this study is that only four participants were involved. However, it is noted that this was a pilot study and requiring further research.

Whilst competition, anxiety inducement and misdirection of focus are all of concern regarding employing games as an educational tool, use of games has also been noted to develop compassion for others when competitiveness is held in check (Blakely, et al, 2009). Blakely, et al (2009) undertook a systematic literature review of educational game usage in health sciences. The collective evidence demonstrated educational use of games promoted active learning, motivational learning, insight into complex experiences of others and hence, development of compassion.

Problem or Inquiry-Based Learning has also been associated with the use of educational games (Whitton & Moseley, 2012). This pedagogic approach emphasises the need to focus on meaningful inquiry and for the learning to be student-led (section 7.2.2). Hook et al (2015) demonstrated benefits of a virtual reality game in facilitating students' knowledge development of real-life issues and, described how students gained understanding of challenges experienced by individuals who are wheelchair users. Experiencing the problems virtually also provided students with realistic context in which the problems can occur.

Findings of Suvajdzic (2016) concurred with Hook, et al (2015), identifying educational games as providing context to the learning that would not otherwise be possible. Whilst evidence demonstrates use of educational games can have negative impacts of learning. Evidence is also provided which demonstrates that through careful selection, design of the learning activity and governing of the process, game-based learning can provide novel learning experiences, which positively add to students' knowledge base.

Summary

A variety of pedagogic philosophies, methods and tools have been explored. The focus on those included emerged from the data, which is commensurate with a grounded theory approach (Charmaz, 2014). Whilst many of these aspects may support development of knowledge and understanding of a subject it is also important to consider other factors which influence student learning.

7.5 Accompanying Factors that Influence Student Learning

The final sections of this literature review explore learning styles and the influence of motivational processes affecting learning. Whilst a variety of factors influence student learning, these topics were selected due to emergent data.

7.5.1 Learning Styles

Individuals can demonstrate a preference for a way of learning, referred to as a learning style. A variety of learning style theories and inventories exist (Fleming, 2001). Two of the most commonly utilised models are Kolb's (1984) experiential learning and Honey and Mumford's learning cycle (1986;1992). However, within my research I focus on the V.A.R.K

Model of learning styles, which has recently grown in popularity (McKenna, Copnell, Butler & Lau, 2018).

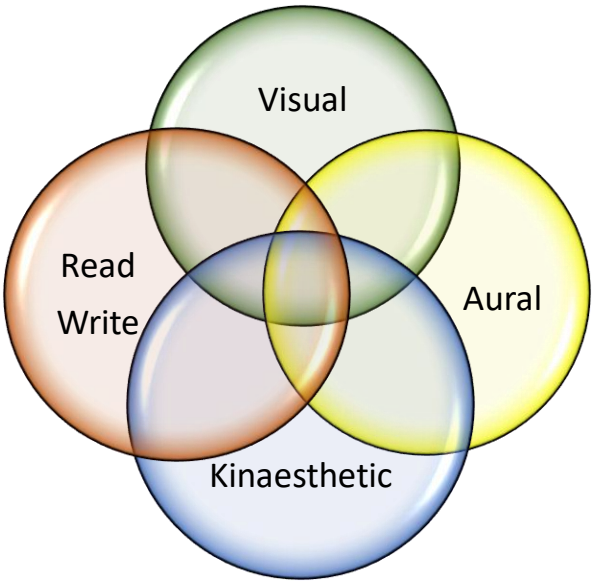
VARK Learning Styles

Khanal, Shah & Koirala (2014) discuss theories of learning styles as being categorizable as models linked to personality, the processing of information, interpersonal interaction, and models that identify preferred methods of instruction. The V.A.R.K. system, developed by Fleming (2001), focused on students' preferred methods of instruction (Gilakjani, 2012; Khanal, et al, 2014).

V.A.R.K. is a method of categorising the medium through which an individual prefers to learn. It considers individuals' ability to gather, organise and reshape knowledge through use of one's senses. The acronym V.A.R.K. denotes four sense-based modes of learning; visual sense (Visual), auditory sense (Aural), reading and writing (Read/Write) and the use of multiple senses, specifically tactile, but also including smell and taste (Kinaesthetic). Whilst not reported on by Fleming (2001), the VARK system appears to draw upon Piaget's Cognitive Developmental Theory. Piaget identified that, during early development, individuals learn and make sense of their world through use of their senses (Kolb, 2015). The first two stages of development being the Sensory-motor stage and Pre-operational stage (section 7.3.3.1, Figure 8). Hence, it could be suggested that development through these stages could result in individuals developing a preference as to how they learn and form their memories through use of their senses. Sprenger (2003) also discusses the relationship between learning using one's senses, and the creation of different forms of memory. She identifies that through normative development, many individuals begin to develop a preference for the processing of information through one or more senses to a greater

degree than through their other senses. Gilakjani (2012) concurred, though, like Fleming 2001) and Sprenger (2003) he notes some individuals as preferring to utilise all their senses together.

Figure 9: Representation of the V.A.R.K. Learning Styles



(Created by Howarth, J.T. 2019)

Visual learners benefit from the use of charts, graphs, hierarchies or other devices that represent knowledge that could have been presented in word format. However, individuals with this mode of learning do not respond as well to media such as videos and pictures. This is due to films and pictures requiring a combination of modes to be used, i.e. aural mode in combination with visual. These learners create visual memories of knowledge thus benefit from learning material in a clear visual form (Fleming, 2001). Creation of a mental model, or representation of knowledge, has been identified as beneficial particularly when learning a complex concept (Iding, 1997). Hence, whilst individuals who demonstrate a visual mode

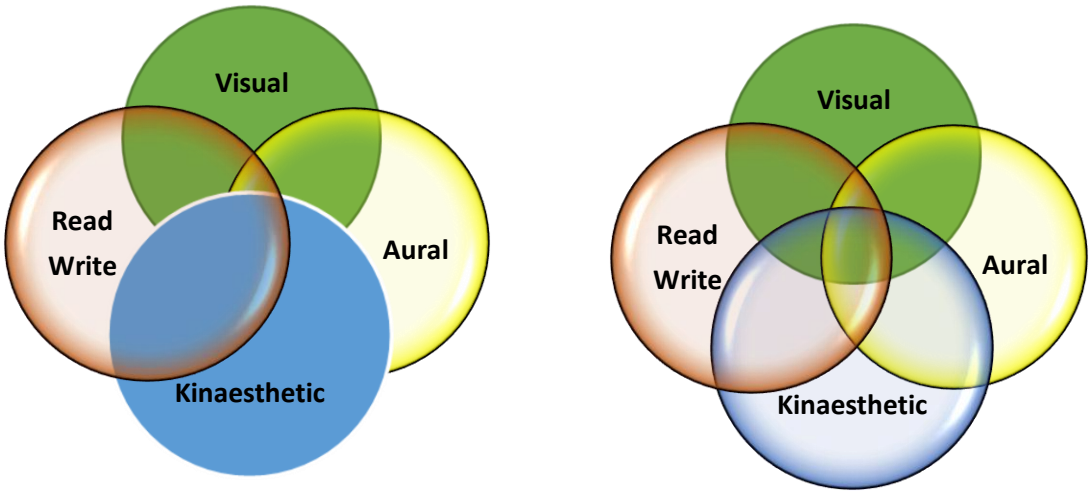
preference may benefit most from such an approach, this suggests those with alternative learning modes would also find a visual representation of the concept of occupation supportive of their learning, enabling the activation of their visual working memory (Mayer & Moreno, 1998).

The use of PowerPoint slides has become commonplace in teaching-learning. Whilst appearing to utilise a visual medium, slides are still mainly populated with text when used in lectures. Hence this medium does not best support visual learning. Rather, this medium appeal to Read/Write learners. Read/Write learners prefer to read and writing about the knowledge to be learnt. Fleming (2001) identifies many teachers as having *"… a strong preference for this modality*" (p. 2), which may account for the common use of PowerPoint slides to support lectures. However, he does not qualify the evidence for this statement. Aural learners also benefit from lecture-based learning. Their preference is to hear the spoken word (Fleming, 2001). Aural learners are also noted as benefitting from talking about the material (Sprenger, 2003), actively participating in groupwork-based tasks. This supports their preference for the creation of auditory memories (Mayer & Moreno, 1998).

The final sensory mode of learning is Kinaesthetic. Individuals who demonstrate a preference for the kinaesthetic modality learn most effectively through the doing of activities (Fleming, 2001). Hence, they are identified as creating memories predominantly through tactile sensations, referred to as muscle or motor memory (Sprenger, 2003). These individuals engage well when they can interact with the material. Physical models that can be constructed and de-constructed enable physical interaction to occur (Sprenger, 2003). This mode of learning if reflective of Dewey's belief in learning through doing (DeFalco, 2010), where knowledge is developed through the body's interaction with the environment,

prior to being reflected upon. Whilst students can hold a preferred sensory mode; some are said to be multimodal. This reflects a student's ability to use either two or more modes together.

Figure 10: Multimodal vs Single Modal Learning Preference



Multimodal Learner Single Modal Learner

(Created by Howarth, J.T. 2019)

Khanal et al (2014) reviewed a variety of research studies that utilised VARK to assess the learning modes of students. The findings demonstrated the predominant form of learning was multimodal. Participants who demonstrated a distinct preference for a single mode of learning were noted as being predominantly kinaesthetic learners (Khanal, et al, 2014). Hence, teaching-learning activities that draw upon a blend of pedagogic methods, and employ active learning strategies, are most likely to engage students across different sensory modalities (Khanal, et al, 2014).

7.5.2 Motivational Processes and their Impact on Learning

The role of motivation in teaching-learning is complex, with individual student motivations identified as impacting on the development of knowledge and understanding (Dweck, 2000). When considering motivation in learning, Dweck (2000) noted students as being motivated by either learning goals or performance goals. Learning goals are those aimed at learning something new. Performance goals relate to achieving the best mark or grade and thus being perceived of as intelligent. These different types of motivational goals relate to three forms of motivation identified by Entwistle (1998);

1. Extrinsic
2. Intrinsic
3. Achievement

Extrinsic motivation is stimulated by external factors, such as attainment of a recognised qualification. An individual who is extrinsically motivated focuses on completing the learning to a satisfactory standard and meeting the learning outcomes. In contrast, those individuals who are intrinsically motivated have a personal interest, seeking understanding of the subject. They undertake a deeper approach to learning, attaining conceptual understanding of a subject they are personally interested in. This enables them to develop feelings of confidence and competence. Whereas individuals who experience achievement motivation tend to be competitive in their learning. This results in them undertaking a strategic approach with the aim of achieving the highest grades. These forms of motivation are also reflected in the work of Petty (2014) who explored factors that impact on motivation of learning. Petty (2014) identified seven reasons for students being motivated to learn:

1. The knowledge is perceived as being useful to the individual;

2. Developing knowledge of a subject will result in attainment of a qualification valued by the individual;
3. Achievement in learning increases self-belief in learning abilities;
4. Gaining acceptance from tutors and peers;
5. Avoidance of the consequences of failure and feelings of inadequacy;
6. Learning of the subject is interesting;
7. The learning activities utilised are enjoyable.

Forms of motivation identified by Entwistle (1998; 2009) and Dweck, (2000), in addition to the reasons for motivation discussed by Petty (2014), can be related to the learning approaches previously discussed in section 7.1.1. Students who experience extrinsic or achievement motivation, aiming for successful completion of learning outcomes, and achieving highest grades, can be identified as utilising a surface or strategic learning approach. Hence, these students can be identified as being motivated by performance goals. Whereas students who are intrinsically motivated and hold learning goals are more likely to demonstrate a deep approach to learning (Light, et al, 2009). In later work Entwistle (2009) also discusses vocational motivation in learning. Reflective of Petty's first two reasons for motivation, this form of motivation manifests when students can identify a relationship between the subject of study and their vocational goal. The motivation occurs as students perceive they are learning material that will be of value to themselves (Wass, Harland & Mercer, 2011; Petty, 2014).

Occupational therapy students are cognizant of the need to develop knowledge and understanding of occupation in order to achieve their chosen qualification. The knowledge and understanding of occupation being both necessary and useful to their future practice. Hence, occupational therapy students are engaged in vocational teaching-learning, with the

goal of becoming an occupational therapist (section 2.7). This suggests that occupational therapy students will experience vocational motivation as well as being intrinsically motivated. This is further supported when considering students' development of professional identity.

Christiansen (1999) identified people as conceiving of their occupational identity through the occupations they undertake. Occupational therapists utilise occupation as both the method and intended outcomes of intervention. Hence, the ability to employ occupations in a therapeutic manner are commensurate with developing a self-identity as an occupational therapist. Developing understanding of occupation has been identified as the skill required to use occupations therapeutically. Hence, active manipulation of occupations in the creation of a therapeutic tool could further enable students to reform their self-identity toward becoming an occupational therapist. Rudman (2002) also discussed the construction of identity through engagement with occupations. She discussed identity as being constructed of self-identity and social identity. Self-identity being the perception of one's self through what they do. Social identity being the identity perceived by, and projected onto, individuals by others. Being seen to use occupations therapeutically in addition to self-perception of the ability to use occupations therapeutically thus adds to the formation of identity as an occupational therapist. Hence, engaging in teaching-learning activities focused on the concept of occupation is commensurate with developing professional understandings; thus, a motivating factor for occupational therapy students.

Summary

Within this final section of the literature review I have explored a small selection of factors that impact on teaching-learning processes in addition to pedagogic methods. Whilst there

exists a much wider variety of factors that influence how and why students learning, factors I chose to include were those that emerged from the data, thus maintaining a grounded theory approach to my research. In the following chapter I present the analysis of my data and the emergent conceptual understanding of the occupation focused teaching tool, which informed my consideration of literature.

8.0 Presentation of Findings Leading to Theory Construction

In this chapter I present an explanation of my data analysis process and resultant findings of my research. Charmaz (2014) identified the process of data analysis, used in Grounded Theory research, as not a linear one. Whilst the process commences through the initial coding of the data, the researcher aims to be open to what emerges from the data. Hence, there is no step-by-step procedure of analysis. Neither is there a clear step-by-step method for the presentation of results (Birks & Mills, 2015).

To provide clarity of explanation I begin by presenting preliminary findings that emerged following purposeful sampling. I discuss a number of initial codes that I created; presenting the reflections and questions which arose for me. Explanation of my early findings is followed by description of my theoretical sampling and the creation of Phase II of my research. This is followed by presentation of my findings of Phase I and II, progressing to categorisation, conceptualisation of data and resultant theoretical construction.

The form of teaching-learning employed for data generation differed between each phase of my research (section 6.2). Whilst initial coding of Phase I gave rise to theoretical sampling and my creation of Phase II, the analysis of each phase was undertaken separately. This enabled me to compare findings that emerged from each form of teaching-learning. Furthermore, maintaining separate analysis of each phase informed my conceptual understanding of the teaching tool; the utility of the teaching tool in the development of knowledge verse its' role in the development of understanding. Hence, findings of each phase are interwoven throughout this section to illustrate my research journey. However, findings emerging from each phase presented separately in diagrammatic form.

8.1 Purposeful Sampling and Preliminary Findings

At the outset of the research, purposeful sampling was employed to recruit student-participants, who were studying occupational therapy at one U.K. H.E.I., to Phase I of data generation (section 6.3.1). My initial research aim was to undertake comparative analysis of the utility of the teaching tool during the teaching of the concept of occupation to first-year occupational therapy student-participants compared to those in their final year of education.

The majority of findings are presented with the inclusion of diagrams that display data under discussion. Several diagrams include a collection of direct quotes of student-participants. On the occasions where several direct quotes are presented via a diagram, individual student-participants are not individually identified. Rather it is the culmination of comments that have relevance. Furthermore, within several of the diagrams the labels of initial codes are coloured. These colours vary in different diagrams. The allocation of colours to initial codes came about during my analysis and creation of potential sub-categories. Colour allocation and description of each preliminary sub-category were previously presented in section 6.9.1.2, Table 2. A key stating the meaning I attributed to each colour is also presented alongside each diagram.

Direct quotes of individual student-participants are also present in the findings. By presenting the direct quotes I aim to further illustrate the finding(s) under discussion. Student-participants are individually identified when single direct quotes are presented. Whilst each student-participant was allocated a number during the transcription of data they are not identified by their number during this section. Rather, in relation to Phase I, student-participants are identified according to their year of study (first or final) and which

programme of study they were enrolled on, e.g. First Year BSc 2014/15. This system of identification is mirrored in the presentation and discussion of findings of Phase II. On occasions when individual quotations are presented in relation to Phase II the student-participant is identified in relation to which H.E.I. they were enrolled at (H.E.I. 1 or 2). This has been done to provide further insight as to points raised within the data and discussed in chapter 9. The year in which the data was generated is also presented in the identification of individual student-participants and related direct quotes.

Four groups of student-participants were recruited to Phase I, from H.E.I. 1, for the commencement of data generation (Table 3). Purposeful sampling resulted in a total of 22 student-participants being recruited to Phase I of the study; 7 first year students and 15 final year students. Of the first-year student-participants 4 were from the BSc cohorts and 3 from the MSc cohorts. Of the final year students 6 were from the BSc cohorts and 9 from the MSc cohorts.

Table 3: Profile of Student-Participant Recruitment – Phase I

Purposeful Sampling		
Year of Data Generation	Year of Enrolment	No. of Student-participants
2013/14	First Year BSc	4
2013/14	First Year MSc	3
2013/14	Final Year BSc	6
2013/14	Final Year MSc	9

Initial coding was completed through application of word-by-word coding, following by line-by-line coding (section 6.9.1). This resulted in the creation of 24 initial codes. The original intent of my research was to undertake a comparison of the teaching-learning experienced by first year occupational therapy student to those in their final year, through use of the teaching tool (Appendix 1).

8.1.1 Initial Coding – 2013/14 Data Sets

To support my initial coding, I employed a variety of questions presented by Charmaz (2014) to enable me to identify actions and processes that occurred within the data;

"What process(es) is at issue here? How can I define it?

How does this process develop?

How does the research participant(s) act while involved in this process?

What does the research participant(s) profess to think and feel while involved in this process? What might his or her observed behaviour indicate?

When, why, and how does the process change?

What are the consequences of the process?" (p. 127).

Initial coding of the data highlighted differences of levels of self-initiated verbal participation; types of knowledge drawn upon. Commonalities related to recognition of occupation as a complex concept; teaching tool as being a visual aide to learning; and the teaching tool acting as an analogy of occupation. Preliminary findings of these comparisons are presented below. A further initial code which caught my attention emerged through discussion of my use of the teaching tool. Hence, this code is also presented due to its role in influencing theoretical sampling.

8.1.1.1 Differences Between Sample Groups

Levels of Self-Initiated Participation

In both first-year focused data generation events all 7 student-participants took a predominantly passive role in the teaching-learning activity, receiving the information as presented by me. This behaviour continued for the majority of the one-hour session. Whilst first-year student-participants responded to questions directed to them during the session, voluntarily verbalisation of their thinking did not occur until the last fifteen-minute period. This contrasted with behaviour of both groups of final-year student-participants. These individuals commenced self-initiated participation within fifteen minutes of the one-hour sessions. On the occasions that student-participants self-initiated their engagement across all four groups, I noted they drew on their prior knowledge to discuss the information with me.

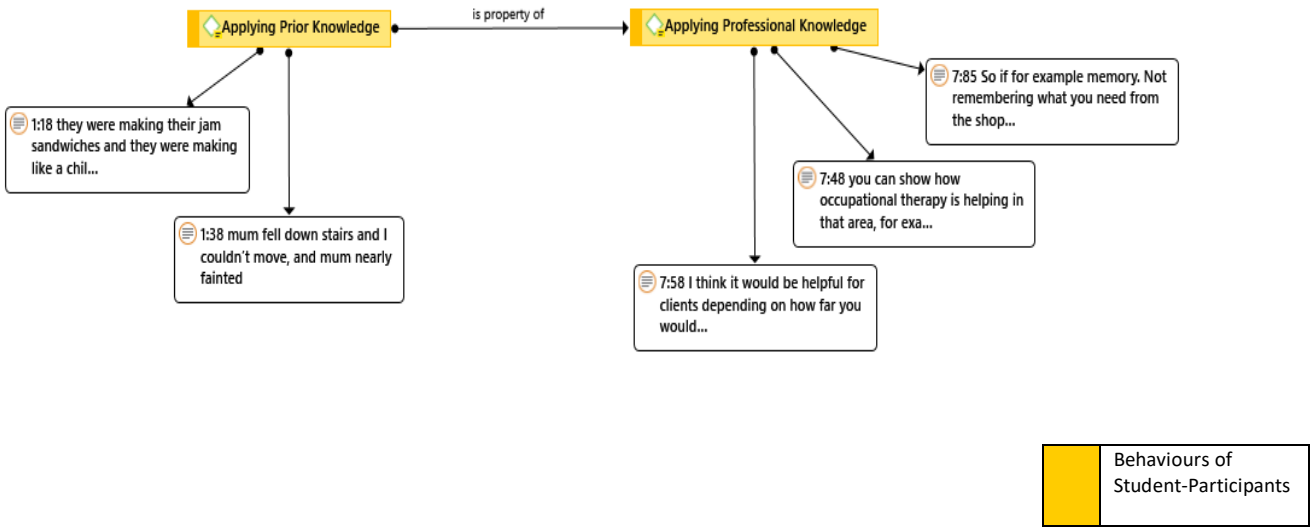
There are several potential reasons to account for the earlier self-initiated participation of final-year student-participants. These include their familiarity with me as a tutor; their level of knowledge of the concept of occupation; and their previous experience of being taught through use of the teaching tool. However, what was of note was the type of prior knowledge each set of student-participants drew upon.

Forms of Prior Knowledge

Both first and final-year student-participants drew on their prior knowledge of occupations to make sense of the information being taught. Whilst first-year student-participants drew on personal experiences, the final-year student-participants drew more upon professional knowledge developed during their programme of education. This resulted in my creation of two separate initial codes, ‘Applying Prior Knowledge’ to account for general knowledge of

occupation, and 'Applying Professional Knowledge' to account for application of prior knowledge that was profession specific (Figure 11).

Figure 11: Use of Knowledge 2013/14



My preliminary review of literature (section 7.1) had heightened my awareness of the pedagogic benefit of enabling students to draw upon prior knowledge in the teaching-learning process. This led to my early noticing of learning behaviours displayed by student-participants, rather than focusing solely on what they said. Emergence of these two codes brought behaviours to my attention. This resulted in further behaviour-based initial codes being created as I progressed my analysis.

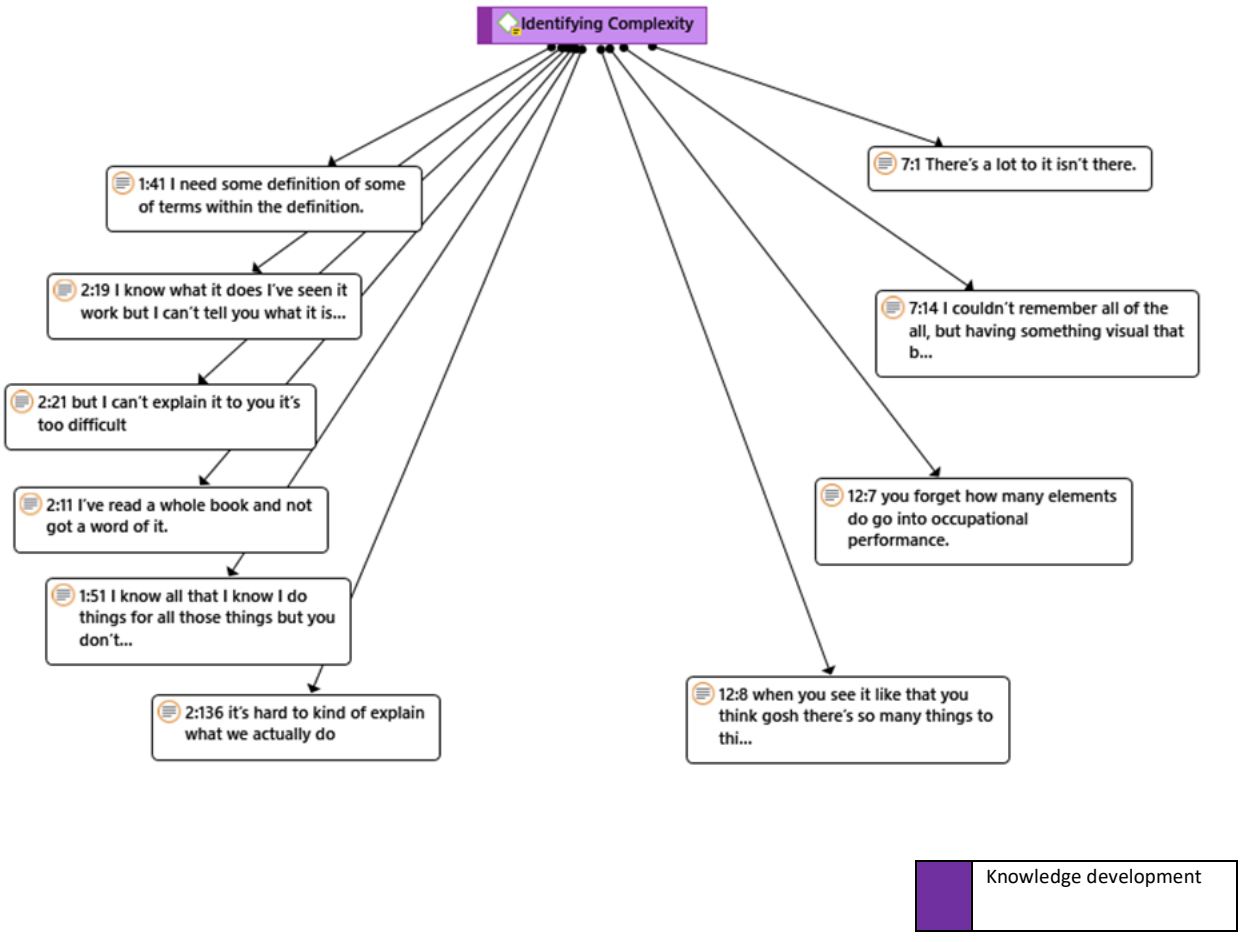
8.1.1.2 Commonalities Between Sample Groups

Commonalities across the year groups related to student-participants' recognition of occupation as a complex concept; teaching tool as being a visual aide to learning; and the teaching tool acting as an analogy of occupation.

Complexity of Occupation

Ten of the twenty-two student-participants referred to the wealth of information required for developing knowledge of occupation (Figure 12). In addition, they expressed challenges of being able to articulate the information, as well as difficulties in their ability to remember the amount of information that together created occupation.

Figure 12: Identifying Complexity of Occupation



Ten student-participants verbalised their realisation of the complexity of occupation; a concept they identified as requiring extensive learning. Reflection on the coded data led me to identify some of the challenges which student-participants can experience. One student-participant identified that solely reading literature, which explained occupation as a

concept, had not been sufficient for their knowledge development. Five student-participants referred to the large quantity of knowledge required to understand the concept identifying this as challenging. Another identified that simply seeing individuals perform occupations did not enable their ability to explain, with clarity, what occupation is. Questions these challenges raised for me were;

Does the teaching tool help students to remember all the elements that combine to create occupation? If it does, how and why?

Why does use of the teaching tool enable a student to develop knowledge of the concept in comparison to reading published literature?

One quote of those presented above particularly caught my attention:

"… when you see it like that …" (Final Year MSc 2013/14).

Returning to the data I was able to identify a number of student-participants referring to being able to see, or to view, the concept. They identified this as beneficial to their learning. This led to my creation of the initial code of 'Visual Aide'.

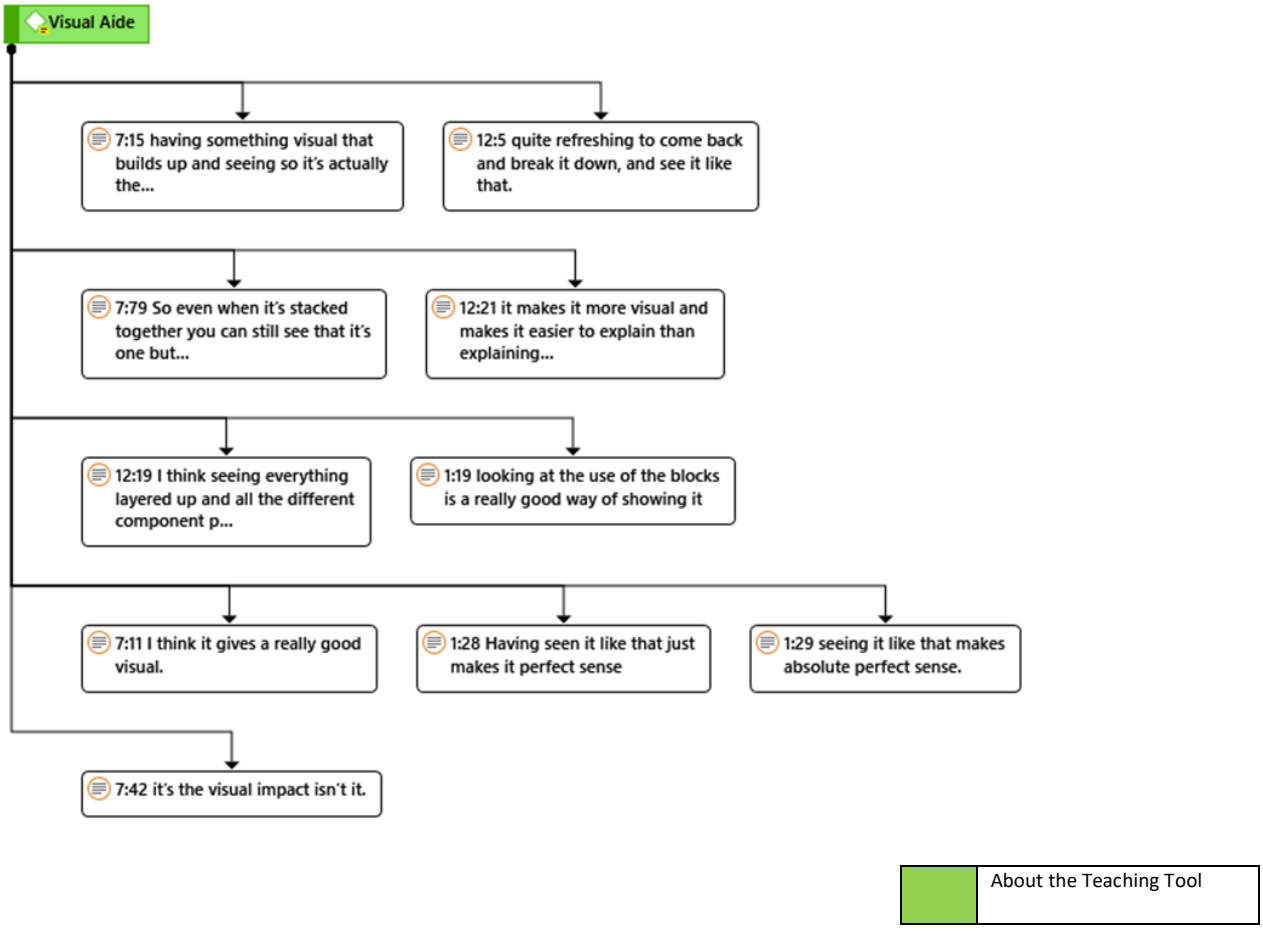
Visual Aide

The initial code of 'Visual Aide' was applied to the data on each occasion a student-participant identified that having a physical object to look at facilitated the development of their learning about the complex concept of occupation.

Cognizant of the variety of learning styles students can employ during teaching-learning (section 7.5.1) my creation of the occupation focused teaching tool had aimed to present students with a physical representation of the concept of occupation. I intended the

representation to be a generic illustration of the concept; the tool would represent all forms of occupation. Hence, my aim was to engage students visually as well as cognitively. Ten of the twenty-two student-participants identified that they perceived the teaching tool as being a visual aide to their learning (Figure 13).

Figure 13: The Teaching Tool as a Visual Aide



My conceptualisation of the teaching tool as a visual aide to learning led me to question what other properties might the teaching tool have; how those properties might support the teaching-learning of occupation (section 8.6.1).

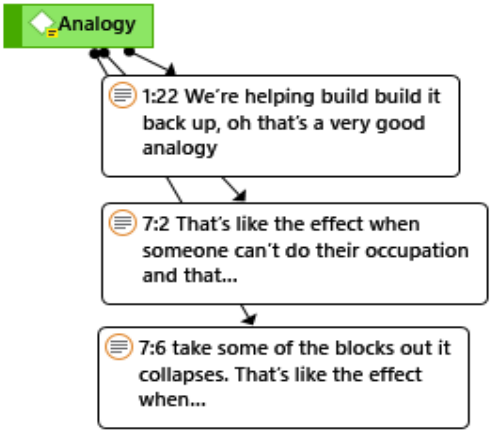
Two further initial codes that emerged at this stage raised specific questions for me;

- Analogy
- Occupation

Analogy

'Analogy' was an in vivo code that emerged from the first analysed data set. I applied this initial code on each occasion that a student-participant identified the teaching tool as being an analogy for occupation or referred to the teaching tool's analogical properties in support of their learning (Figure 14).

Figure 14: Quotations related to Initial Code of Analogy



Coded data was discussed during various supervision sessions. Within initial coding of the first transcript of Phase I, one student-participant had stated *"... that's a very good analogy ..."* (First Year BSc 2013/14). Discussion of the in vivo code I had applied resulted in one supervisor concurring with the coded data. They also articulated their perception of the teaching tool as being an analogy of the concept of occupation. Having the term analogy

applied by different individuals, on separate occasions, led to the beginning of a memo. Below is the initial creation of the related memo.

8.1.1.3 Commencement of Memo: Teaching Tool as an Analogy

Have I, through the design of the teaching tool, created an analogy of the concept of occupation? What role do analogies have in teaching-learning? Do analogies hold specific pedagogic properties?

Both analogies and metaphors are discussed in literature as useful tools that support students to make successful leaps of knowledge. Analogies and metaphors are both noted as enabling individuals to transfer their prior knowledge of a subject and re-form the information into new knowledge. Is this what is happening for students?

There are numerous types of analogy documented in educational literature (Iding, 1997; Wallace & Louden, 2003). If the tool is an analogy, which type of is it and why? And how does this support learning?

This memo I returned to on many occasions during my investigation. Hence, I present it at different points, showing its evolution and influence on my findings. The full memo is presented in Appendix 2.

Occupation

A further initial code I attended to was 'Occupation'. This initial code was applied to data on each occasion that a student-participant was noted as being able to identify occupation as being created through the attachment of subjective meaning and value by an individual. One specific quote caught my attention.

"… your concept of what makes an activity and then how we, you know, can make it purposeful but how that's not an occupation, and what needs to be included, the subjective meanings of the individual to make that the occupation."

(Final Year BSc 2013/14).

The aspect I became specifically focused on was the phrase "*your concept*". During my development of the teaching tool I had aimed to read broadly; to draw upon professional definitions and explanations of the concept of occupation, both from occupational therapy and occupational science literature. This quote led me to reflect on whether I had captured, in the teaching tool, a representation of the professional understanding of occupation. Or whether I had created my unique perspective of the concept drawn from my knowledge and understandings of published literature. Hence, my questions were:

Does the teaching tool provide an authentic representation of occupation, as understood within occupational therapy literature? Would individuals who had not been taught the concept, through use of the teaching tool, recognise the tool as representing professional understanding of occupation?

My Use of the Teaching Tool

A final initial code that emerged, and became significant to me, was 'Case Study'. This was an in vivo code I applied. One student-participant identified, that during the delivery of the information, I had utilised myself as a case study through my explanation of gardening as one of my occupations.

'' *… adding yourself as a case study with that helps you to visualise that …*'' (Final Year MSc 2013/14).

I had intended to provide context to the material being taught through addition of a personal example. However, I had not anticipated this as being perceived as a case study. I had selected gardening to provide student-participants with explanation of an authentic occupation of my own. This was to enable me to draw on my own prior knowledge during the teaching-learning event. Previous reflection on my academic practice had developed my insight that drawing on my prior knowledge facilitated a more effortless explanation and illustration of theory. The term case study as used in occupational therapy education, in my experience, related to a use of a fictional, or fact-based, scenario of a client with a medical condition. Hence, to have a student-participant identify that I was utilising myself as a case scenario I found surprising. This initial code raised the following questions;

- If I have used myself as a case scenario to explain occupation as a concept, can the teaching tool be used to explore clinical case scenarios?
- What facility might the teaching tool provide to students during their examination of an occupational therapy-focused case scenario?

- *What effect on student learning might the teaching tool have if students were able to use the teaching tool for themselves when exploring a case scenario?*
- *Does the teaching tool have greater facility than simply teaching the knowledge of occupation?*

The combination of questions arising from initial coding began my conceptualisation of theoretical sampling (section 8.2). Furthermore, they led me to begin to alter the focus of my research. Whilst I had commenced with a comparative study these questions resulted in my broadening the scope of research to become a pedagogic investigation of the occupation focused teaching tool.

8.2 Theoretical Sampling

The culmination of questions raising during initial coding of data generated through purposeful sampling, supervision-based discussions, and alteration of my research focus influenced the direction of my remaining data analysis. My research focus had altered to become a pedagogic investigation of the teaching tool; to investigate the utility of the tool, its role in, and influence on, teaching-learning of the concept of occupation. Hence, the remaining findings, and development to theory construction, presented here are reflective of my amended research focus.

Phase II of the research was developed for two main purposes;

- to explore the utility of the teaching tool when used by student-participants in conjunction with an occupational therapy-based case scenario.

- to investigate whether student-participants who had received occupational therapy education without the use of the teaching tool would recognise the tool as a representation of occupation commensurate with the understandings of occupational therapy.

Two cohorts of student-participants were recruited from different H.E.I.s at the commencement of theoretical sampling (Table 4). Initial theoretical sampling resulted in a total of 9 student-participants being recruited to the study; 3 second-year student-participants from H.E.I. 1, and 6 final year student-participants from H.E.I. 2. Both groups were recruited to generate data relating to student-use of the teaching tool in conjunction with a case scenario.

The H.E.I. 2 student-participants were recruited specifically for my investigation as to whether the teaching tool represented professional understandings of occupation.

Table 4: Profile of Initial Student-Participant Recruitment – Phase II

Theoretical Sampling			
Year of Data Generation	Year of Enrolment	H.E.I.	No. of Student-participants
2014/15	Second Year BSc	1	3
2014/15	Final Year MSc	2	6

The number of student-participants recruited to the first two data generation events are noted as small. Initial codes created through analysis of these two groups were later applied to data generated from all sample groups, Phase I and II. Hence, findings presented below emerged from data coded across all 16 sample groups (N= 82) following commencement of

theoretical sampling. On occasion, results from Phase I and II are presented separately in order to discuss similarities and differences.

Table 5: Remaining Theoretical Sampling of Phase I and II

Theoretical Sampling Continued			
Year of Data Generation	Phase	Sample Group	No. of Student-participants
2014/15	I	First Year BSc	2
2014/15	I	First Year MSc	6
2014/15	I	Final Year BSc	7
2014/15	I	Final Year MSc	4
2015/16	II	H.E.I. 1	5
2015/16	II	H.E.I. 2	10
2015/16	I	First Year BSc	2
2015/16	I	First Year MSc	5
2015/16	I	Final Year BSc	5
2015/16	I	Final Year MSc	5

Data sets from each Phase of research were inputted to the data analysis software tool as separate projects. However, as initial coding was undertaken in the Phase I project, I also examined the data generated in Phase II, applying the same initial codes as they occurred in the data. Likewise, as initial codes emerged in Phase II, I re-examined Phase I data applying codes accordingly. Hence, I visited and revisited each project repeatedly thus undertaking constant comparative analysis (section 6.8.1).

Combined data analysis of Phase I and Phase II resulted in a total of 121 initial codes being created (Appendix 10). Of the 121 initial codes 42 were noted as being applied in both Phase I and Phase II. Of the remaining 79 initial codes 41 emerged only from Phase I initial coding. The remaining 38 initial codes emerging only from Phase II data. A total of 83 initial codes were applied to Phase I data (41 Phase I only + 42 Phases I & II = 83). A total of 80 initial codes were applied to Phase II data (38 Phase II only = 42 Phases I & II = 80).

Table 6: Number of Initial Codes Applied to the Data

Number of Initial Codes per Phase			
Phase I Only	Phase II Only	Applied Within Both Phase I & II	Total Number of Initial Codes in each Phase
41		42	83
	38	42	80

8.2.1 Preliminary Findings Emergent from Phase II

Initial coding of Phase II data was undertaken initially using word-by-word coding. This was followed by use of line-by-line coding as had been undertaken for Phase I initial coding (section 6.9.1)

Of the initial codes that emerged five came specifically to my attention.

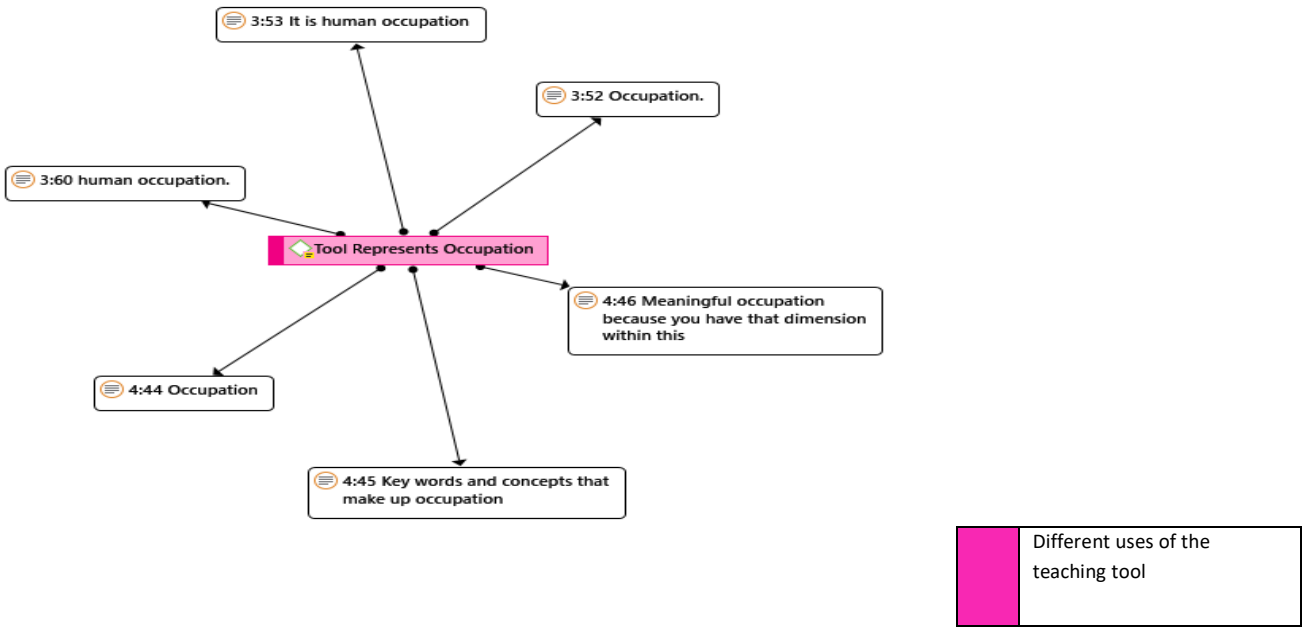
1. Tool Represents Occupation;
2. Active Use;
3. Exploring;
4. Categorising;
5. Recognise Design Features.

A key aspect I aimed to investigate through inclusion of the H.E.I. 2 student-participants was to explore their perceptions of the teaching tool. I aimed to investigate their perceptions of the teaching tool as representing professional conceptualisation of occupation with limited information being provided to them.

During Phase II recruitment potential H.E.I. 2 student-participants were informed that my research focused on a teaching tool developed for use in occupational therapy education. The participant information sheet (Appendix 6) identified a teaching tool was being investigated in relation to its use in independent learning and development of knowledge of occupation and occupational therapy.

Two of the six student-participants, from the 2014/15 group from H.E.I. 2, identified the teaching tool as representing their professional understanding of the concept of occupation. A further two out of the ten student-participants from the 2015/16 group from H.E.I. 2 also verbally identified the tool as representing occupation. Combined coded data of both H.E.I. 2 groups are illustrated in Figure 15.

Figure 15: Identification of the Teaching Tool as a Representation of Occupation



During each data generation event, once two separate individuals had identified that they believed the teaching tool to be a representation of the concept of occupation no other student-participants interjected their opinions. I held back from immediate confirmation of their suggestions to allow other student-participants to verbalise their own, and possibly alternative opinions. No student-participants identified the teaching tool as anything different. Non-verbal communications of head-nodding were observed from other student-participants, which I interpreted as agreement with the opinions of those who had verbalised. Once I was confident all student-participants had had an opportunity to verbalise their own perspective I verbally confirmed the purpose of the teaching tool.

The verbalisations of the four student-participants occurred within the first ten-minute period of each H.E.I. 2 data generation event. Each verbalised their opinion during student-participants' unstructured exploration of the teaching tool (section 6.3.2).

Physically Engaging with the Teaching Tool

Further preliminary findings relate to the combination of three initial codes;

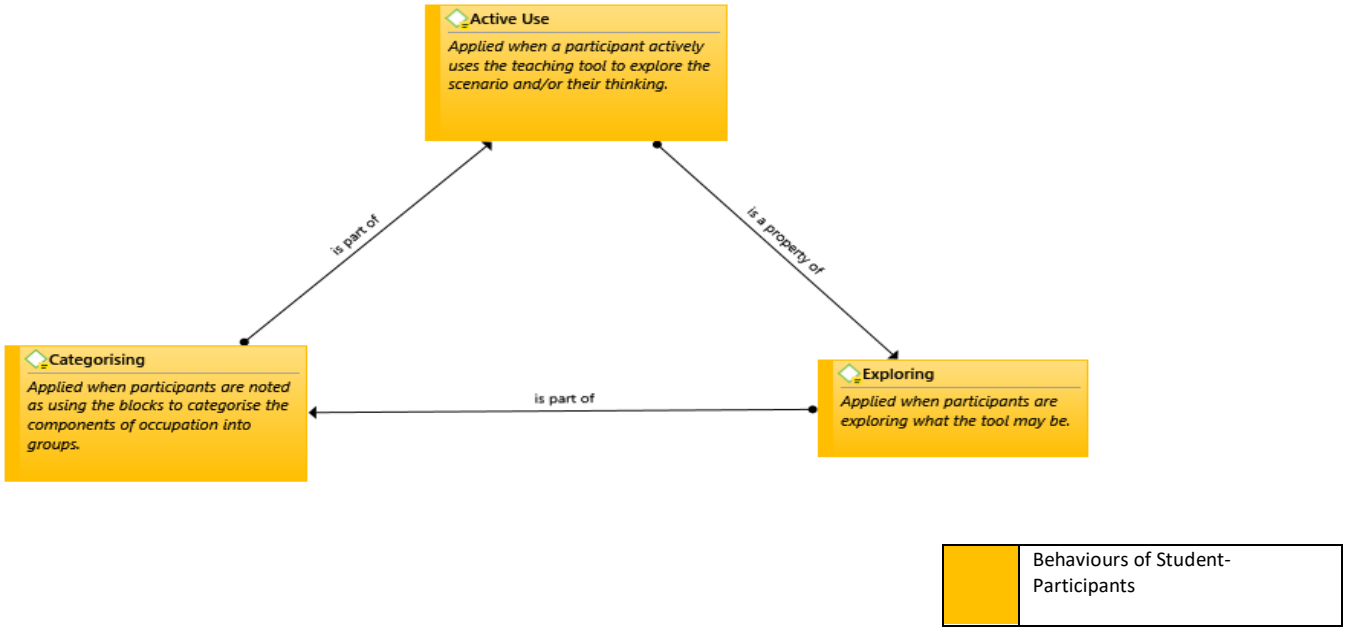
1. Active Use
2. Exploring
3. Categorising

These initial codes emerged during my observations of Phase II data generation (Figure 16).

Student-participants' active engagement with the teaching tool was necessary for them to explore and consider what they believed the tool to represent. However, what became of interest to me was how quickly student-participants began to categorise the components of occupation. The physical engagement, active movement of the blocks, and categorisation of

the terminology continued for the duration of all four data generation events of Phase II groups.

Figure 16: Physical Engagement with the Teaching Tool



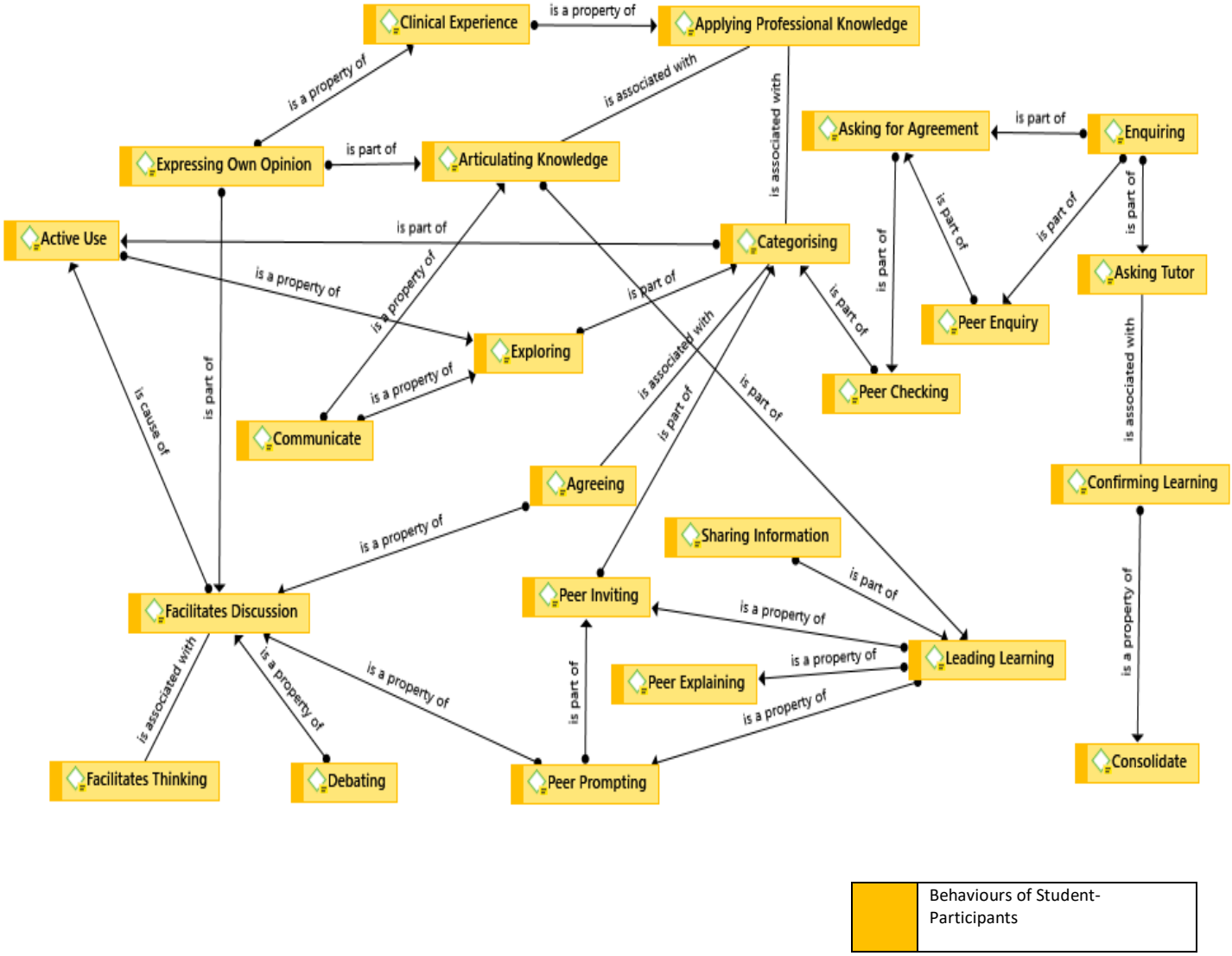
Whilst I had already applied a number of process codes, these were the first I became explicitly attentive to. Saldaña (2016) discusses the use of process codes for capturing observable actions within the data. Teaching-learning is a process (Ashwin, 2012), hence I employed process coding to identify actions of learning undertaken by student-participants whilst using the teaching tool. Charmaz (2014) also discusses use of process coding, or gerunds, during analysis. She identifies use of gerunds as enabling the researcher to consider actions and identify sequences in data. Furthermore, as sequences emerge, connections between the sequences become apparent. This enables the researcher to focus on the processes occurring in the data. Identification of processes is noted as a crucial strategy for the resultant construction of theory (Charmaz, 2014).

All four Phase II groups had been provided with the same case scenario (Appendix 5). During each data generation event, student-participants were observed to commence reading the case scenario. No group completed reading the information prior to engaging with the teaching tool. All groups physical engaged with the teaching tool. They used the components (wooden blocks) to identify the aspects of occupation that they perceived as impacted upon by the clinical conditions experienced by the case individual. Hence, categorising of components, related to the impact of a medical condition on occupation, began to be undertaken in context of the case scenario. Student-participants appeared to be using the blocks as a way of organising their thinking.

My reflections on the code of 'Exploring' led me to consider whether other behaviours of learning were being displayed in the data. I revisited the data coded to 'Active Use'. Whilst I had found this to be a useful code to begin the analysis, with the addition of 'Categorising' and Exploring,' I realised these codes as being too generic to account for the wide variety of behaviours that relate to learning. This led to my further initial coding of data with the aim of differentiating types of behaviours.

Twenty-four gerunds, capturing the learning behaviours of student-participants in Phase II, were created. Through the facilities of ATLAS.ti software, I was able to group and view the codes together (section 6.10). Later use of this function enabled me to consider relationships that may exist between the codes and develop my first tentative sub-category of Behaviour of Student-participants (Figure 17).

Figure 17: Behaviours of Student-participants

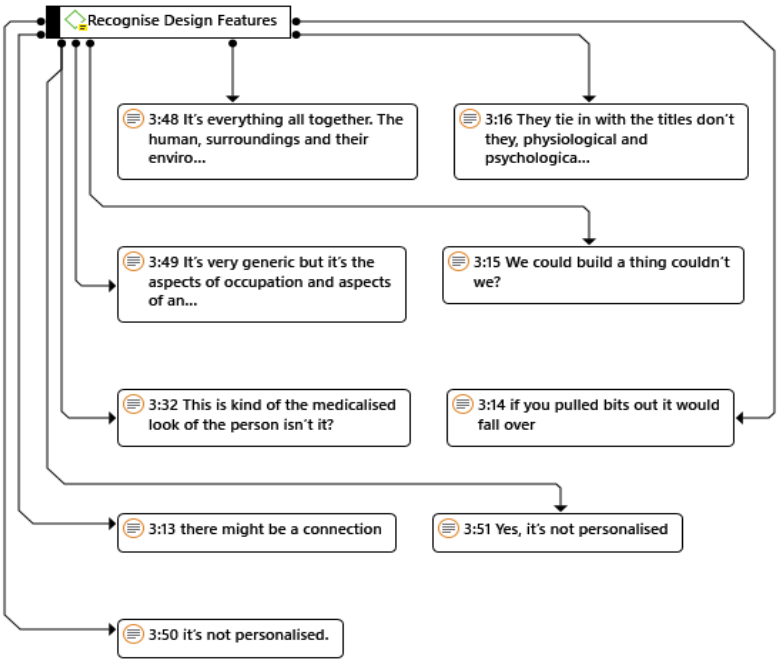


Having generated initial codes in Phase II that captured the behaviour of student-participants I revisited Phase I data. I applied the initial codes of Phase II and examined the data for the emergence of additional behaviours. This facilitated my continuation of the constant comparative analysis process (section 6.8.1).

My sub-categorisation of initial codes related to student-participant behaviours of learning was later developed as a tentative category labelled ‘Learning Behaviours’. Hence, I entered the stage of Focused Coding (section 6.9.2).

The final initial code that caught my attention at this point was 'Recognise Design Features'. Nine student-participants from Phase II were noted to have identified aspects of the design of the teaching tool as relating to a feature of the concept of occupation (Figure 18).

Figure 18: Recognition of Design Features by Student-Participants from H.E.I. 2



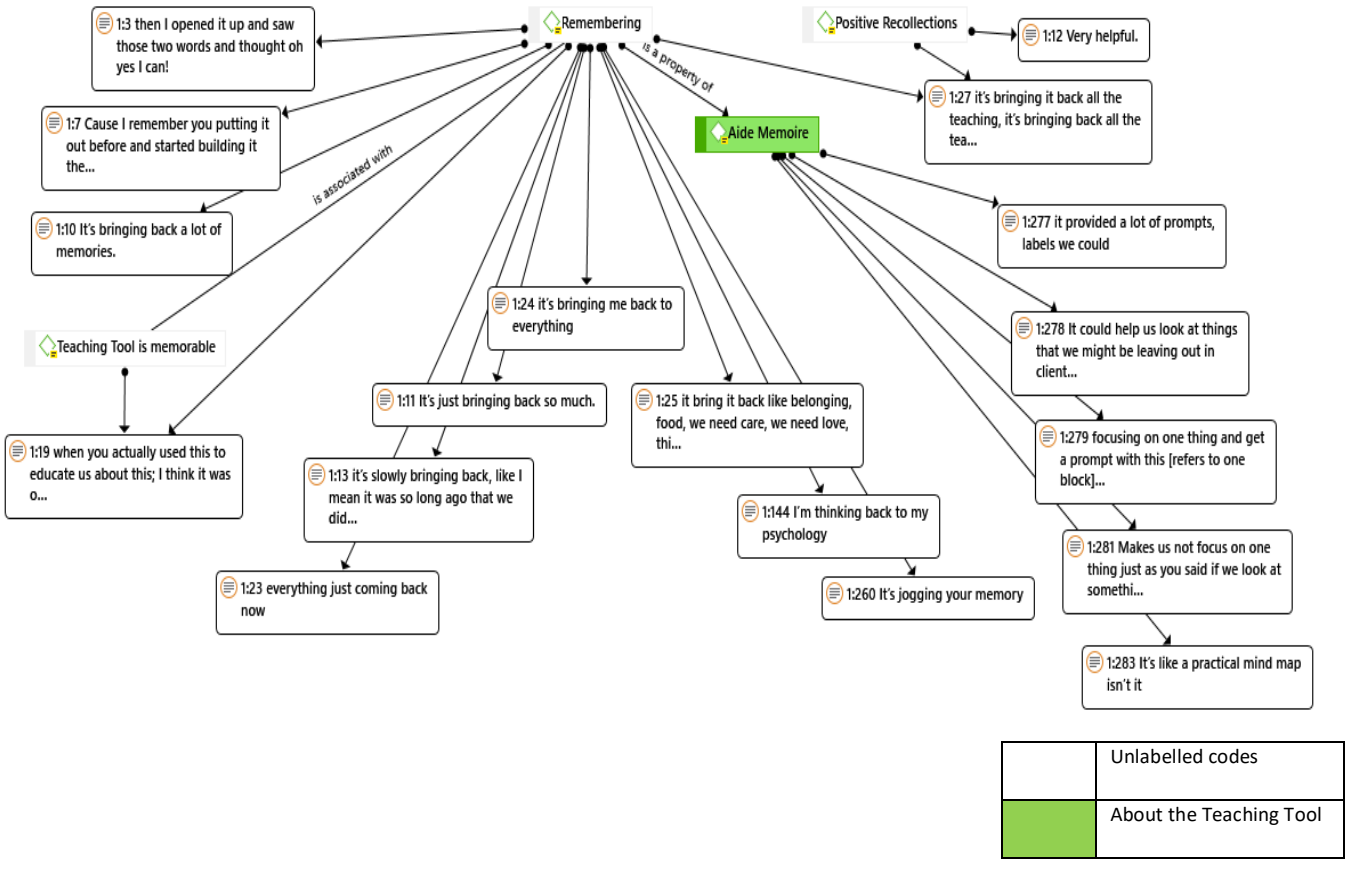
In this collection of quotations specific expressions came to my attention. These included *"It's everything together", "We could build", "connection"* and *"if you pulled bits out".* (H.E.I. 2 student-participants 2014/15). These quotations highlighted the dynamic design features of the teaching tool. Hence, I began to attend to how the design of the teaching tool may support the teaching-learning of occupation as a dynamic entity.

My growing recognition of the identifiable design properties of the teaching tool reminded me of the initial code created in Phase I, that of 'Visual Aide'. This initial code I had also

begun to refer to as a design feature. One of my intentions in creating the teaching tool had been to develop a visual aide to learning. My choice of the interdependent wooden blocks, whilst intentional, had not been considered from a pedagogic perspective. However, at this point I recognised the necessity of attending to the design properties further. The question arose; *Was the teaching tool only a visual aide to learning or did it also enable the recall of knowledge?*

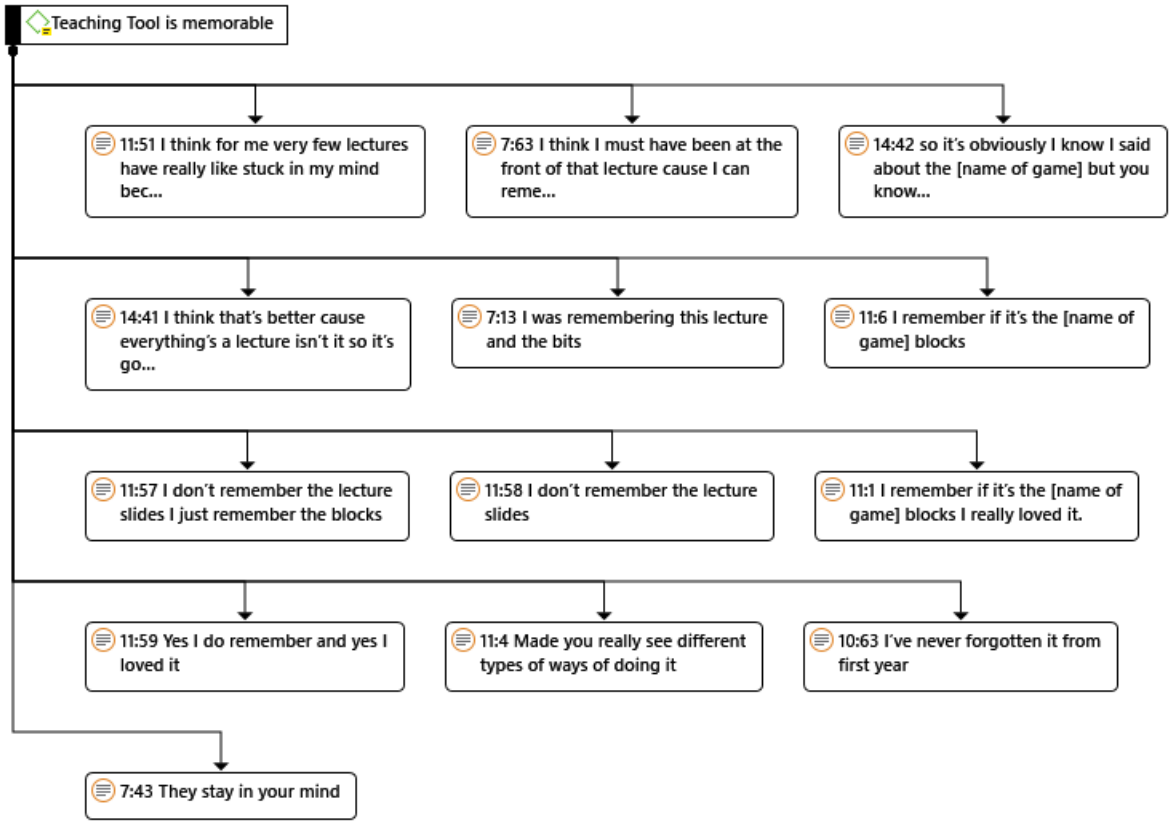
Examination of data from the Phase II H.E.I. 1 group 2014/15 had resulted in 18 pieces of data being coded that related to remembering (Figure 19). This group of student-participants had been taught through my use of the teaching tool earlier in their education programme.

Figure 19: Remembering - H.E.I. 1 2014/15



Noting the numerous units of data coded in one transcript of Phase II I revisited Phase I data to explore final-year student-participants recollections of the teaching tool. Phase I final-year participants having been taught through my use of the teaching tool previously. This data had the initial code 'Teaching Tool is Memorable' applied (Figure 20).

Figure 20: Teaching Tool is Memorable - Phase I coding



	Black	Applied to codes that relate the design features to the specific features of occupation as a concept.

Phase I final-year student-participants specifically mentioned the teaching tool as being memorable on only 13 occasions across six groups. This is a lower number of occasions than within Phase II. However, Phase I student-participant comments were stated spontaneously during data generation. In contrast, H.E.I. 1 student-participants were specifically asked for

their recollections during Phase II. Hence potentially accounting for greater commentary in Phase II.

Student-participants discussed the teaching tool as being memorable and that the tool enabled remembering of information. To capture subtle differences in the data 4 initial codes were created; 'Teaching Tool is Memorable', 'Remembering', 'Positive Recollections' and 'Aide Memoire'.

8.3 Initial Coding to Focused Coding

Charmaz (2014) presented the following questions to assist the researcher in determining which initial codes and preliminary categories might be pertinent for use as focused codes;

- *"What do you find when you compare your initial codes with data?*
- *In which ways might your initial codes reveal patterns?*
- *Which of these codes best account for the data?*
- *Have you raised these codes to focused codes?*
- *What do your comparisons between codes indicate?*
- *Do your focused codes reveal gaps in the data?"* (pp. 140-141).

Attending to the codes of 'Remembering', 'Positive Recollections', 'Teaching Tool is Memorable' and 'Aide Memoire' enabled me to begin to recognise several initial codes as appearing to have shared or similar properties. It was at this point I decided to allocate colours to initial codes as identified previously (section 6.9.1.2, Table 2). Colours were allocated according to shared properties that codes presented to me. Through the process of allocating colours to different groups of codes I began to formally create sub-categories within the data. Some of which I escalated later to form categories (section 8.4).

Allocation of colours to codes continued through my completion of initial coding. The colour allocations denoted a common feature, or set of features, between codes and suggested potential categories within the data. However, I also noted that several initial codes share a common feature(s) across these sub-categories. An example of this relates to the initial code 'Fragility'.

When considering the data to which the initial code 'Fragility' was applied, two different points were occurring. The code was initial created to capture examples in the data where student-participants demonstrated they had developed knowledge of the fragile nature of occupation. Hence, the colour allocated was purple, denoting the code as relating to Knowledge Development (Table 2). However, elsewhere in the data, student-participants identified a useful property of the teaching tool being that the interdependent nature of the blocks that formed the tower and showed the concept of occupation as being fragile. This reflected the properties of the teaching tool which were allocated the colour of green. Thus, I had to consider whether I create alternative initial codes or whether I maintained the use of the original codes and utilise the colour allocation to emphasise the predominant feature of the initial codes, whilst recognising their ability to exist across sub-categories and later categories.

This created a dilemma for me. Do I revisit each initial code that occurred in more than one sub-category? Or do I maintain the initial codes as allocated to the data and progress through the analysis to see what might emerge if alteration were not undertaken.

This resulted in my re-examined of each initial code that crossed sub-categories and consider the colour allocation that represented the predominant common feature. I identified my colour allocations to be the formation of sub-categories, but not necessarily categories. I therefore continued with data analysis without re-coding those codes which shared properties across more than one sub-category.

Thus, it is noted that in the resultant visual presentation of categories, initial codes brought together, on some occasions, contain colour-differentiated codes. Albeit that within the emergent category the codes support the formation of the properties of the category.

8.3.1 Focused Coding of My Behaviours

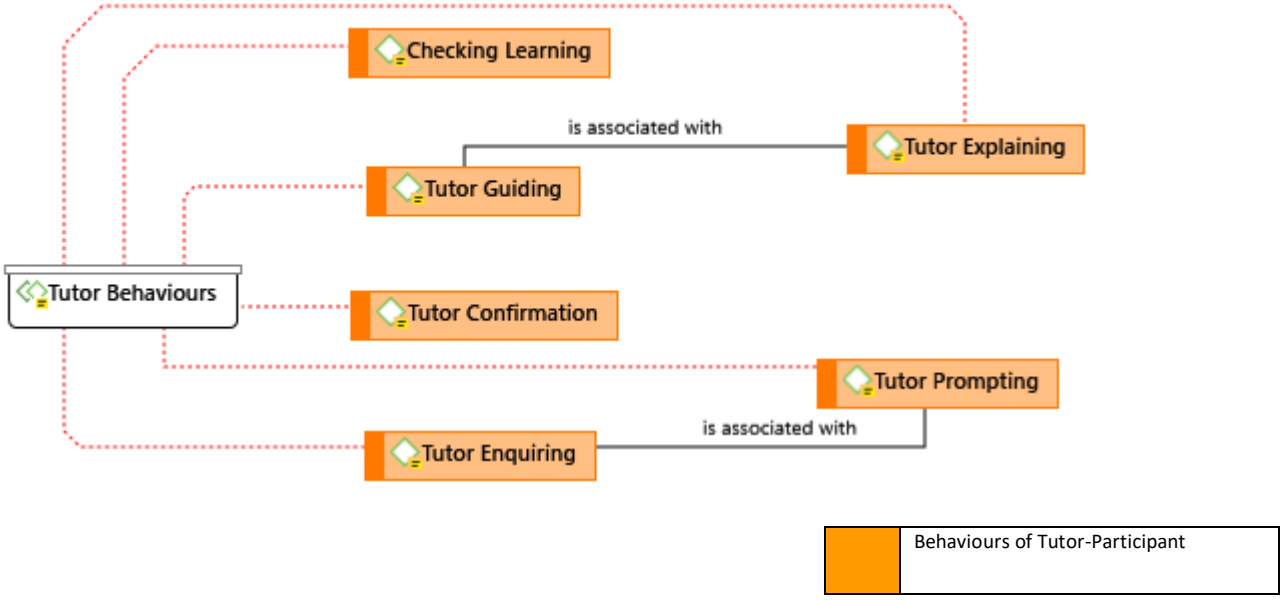
During the initial coding of Phase II, the learning behaviours displayed by student-participants had emerged (Figure 17). Reflection on my coding of student-participant behaviours led me to also review the data to explore my own behaviours. This process raised the following questions;

What behaviours were apparent in the data that I displayed? How are these different to student-participant behaviours? Do they constitute tutor behaviours? Are my behaviours linked to, or directly as a result of, my use of the teaching tool? And, what influence do they have within the teaching-learning encounters?

I re-entered the data with the purpose of examining my role in the teaching-learning events. Across Phase II of the datasets 6 initial codes relating to my behaviour as a tutor in the teaching-learning process were created (Figure 21).

1. Checking Learning
2. Tutor Confirming
3. Tutor Enquiring
4. Tutor Explaining
5. Tutor Guiding
6. Tutor Prompting

Figure 21: My Behaviours during Phase II

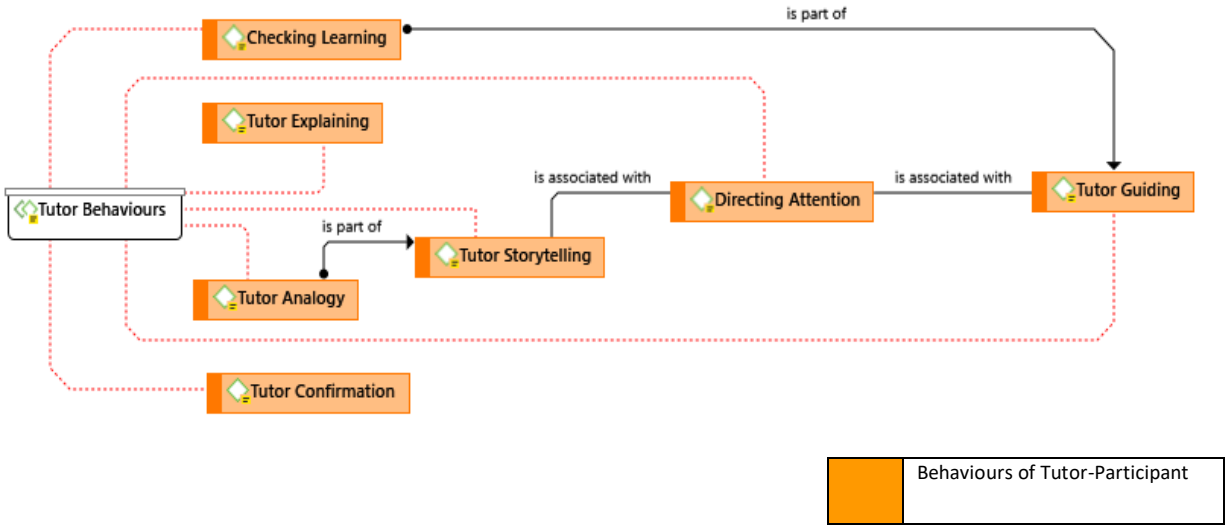


Upon completion of this I returned to Phase I data to explore whether I had undertaken any of these behaviours there also. As a result, I applied 4 of those initial codes. However, 'Tutor Enquiring' and 'Tutor Prompting' did not appear in Phase I.

However, I created 3 further initial codes in Phase I to capture my behaviours (Figure 22).

7. Tutor Analogy
8. Tutor Storytelling
9. Directing Attention

Figure 22: My Behaviours during Phase I



These three codes notably held my attention. Hence, I will consider these initial codes in more detail.

Tutor Analogy and Tutor Storytelling

In Phase I, the code of 'Tutor Analogy' was grounded in the data on 40 occasions. I used a variety of occupations as analogies, directly relating each occupation to the teaching tool. My aim was to provide student-participants with a variety of correlations between terminology captured within the teaching tool and component parts of occupations. I further aimed to enable student-participants to make connections between terminology and the occupation-based example. I drew upon numerous occupation-based examples, e.g. gardening, cooking, driving, etc. throughout each data generation event. The secondary reason for my use of so many, varied, examples was to enable student-participants to learn that variation occurs within components of occupation. An example of the variations I explained can be demonstrated through my explanation of the influence of one of the components of occupational form, that of lighting.

Occupation form is a compilation of physical and sociocultural dimensions, which together guide and shape the performance of an occupation (Nelson & Jepson-Thomas, 2003). Lighting constitutes one of the components of the physical dimensions. Normatively, when an individual undertakes the occupation of gardening natural lighting is necessary for gardening to occur. In contrast, the occupation of driving can occur with or without natural lighting. However, in the absence of artificial lighting (car headlights) the occupation of driving cannot occur. Lighting further influences the performance of the occupation of driving. Whilst driving a vehicle, when an individual encounters a traffic signal displaying a red light, the individual brings the car to a stop. Use of such examples provides opportunities to illustrate how a component of occupational form enables an occupation to occur. Furthermore, such examples also illustrate how occupational form guides and shapes occupational performance. Hence, I utilise a variety of occupation-based examples as analogies to enable student-participants to connect their prior knowledge of each component to their developing knowledge of the components that together create an occupation.

Whilst utilising occupation-based analogies, I also noticed that I created vignettes to provide context to the information. This I coded as 'Tutor Storytelling'. This code appeared in the data on 55 occasions.

The prevalence of each of these codes led me to consider when I used them and why. I began to realise was the teaching tool provided me with a vehicle through which I employed pedagogic methods of analogies and storytelling. This led me to revisit the earlier memo I had begun to create regarding the teaching tool as an analogy (section 8.1.1.3).

Teaching Tool as an Analogy Memo Continued: There are numerous types of analogy documents in educational literature (Iding, 1997; Wallace & Louden, 2003). If the tool is an analogy, which type of is it and why? And how does this support learning? If I am using various examples of occupation during my use of the teaching tool, then those examples are all analogies. This is because I draw comparisons between internal components of the occupations and relate them directly to boxes and blocks of the teaching tool. Therefore, can the teaching tool be an analogy if the analogies I use are examples of occupations?

It could be an analogy because it is a physical entity that is a representation of occupation. However, the similarity the teaching tool holds to occupation is not obvious. It requires extensive explanation, without which, an individual with no professional knowledge of occupation would be unable to identify what the teaching tool represents. Hence, does the teaching tool simply have analogic properties? But properties that can only support learning when used in conjunction with full analogies (examples of occupation)? If so, what does this mean the teaching tool is?

I contextualise the analogies through storytelling. My addition of stories allows students to draw on their prior knowledge of the example of occupation I am

using. Doing this enables them to reconstruct their old knowledge into new. So, the teaching tool appears to be a vehicle that helps students to cross a knowledge gap.

The third initial code related to my behaviour that occurred only in Phase I was 'Directing Attention'. This gerund was created to capture my physical use of the teaching tool. Throughout the teaching-learning events I displayed aspects of the teaching tool (boxes and blocks) to student-participants on 977 occasions (Figure 23). This highlighted my continuous use and interaction with the teaching tool and is the code most grounded in the data. Identification of this behaviour led me to reflect on my repeated action.

Figure 23: A Selection of Data Illustrating the Initial Code of 'Directing Attention'

I had begun to conceptualise the teaching tool as an object or vehicle that provided student-participants with a visual focus during my teaching of the concept of occupation. Furthermore, my continuous use of the teaching tool appeared to support my use of pedagogic methods of analogies and storytelling. My question now was how my use of the tool facilitated learning processes.

The teaching tool provides a point of visual focus for students' cognitive processes. The stories and analogies are context surrounding the teaching tool. For this to work it was necessary for me to focus students purely on the concept of occupation, i.e. to treat occupation as a threshold concept.

My continuous physical use of the teaching tool draws upon an active learning approach in that I continuously interact with different elements of the teaching tool as the teaching-learning progresses.

I began conceptualising my active use of the teaching tool and its role in the teaching-learning events. However, my role within Phase II data generation events was less active. My participation in Phase II was confirmation that the teaching tool represented the concept of occupation, minimal guiding and prompting, and answering questions directed specifically to me.

Therefore, I revisited Phase II data to explore the role of the teaching tool in relation to student-participant behaviours previously coded.

Numerous gerunds of Phase II capture student-participants' actions. Their physical use of the teaching tool is encapsulated by the gerund of 'Active Use', which is grounded in the data on 154 occasions. Hence active learning is mirrored in Phase II through student-participants use of the teaching tool. Throughout the sessions they physically interacted with different elements (boxes & blocks) of the teaching tool. As a student-participant focused on one piece of the tool, they verbalised their cognitive processes. The attention of their peers, within each data generation event, was directed toward whichever box or block was under discussion. Hence, 'Active Use' appears to correlate to my behaviour of 'Directing Attention'.

My synthesis of initial codes into sub-categories facilitated my initial conceptualisations of the role of the teaching tool as providing a visual reference point. I noted several behaviours of student-participants occurring in both phases, with some behaviours only occurred in one of the research phases. This was mirrored in the coding of my own behaviours. However, in relation to my behaviour of 'Directing Attention' I noted a correlation to student-participant behaviour of 'Active Use'. In an attempt to capture this, I progressed to organising my data into formal categories

8.4 Category Development

The creation of sub-categories within the data led to the emergence of categories. The first sub-group of initial codes that emerged as a category related to the actions of student-participants during Phase II; the behaviours of student-participants (Figure 17). This data became the category of 'Learning Behaviours' (Figure 24 & Figure 25). This alerted me to look for alternative categories emerging from the data. Categories were created separately for Phase I and Phase II of the research. However, as with initial coding, categories that emerged in one phase were looked for in the alternate phase (Table 7).

Table 7: Categories of Coded Data - Phase I and II

Category Label	Description of Category	Phase I	Phase II
Knowledge before Teaching-Learning Occurred	Group of initial codes that illustrate student-participants' layperson level of knowledge and understanding of occupation prior to teaching-learning.	X	
Developing Knowledge of Terminology	Group of initial codes through which student-participants verbally demonstrate knowledge of occupation and related terminologies.	X	X
Tutor Behaviours	Group of initial codes that reflect my behaviours in the role of tutor, during the teaching-learning.	X	X
Learning Behaviours	Group of initial codes that reflect the behaviours of student-participants during the teaching-learning.	X	X
Peer Supported Learning	Group of initial codes that reflect the behaviours of student-participants which support each other's learning.		X
Learning has Taken Place	Group of initial codes that reflect when student-participants have successfully learnt from my perspective and expressed by themselves.	X	X
Properties of the Teaching Tool	Group of initial codes that capture the properties of the teaching tool, and which student-participants identify as supporting their learning of occupation.	X	X
Teaching Tool is Valuable	Group of initial codes that captures student-participants' perspectives of the teaching tool as being beneficial to their learning about occupation.	X	X
Additional Uses of the Teaching Tool	Group of initial codes that captures the additional educational uses student-participants identify the teaching tool can be utilised for.	X	X
Challenges to Learning	Group of initial codes in which student-participants identify why they have found developing knowledge and understanding of occupation to be challenging.	X	X
Utility	Group of initial codes in which student-participants identify supplementary uses for the teaching tool, both educational and marketing.	X	X
Different Formats	Group of initial codes in which student-participants identify different formats of the teaching tool that they perceive would be beneficial in support of learning.	X	X
Impressions	Group of initial codes that reflects student-participants' impressions and perspectives of the teaching tool.	X	X

Not all categories that I developed add to theoretical understanding of the teaching tool. Categories that do not directly relate to the pedagogic role of the teaching tool are therefore not presented in the findings. However, three of those categories are presented and discussed later within my research. These categories reflect student-participants' perspectives of additional uses for the teaching tool and alternative formats the tool could be presented in that could support their learning (Chapter 13).

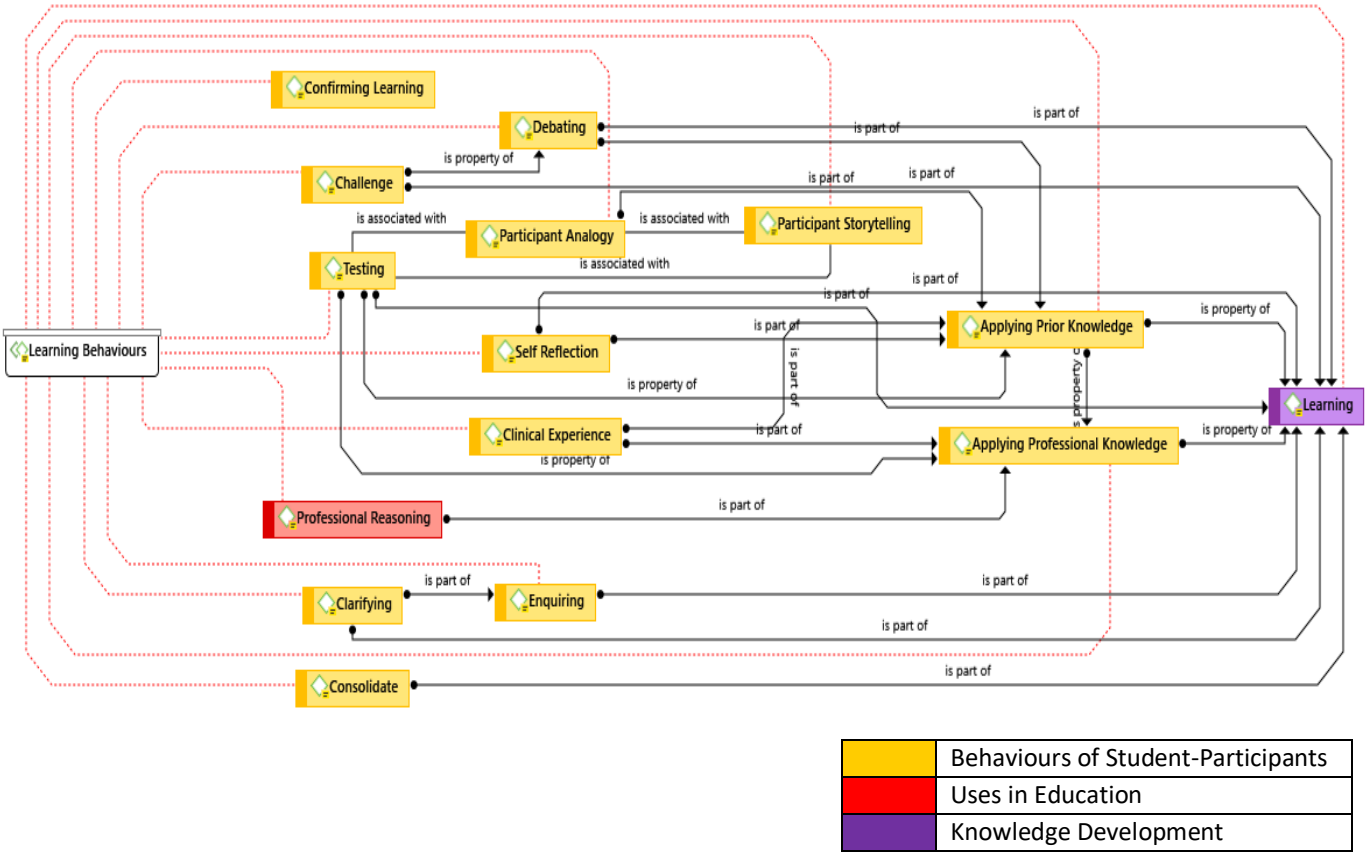
8.5 Conceptualisation of Categories

Initial coding to focused coding and progression to development of conceptual categories was not a linear process. Having provided insight as to the initial and focused coding and the emergence of sub-categories. In this section I present those sub-categories, elevated to categories, which relate to the pedagogic investigation of the teaching tool.

8.5.1 Learning Behaviours

The earlier sub-category identifying behaviours of student-participants was elevated to the category of 'Learning Behaviours'. In recognition of the different teaching-learning formats undertaken in Phase I and II figures used to illustrate the category are presented separately for each phase (Figure 24 & Figure 25).

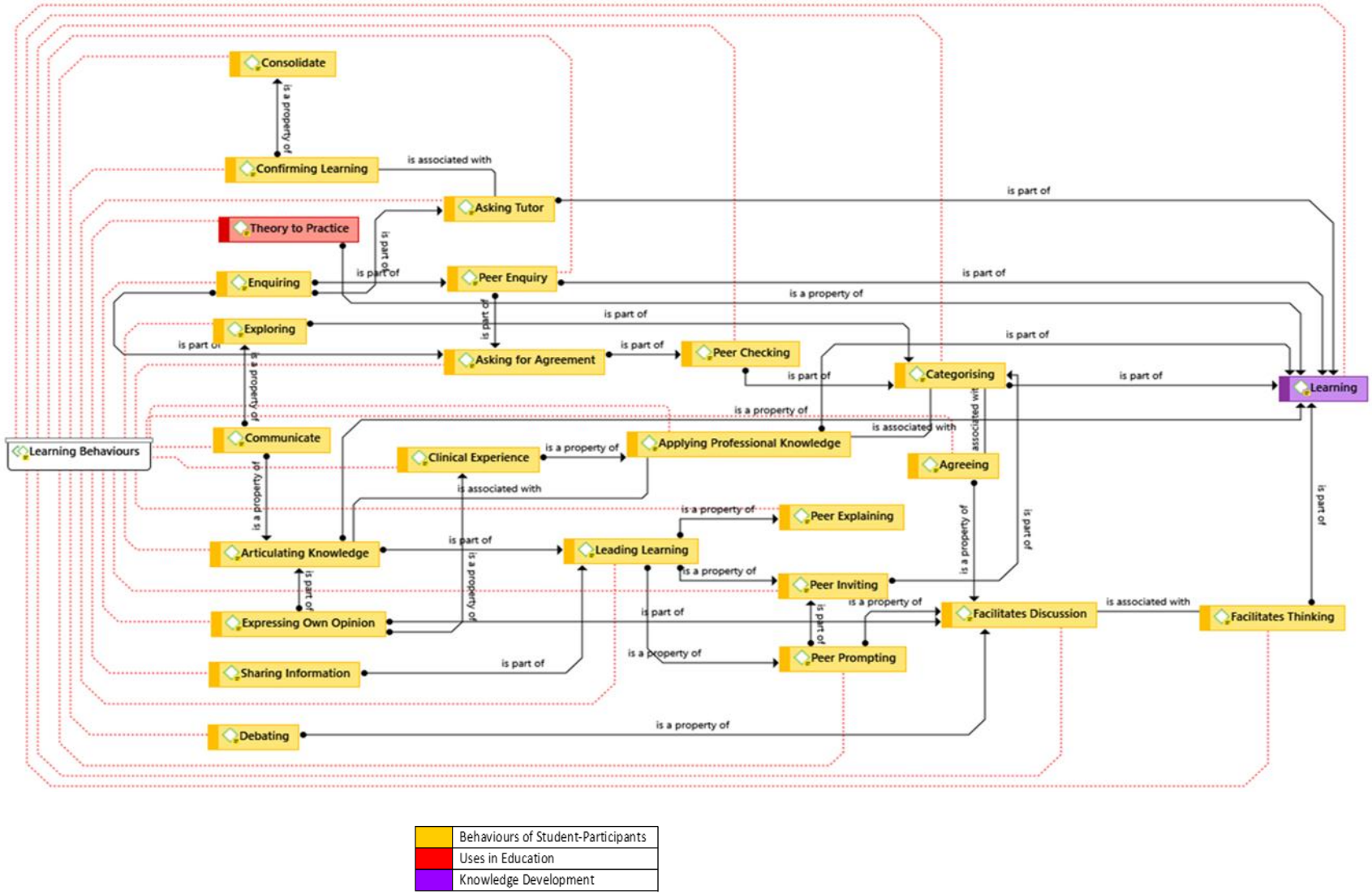
Figure 24: Learning Behaviours – Phase I



Teaching-learning methods used for data generation events of Phase I were largely didactic (section 6.3.1). Passive receipt of information was notable within first-year student-participant groups. In contrast, final-year student-participants undertook greater debate of the concept of occupation. First-year student participants drew on their prior knowledge and applied personal experiences to test their knowledge development. Final-year student-participants also drew upon prior knowledge and personal experiences. However, the prior knowledge drawn upon emerged from their earlier education in occupational therapy. Similarly, the experiences final-year student-participants drew upon arose from clinical experiences gain during practice placements in the field of occupational therapy. This enabled final-year student-participants to utilise their professional reasoning skills to reflect, debate and consolidate their understanding of the concept of occupation.

Phase II explored student-participant learning in relation to the impact of a medical condition on the occupational performance of a fictional individual and their use of the teaching tool within the learning (section 6.3.2). The design of this phase of data generation created a more dynamic, interactive teaching-learning environment. This may account for the greater range of behaviours noted in the data.

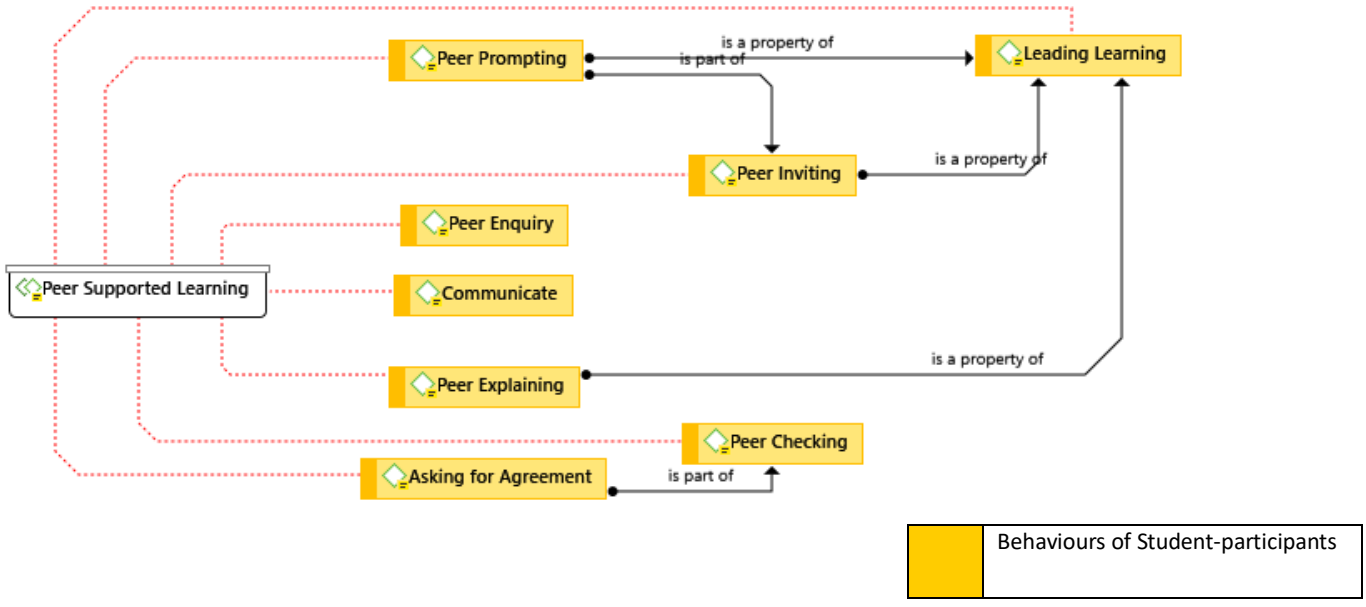
Figure 25: Learning Behaviours – Phase II



As with the final-year student-participants of Phase I, those recruited to Phase II had developed professional knowledge of occupation prior to their involvement in the research. At no point within the data were student-participants of Phase II noted as drawing upon personal experience. These student-participants only drew upon prior professional knowledge. The teaching tool appeared to prompt discussion and sharing of ideas. Furthermore, the use of the teaching tool enabled student-participants to focus collectively their attention and discussions on specific components of occupation impacted upon by the medical condition of the fictional individual. All Phase II student-participants were noted as drawing upon professional knowledge during their exploration of the teaching tool in relation to the case scenario. This illustrated student-participants application of knowledge of occupation to a practice example.

A further aspect that emerged from examination of the category in Phase II was the number of initial codes that represented peer-learning behaviours (Figure 26).

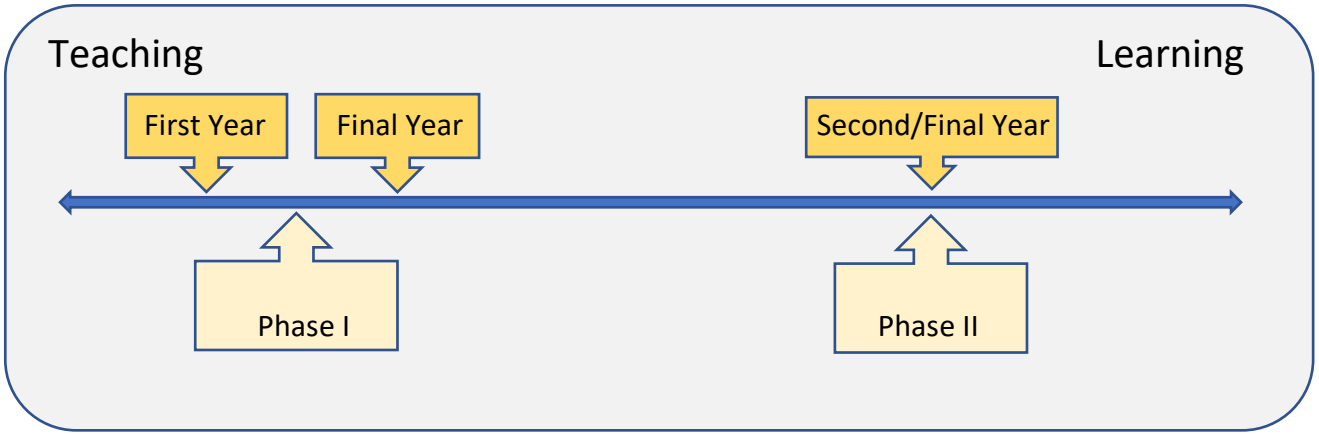
Figure 26: Peer-Learning Behaviours



Five initial codes were created to encapsulated peer-learning behaviours. As each component of occupation represented in the teaching tool was examined student-participants interacted with each other. Individual student-participants who selected a component for consideration invited the opinions of others (Peer Inviting). Discussions developed with student-participants enquiring of the views of others, expressing their own views, and seeking agreement for their interpretations. One student-participant (H.E.I. 2 2015/16) was observed in the latter half of their data generation event to begin to lead the learning of others. This individual invited opinion of others. They prompted peers to verbalise their reasoning and provided theory-based explanation of aspects that other student-participants appeared to find challenging.

Reflection on the Learning Behaviours that occurred in each phase resulted in my conceptualisation of the teaching tool as having a shifting position on the teaching-learning continuum (Ashwin, 2012). Which position the teaching tool held appeared dependent on the intended purpose, and resultant design, of teaching-learning event (Figure 27).

Figure 27: Location of Teaching Tool on Teaching-Learning Continuum



(created by Howarth, J. T., 2018)

As identified previously (section 6.3.1), Phase I teaching-learning utilised a predominantly didactic method. First-year student-participants had no professional knowledge of occupation and required explanation of each component. My behaviours of teaching were more pronounced. Hence, the utility of the teaching tool was set toward the teaching end of the continuum. In contrast, final-year student-participants recruited to Phase I had developed professional knowledge of occupation. Whilst student-participants received explanation of the components from me they undertook greater debate of the material both with me and between each other. This illustrated a shift on the continuum, with student-participants erring more toward learning through a question and answer format resulting in a less didactic approach.

Phase II student-participants actively used the teaching tool throughout the four data generation events. Their learning behaviours were more independent of me; greater peer-learning was observed. Having previously developed professional knowledge of occupation they undertook greater debate and discussion with each other. These student-participants were noted as applying their knowledge of occupation to a novel situation suggestive of the development of understanding (Newton, 2012). Their behaviours were based toward the learning end of the continuum (Figure 27). Hence, greater independent learning was observed in Phase II.

8.5.1.1 Memo: The Teaching Tool as a pedagogic vehicle employed on the continuum of teaching-learning.

With teaching-learning conceptualised as one activity (Ashwin, 2012) then depending on what learning needs to occur and how the tutor uses the teaching tool, its' position on the teaching-learning continuum can be altered.

The positioning of the teaching tool then supports either development of knowledge or development of understanding of occupation. For students with little or no professional knowledge it is necessary to use it more for the development of knowledge. When used in tutor-supported peer-learning the teaching tool can be used to facilitate the development of understanding. This relates to Engeström's theory of expansive learning (Woll & Bratteteig, 2018). His discussion proposed the transformation of knowledge as being facilitated through use of a 'mediating artefact'. Is the teaching tool therefore a mediating artefact?

Once students are proficient in their knowledge and develop sliding levels of understanding of occupation there exists the potential for them to use the teaching tool independently (at the extreme learning end) to continue their

learning and exploration of the concept. Can individuals use mediating artefacts independently to enhance their learning?

Following reflection on the category of Learning Behaviours I returned to consideration of my behaviours. Previously having noted the different levels of participation I had undertaken in each phase led me to further examination of my behaviours. These I categorised as Tutor Behaviours (Figures 28 & 29).

8.5.2 Tutor Behaviours

Phase I data generating events were predominantly tutor-led. Hence, I drew upon pedagogic methods to support student-participant learning. This resulted in my repeated use of analogies and storytelling. I also focused student-participants' attention by visually displaying each components of the teaching tool as explanation were verbalised (Figure 22 & Figure 23).

During Phase I my behaviours reflected my imparting of knowledge of occupation drawn from published literature. I continuously directed student-participants' attention to each component as it was explained. I supported the explanations with use of analogies and storytelling. On occasion I enquired as to student-participants' understanding (Checking Learning). As student-participants verbalised their knowledge in line with professional understandings of occupation I confirmed their learning as correct (Tutor Confirmation).

Phase II was predominantly collaborative-learning and peer-led learning. Hence the behaviours I displayed differed from those utilised in Phase I (Figure 21).

Student-participants acted more independently of me. I interceded on occasions when student-participant discussions became stalled (Tutor Prompting, Tutor Enquiring). I also

became actively involved in the learning on occasions that student-participants articulated the need for clarification of their discussions (Tutor Explaining) and confirmation that their learning was accurate (Tutor Confirmation).

Conceptual categories of my behaviours and those of student-participants provide insights as to the forms of teaching-learning that took place. Reflection on the categories of Learning Behaviours and Tutor Behaviours resulted in my reflecting on the role of teaching tool in the development of knowledge and understanding.

8.6 Conceptual Category Development to Theoretical Development and Construction

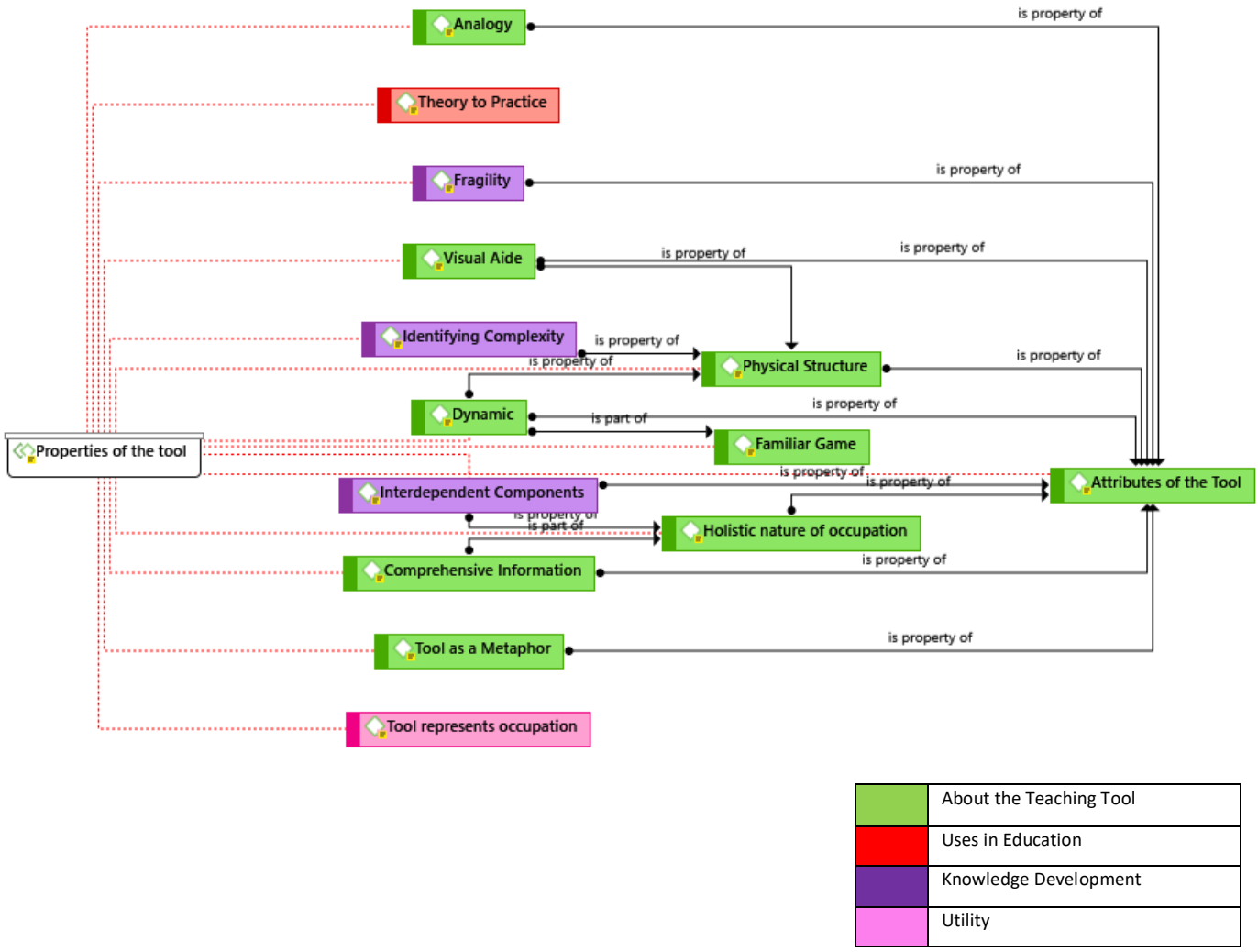
Differences in the Learning Behaviours of student-participants from Phase I and Phase II suggested that during Phase I knowledge was being developed. Whereas in Phase II student-participants utilised their professional knowledge to develop understand of occupation in the context of an individual's life.

This resulted in my consideration of the pedagogic properties of the teaching tool. To explore the role of the teaching tool in the development of knowledge; and its role in development of understanding.

8.6.1 Properties of the Teaching Tool

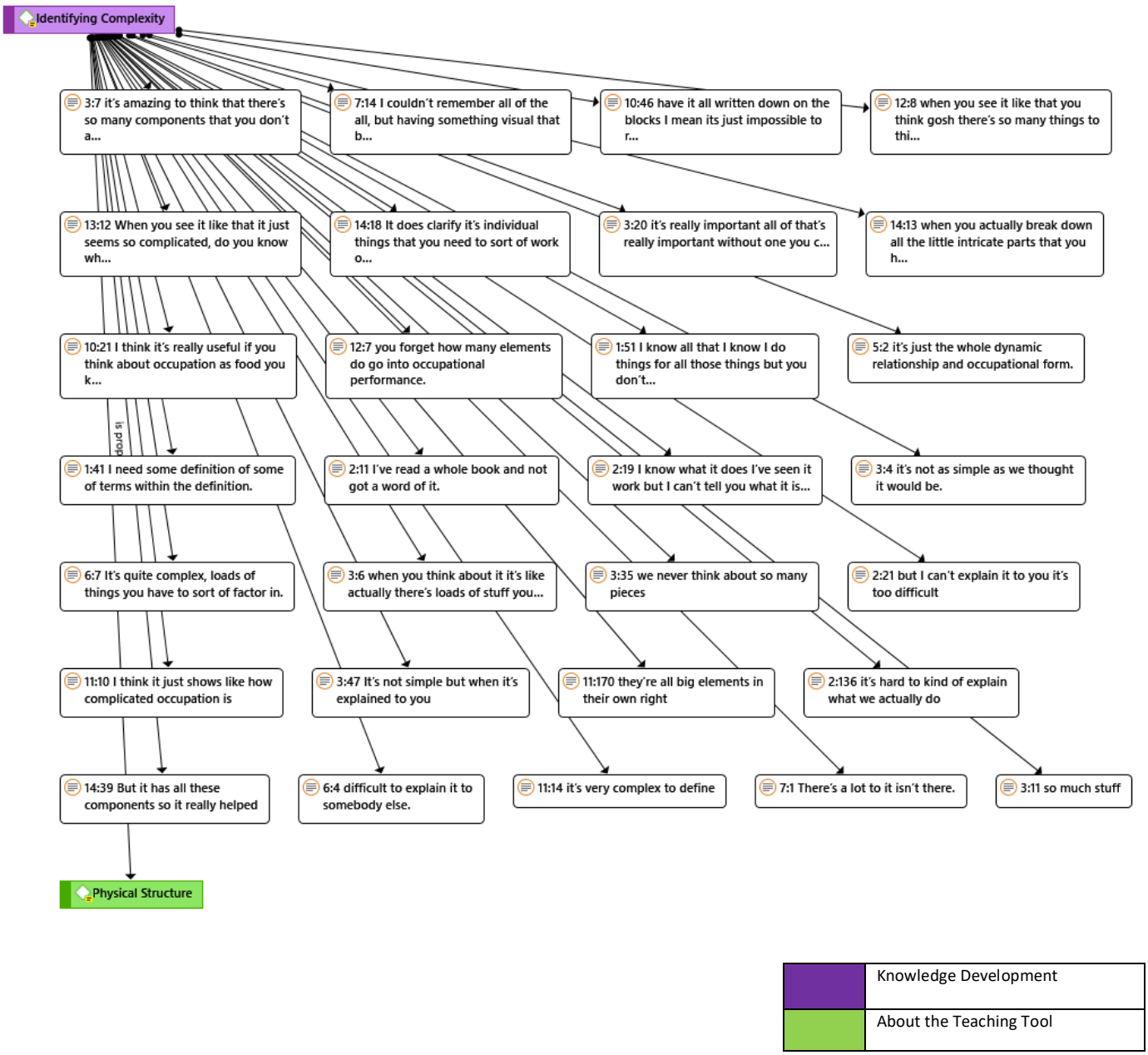
On completion of each of the sixteen teaching-learning events (Phase I and II combined) student-participants had opportunity to discuss their perceptions of the teaching tool in relation to learning about the concept of occupation. Figures 28 and 30 present the initial coding of the properties of the teaching tool that emerged from each phase.

Figure 28: Properties of the Teaching Tool, Phase I



The most grounded initial codes within this category were 'Identifying Complexity' (grounded 29 times: G29), 'Visual Aide' (G24) and 'Interdependent Components' (G15). Hence, the predominant property of the teaching tool student-participants discussed was the facility of the tool to demonstrate the complexity of occupation (Figure 29).

Figure 29: Identifying Complexity of Occupation

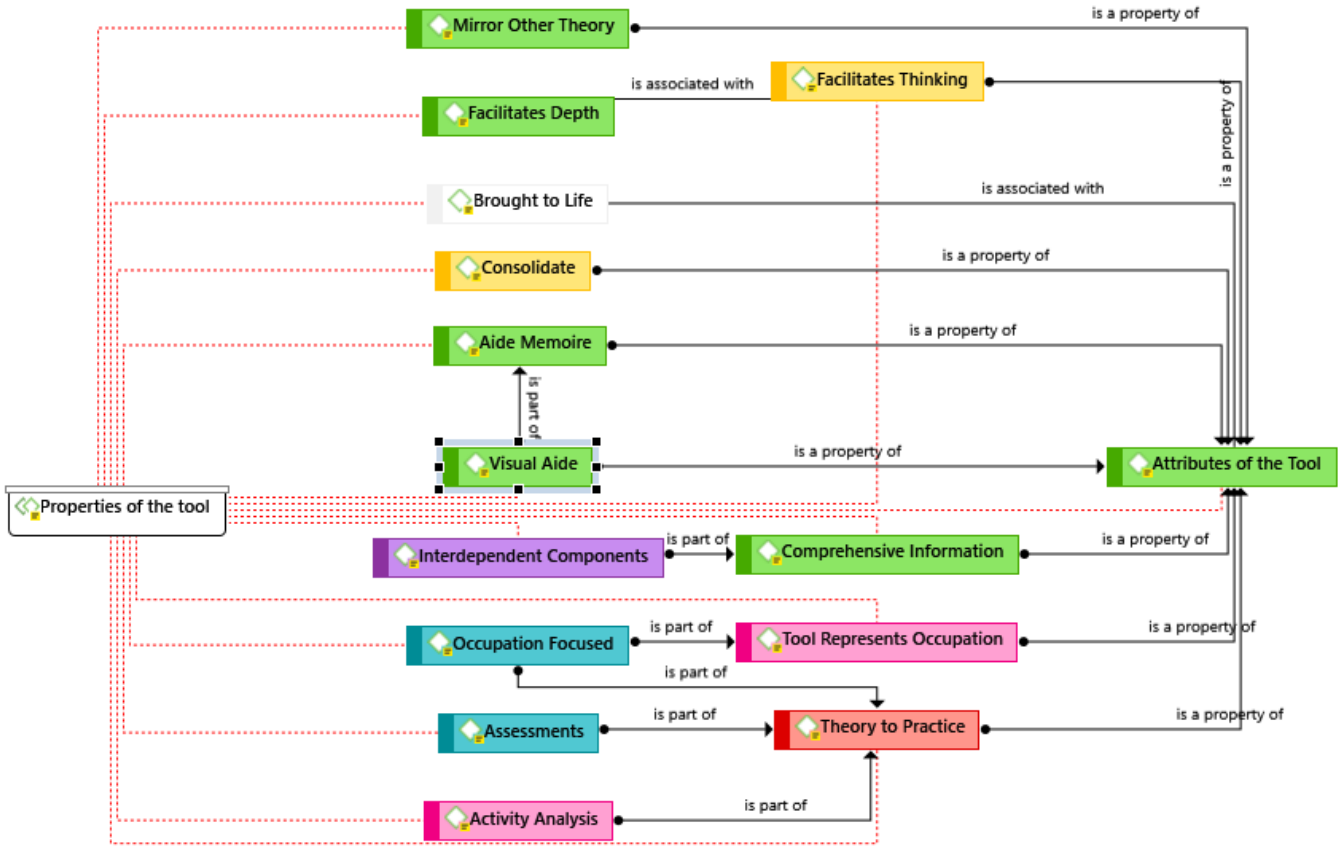


Student-participants identified the teaching tool as demonstrating the complexity of occupation (Figure 29). They identified the benefits of physical structure, which displayed the many components that create occupation. The physical structure was discussed as enabling them to see the interdependency between components. This resulted in discussions regarding the dynamic, and fragile, nature of occupation as represented in the

teaching tool. Additional properties student-participants identified as beneficial to their learning was the ability of the teaching tool to present a holistic representation of occupation, thus providing comprehensive knowledge of the concept. Together the properties presented student-participants with a visual aide to their learning.

Phase II was a series of tutor supported collaborative-learning events. Hence additional properties of the teaching tool emerged (Figure 30).

Figure 30: Properties of the Teaching Tool, Phase II

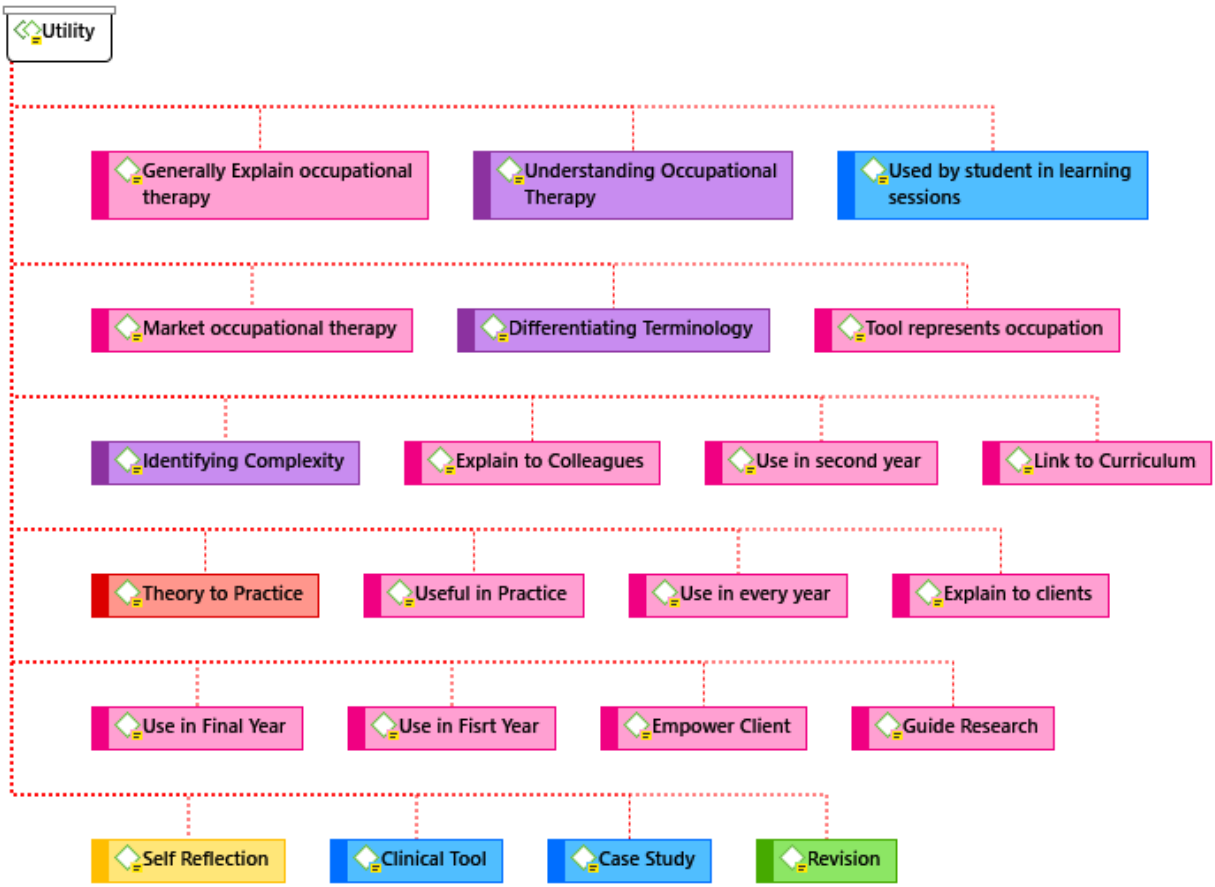


	About the Teaching Tool			Knowledge development
	Behaviours of student-participants			Uses in education
	Prompts reasoning			Utility

The most grounded initial code within this category for Phase II was that the teaching tool facilitated the thinking of student-participants (Facilitates Thinking G45). The teaching tool, used in conjunction with a case scenario, was discussed as a mechanism that enabled theory to be applied to a practice example (Theory to Practice G36). Reflective of data from Phase I, student-participants identified the physical structure of interdependent components as beneficial to their learning (Interdependent Components G29). The teaching tool was identified as a visual aide to their learning (Visual Aide G7). Two student-participants identified the teaching tool as an aide memoire. They identified that having the components of occupation readily available prompted knowledge recall and enabled them to examine occupation in greater depth.

A final category presented is that of Utility (Figure 31). This category encapsulated student-participants perspectives of how the teaching tool could be utilised in occupational therapy education and practice. Whilst the findings of this category do not directly add insight into the pedagogic properties of the teaching tool, it does provide insight to potential uses from the student-participant perspective. Furthermore, related to this category are the challenges student-participants discussed regarding the pedagogic use and the design properties of the teaching tool.

Figure 31: Utility of the Teaching Tool



	Utility			Different Formats
	Knowledge development			Behaviours of Student-participants
	Uses in Education			About the Teaching Tool

This category reflects student-participant perceptions of the teaching tool as a flexible tool. They identified its use as potentially beneficial if used in each year of occupational therapy education. They recognised the teaching tool as enabling them to link theory to practice. In addition, they articulated their perceptions that they could use the tool both in peer-learning and independently for revision.

The teaching tool was originally designed for use in teaching the concept of occupation. Use of the tool in Phase II demonstrated that student-participants could use the tool in relation

to case scenario focused learning. In addition, student-participants suggested the tool could have utility in the practice setting as a clinical tool, to explore the impact of medical conditions on the occupational performance of clients.

Furthermore, student-participants identified that if terminology, used to label the components of the teaching tool, were displayed in layman's terms, they would wish to use the teaching tool in collaboration with clients. This they identified as having potential to enable clients to develop personal insights regarding the place of occupations in their lives and enhance understanding of occupational therapy intervention. No findings of this research support these student-participant perceptions. However, it gives rise to future research of the utility of the teaching tool as a practice tool (Chapter 13).

The category of Utility does provide evidence that student-participants perceive a wider range of uses of the teaching tool; uses they identified as potentially beneficial to both their learning and future practice. However, student-participants also challenged the design and utility of the teaching tool.

8.7 Challenges to the Utility of the Teaching Tool

Of the eighty-two student-participants involved in my research, six individuals challenged the aspects of the teaching tool. Challenges that emerged with each phase are presented in Figures 32 and 33. Commonalities of challenges exist across both phases hence a combined consideration of the challenges are presented.

Figure 32: Challenges to the Utility of the Teaching Tool: Phase I

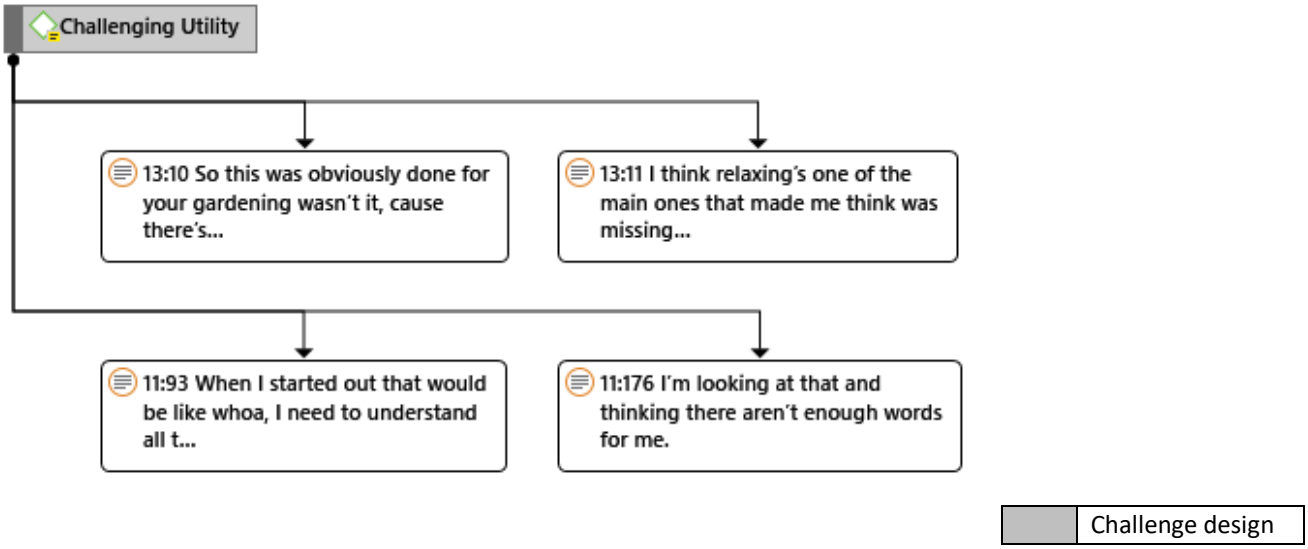
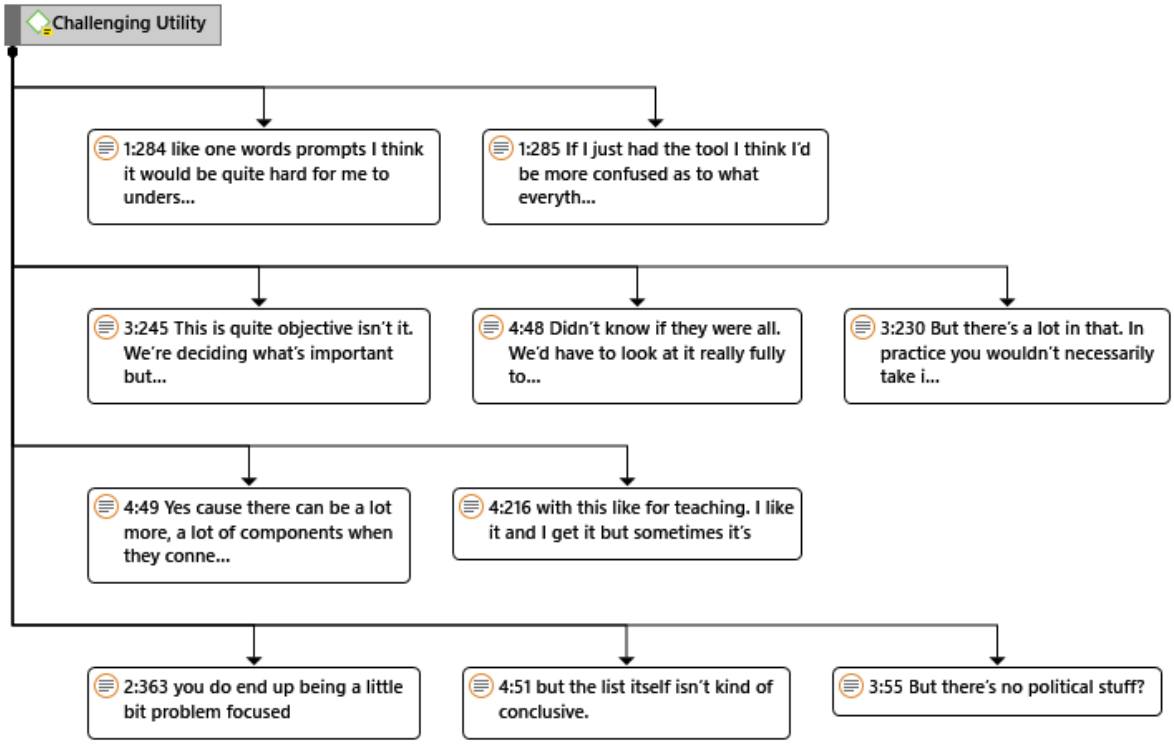


Figure 33: Challenges to the Utility of the Teaching Tool: Phase II



Seven topics of challenge emerged from the combined data of Phase I and II. The first four challenges related to the utility and content of the teaching tool. The remaining three

challenges related to the use of the teaching tool when used in conjunction with a case scenario. Challenges:

1. The teaching tool was designed predominantly for the explanation of one occupation, that of gardening;
2. Types of components were missing from the teaching tool, including additional forms of subjective meaning and the sociocultural component of politics;
3. The teaching tool presented an overwhelming amount of information to be learnt;
4. Lack of written explanation about the terminology presented through the teaching tool made it difficult to understand everything if using the teaching tool alone;
5. The teaching tool required consideration of more component parts than would be considered when in a practice setting;
6. The teaching tool facilitated an objective interpretation of the impact of a medical condition;
7. Use of the teaching tool prompted problem-focused thinking.

The challenges raised by student-participants will be considered during the discussion of findings (section 9.2.3).

8.8 Conceptual Framework of the Pedagogic Utility of the Occupation Focused Teaching Tool

Findings of my research lead to my conceptualisation of the teaching tool as being a mediating artefact in the teaching-learning process (Figure 34). The properties of the teaching tool provided student-participants with a visual aide through which I could support them to reconstruct their knowledge and understanding in line with profession conceptions of occupation.

In Phase I the teaching tool provided me, as a tutor, with a visual point of focus through which I linked verbal explanation of the constituent components of occupation. My use of the teaching tool facilitated a structured explanation of the complexity of occupation. The step-by-step procedure of unpacking the components and building the tower of occupation provided me with opportunities to utilise pedagogic methods of analogies and storytelling. This enabled me to offer contextual explanation to the knowledge being taught. My active use of the teaching tool throughout the duration of each teaching-learning events presented occasions for verbal exchanges between myself and student-participants. This provided student-participants with openings to verbalise their own stories and test their own occupation-based analogies. The construction of the tower (Figure 6) provided student-participants with a holistic representation of occupation as a concept.

My provision of a constructed visual device supported student-participants to create a mental representation of the concept of occupation. The physical form of the teaching tool illustrated the highly complex nature of occupation. Furthermore, it enabled student-participants to develop knowledge and understanding of the dynamic nature, and fragility, of occupation.

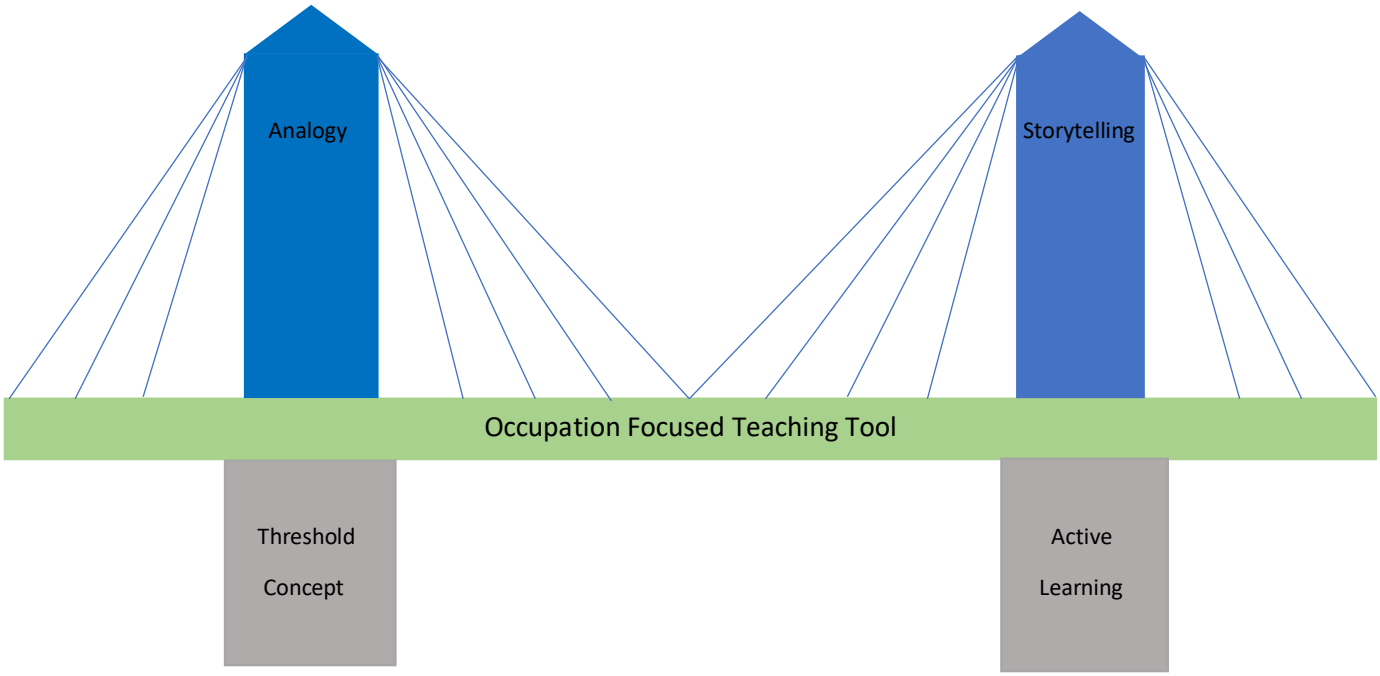
In Phase II student-participant use of the teaching tool again provided a visual point of reference during consideration of the constituent components of occupation. The physical structure of the teaching tool enabled them to deconstruct occupation. Through deconstruction of the teaching tool into its component parts student-participants were enabled to consider the impact of a medical condition on the occupation of an individual. The availability of separate component parts enabled their categorisation of the components. This prompted articulation of professional reasoning to account for the

categorisations. Professional reasoning was articulated through use of prior professional knowledge and illuminated through the telling of stories drawn from clinical experiences. Hence, student-participants use of the teaching tool enabled individuals to link knowledge and practice examples.

Reflection on my findings led to my conceptualisation of the teaching tool as a mediating artefact, which promotes an active learning approach. Furthermore, I perceived the role of the teaching tool as one that supports the use of identified pedagogic methods; analogies and storytelling. Reflecting upon literature-based discussions I concurred with the recommendation of treating the concept of occupation as a threshold concept within occupational therapy curricula.

This resulted in my visual representation of the teaching tool in relation to the pedagogic practice of teaching-learning the concept of occupation (Figure 34).

Figure 34: Conceptual Bridge Model of Occupation Focused Teaching Tool



(created by Howarth, J. T., 2018)

The occupation focused teaching tool is visually represented as the platform of a suspension bridge. A bridge constructed to support students to traverse the gap between commonplace and professional knowledge and understanding of occupation.

Utilising occupation as a threshold concept is a foundation stone to the use of the teaching tool, as is employment of an active learning approach. The combination of the foundation stones provides a secure base, which supports the use of the teaching tool. The teaching tool itself provides the platform to support the pedagogic use of analogies and storytelling. The multiple cables represent the use of numerous analogies and stories fixed securely to different points of the platform.

Findings of my research present the teaching tool as supported by pedagogic approaches whilst supporting pedagogic methods. Discussion of these findings aims to explore critically what properties the teaching tool holds as a mediating artefact that supports teaching-learning of the concept of occupation, and its utility in the development of both knowledge and understanding.

9.0 Discussion of Findings

Occupation is a core concept of the profession of occupational therapy. The World Federation of Occupational Therapists (2016) state that occupational therapists require knowledge of occupation. Occupation should therefore be at the centre of occupational therapy curricula (Yerxa, 1998; Pierce & Peyton, 1999; Whiteford & Wilcock, 2001). Occupational therapy students could then be supported to develop comprehensive knowledge and understanding of occupation. Enhanced knowledge and understanding of occupation would enable occupational therapists to better utilise occupation as their means and outcomes of intervention (Wood, 1995; Yerxa, 1998; Hocking, 2009).

The placing of occupation at the heart of occupational therapy curricula has been referred to as occupation focused curricula (Hooper et al, 2006). Employment of occupation focused curricula would improve occupational therapy students' ability to develop professional understandings of occupation (Yerxa, 1998). As a result, these students would be better placed to make connections between ancillary subjects and occupation. This would give rise to enhanced understandings of the capacity of occupation to affect change; bringing about improved practice outcomes (Wood, 1995). One approach proposed to support the design of occupation focused curricula is the use of occupation as a threshold concept (section 2.6).

However, occupation is a highly complex phenomenon. As a result, occupation has been acknowledged as challenging both to define (Pierce, 2001, Nelson & Jepson-Thomas, 2003) and to develop knowledge of during teaching-learning (Di Tommaso, et al, 2016). In response to the challenges I experienced in relation to teaching-learning the concept of occupation I developed an occupation focused teaching tool. My research is a pedagogic investigation of the teaching tool; specifically the teaching-learning of the complex concept

of occupation. Within this chapter, I discuss the findings of my research and my conceptualisation of the pedagogic role of the teaching tool in teaching-learning the concept of occupation.

My research did not aim to contribute evidence toward consideration of occupation as a threshold concept of occupational therapy. However, emergent data indicate occupation as displaying characteristics of a threshold concept. Student-participants identified several of those characteristics as resulting in challenges to their knowledge development. Hence, I commence the discussion of my research findings by identification of the threshold characteristics that emerged from the data in relation to the concept of occupation, and challenges those characteristics raised for student-participants during the teaching-learning events. I will then proceed to discussion of the design features and properties of the teaching tool; their influence in development of knowledge and understanding of occupation for occupational therapy students.

9.1 Occupation as a Threshold Concept

Threshold concepts are identifiable due to the presence of definable characteristics. Eight characteristics have been noted (Meyer & Land, 2006; Baillie, et al, 2013; section 2.6). Whilst it is not necessary for all eight characteristics to be present, the combined presence of several are common.

The findings illustrate student-participants found the concept of occupation to meet six of the characteristics of a threshold concept. These include the knowledge of occupation as being troublesome (1) and transformative (2). Increasing knowledge developed professional discourse (3) and promoted use of professional language (4). This led to reconstitution, whereby student-participants discussed themselves as becoming occupational therapists

and the teaching tool as having facility to explain their role (5). Finally, student-participants recognised occupation as being integrative in nature; holding internal and external interrelatedness (6).

Troublesome knowledge is information which students struggle to make sense of. The challenge of learning about the concept of occupation emerged from the data on thirty-five occasions. Twenty-nine of those occurrences related to the complex nature of occupation. Perkins (2006) identified that gaining knowledge of a complex concept can be problematic. In part, this is due to the wealth of knowledge that together forms knowledge of the concept. Students can become overwhelmed by the quantity of information presented during the teaching-learning. Nelson and Jepson-Thomas (2003) commenced the deconstruction of their definition of occupation into its constituent parts. They identified occupation as constructed as a relationship between occupational form, physical and psychological component of function of an individual, and a compilation of subjectively attached meanings and values. Each of these three facets contain many more parts, each of which has a relationship with, and influence on, alternative parts. Hence, one reason for knowledge of occupation as being troublesome, is the wealth of knowledge students are required to learn. The design of the teaching tool illustrates occupation to be constructed of an initial eighty-two parts (Chapter 3; Figure 4), many of which require their own deconstruction into further constituent parts (Chapter 3).

Knowledge of a threshold concept is said to be transformative. Transformation is the one characteristic Meyer (2010) identifies as essential for a concept to be identified as threshold to a subject. On occasions that students develop knowledge of a concept old knowledge of a subject is transformed into new knowledge. Indication of the transformation having taken

place can be noted through students' altered discourse regarding a subject. The new discourse is displayed through use of subject specific language and students' alignment with professional perspectives of a discipline (Meyer & Land, 2006).

The profession of occupational therapy identifies occupation as influencing health and well-being (Wilcock, 2001a; 2007). In addition, occupation is recognised as creating and shaping the occupational identity of individuals. As such, a fundamental perspective of the profession is that humans are conceptualised as occupational beings (Wilcock, 2007).

Discourse analysis was not employed in my research. Hence, the total number of occasions on which student-participants utilised **professional discourse** to convey their perspectives as aligned with professional perspectives has not been quantified. However, the initial code of 'Applying Professional Knowledge' was applied to the data on ninety-nine occasions. Eight student-participants specifically articulated the relationship between occupations and occupational identity. Further professional terminology spontaneously employed by student-participants included activity analysis, occupational analysis, co-occupation, grading of occupation, and concepts of doing, being and becoming. All of which constitute elements of occupational therapy terminology. This is suggestive of student-participants transforming their knowledge of occupation to be commensurate with the perspective of occupational therapy.

Discourse is a further characteristic of threshold concepts, in that use of the threshold concept prompts discussion (Meyer & Land, 2005). Six initial codes were applied to data capturing student-participant behaviours that reflected discussion of occupation. These included 'Facilitates Discussion', 'Debating', 'Enquiring', 'Asking Tutor' and 'Asking for

Agreement'. Data related to these codes emerged on 217 occasions. Hence, discourse regarding occupation was prevalent in the data.

With developing knowledge of occupation, eleven student-participants also related the knowledge to their own development toward becoming occupational therapists.

"… for us almost as a summary of this is why you're here, this is your purpose, to enable people …" (BSc Final Year 2013/14).

This demonstrated the characteristic of **reconstitution**, with student-participants relating their developing knowledge of occupation as enabling their development to becoming an occupational therapist.

Some threshold concepts hold internal, interrelated properties. Others demonstrate interrelationships with other subjects. Each of these properties highlight the integrative nature of threshold concepts, with some concepts holding both properties**. Occupation appears to hold both integrative properties.**

The construction of occupation emerges through the interdependent, interactive, relationship of embedded concepts (Nelson & Jepson-Thomas, 2003). Developing awareness of the interdependency of the constituent components of occupation emerged from student-participant data forty-four times.

"Although they're all separate, they are all connected …" (First Year MSc 2013/14)

"They're all interlinked!" (H.E.I. 1, 2014/15)

In addition, gaining understanding of occupation enables students to develop knowledge of the relationship between occupation and health (Fortune & Kennedy-Jones, 2014). One

student-participant articulated the integrative nature of occupation with feelings of an individual who experiences disruption in their occupational performance.

"And having a knock-on effect on everything else, how he's feeling …" (HEI 1 2015).

Twenty-eight student-participants discussed the teaching tool as enabling the explanation of the role of occupational therapists and intervention in addition to its representation of the concept of occupation.

"I think it translates well to explain to people that aren't O.T.s what we do." (MSc Final 2015/16).

"A really good tool for actually education other professionals about what occupation is …" (MSc Final Year 2013/14).

An occupational perspective of health has been suggested as a threshold concept as Fortune and Kennedy-Jones (2014) have proposed this as the predominant concern for occupational therapy. Insights into the place of occupation as central to occupational therapy interventions was noted in student-participant data on twenty-eight occasions. Nicola-Richmond (2016) explored potential threshold concepts of occupational therapy. She discussed awareness of the integration nature of occupation as fundamental knowledge for development of expertise in the use of occupation. Findings of my research identify student-participants having developed awareness of the internal and external integrative nature of occupation.

These findings identify six characteristics, synonymous with threshold concepts, as being displayed by the concept of occupation. These threshold characteristics resulted in several challenges for student-participants during the teaching-learning of the concept.

The following discussion critically explores the properties of the occupation focused teaching tool. In particular, its pedagogic role in the development of knowledge and understanding of occupation as a threshold concept. Throughout the discussion, the relationship of the teaching tool to the emergent categories of 'Tutor Behaviours' and 'Learning Behaviours' are also explored.

9.2 Pedagogic Investigation of the Properties of the Teaching Tool

Student-participants identified twenty-two properties of the occupation focused teaching tool, which they perceived as supporting their learning. A predominant feature of the teaching tool, student-participants identified, was the physical structure of the teaching tool. Ten student-participants, of Phase I, specifically referred to the physical structure of the teaching tool as beneficial, identifying it as providing a visual representation of the concept (Figure 6).

Use of the teaching tool requires the unpacking of a series of blocks from several boxes, each of which are nested within the main box (Figure 4). The blocks contained within representing the numerous components of occupation (Figure 5). The components are methodically unpacking, explained and constructed into a tower that then represents occupation (Figure 6). Hence, the teaching tool requires active use, whilst facilitating methodical organisation of the information pertaining to knowledge of occupation. This enables a tutor to provide a structured verbal explanation of the constituent parts that together create occupation.

Provision of a physical representation of occupation appears to provide student-participants with an analogy for occupation to support their knowledge development. Analogies have

been discussed as a pedagogic method beneficial to students' learning of concepts that are abstract (Bishop, 2006).

9.2.1 Teaching Tool as an Analogy of Occupation.

Four student-participants perceived of the teaching tool as an analogy of occupation. Analogies use familiar explanations, or objects, to enable students to reconstruct previously understood concepts into new conceptual understandings (Wallace & Louden, 2003). Analogies are useful due to their capacity to support students to create a new mental image of a subject that can be retained in long term memory. The creation of new knowledge requires an individual to draw upon knowledge they already hold (Oppenheimer, 1956). Use of an analogy enables connections to be drawn from the old knowledge to the new knowledge. This system of transferring knowledge is referred to as analogical transfer (Bishop, 2006). The tutor uses the analogy to highlight the similarities between the familiar concept and the new. A process known as structural mapping (Gick & Holyoak, 1983; Iding, 1997).

All eighty-two student-participants came to their studies with prior knowledge of occupations, albeit from a layperson perspective (Howarth, et al, 2018). The design of the teaching tool, containing numerous individual parts, enabled me to explain the term pertaining to each part. This enabled me to draw connections between student-participants' prior knowledge, relating it to the professional understandings of occupation. Hence, my use of the teaching tool supported analogical transfer through structural mapping.

Analogies work through use of base domains and target domains (Iding, 1997). In the case of occupation, the base domain is any form of human occupation. The target domain is the professional conceptualisation of occupation. Failure to select a suitable base domain can

result in students having difficulty making sense of the target domain. Iding (1997) discussed the domains of analogies. He identified base domains as being either *near* or *far* domains of the intended subject (section 7.4.2). Far domain analogies have been noted as more beneficial for the learning of complex concepts. A far domain does not display close similarity to the target domain. The teaching tool's physical construct bares no relation to any form of occupation. Hence, the teaching tool could be considered as a far domain analogy. However, use of far domain analogies are in themselves challenging for knowledge development.

Goswami (1992) discussed different categories of analogies, identifying them to be either proportional or storytelling analogies. Proportional analogies hold a high number of common characteristics (Bollegala, et al, 2013). This allows a tutor to draw direct comparisons between the two domains. Hence, proportional analogies are near analogies. In contrast, storytelling analogies are those presented through use of a narrative (Bishop, 2006). Employment of this form of analogy allows for multiple explanation of connections between the base and target domain to be explained. The requirement for narratives, or stories, to be employed indicates the teaching tool as potentially a *far* domain analogy.

The physical form of the teaching tool holds no resemblance to any form of occupation. Hence, the teaching tool cannot be construed of as a proportional analogy. It could, however, be considered a storytelling analogy. This appears supported by the emergence of my use of storytelling from the data. The initial code of 'Tutor Storytelling' is grounded in the data 55 times. Student-participants were also noted as storytelling whilst testing their developing knowledge of occupation ('Participant Storytelling': G5)

Storytelling analogies provide students with contextual understanding of a subject. Their use is beneficial in supporting students to make sense of a subject (Gray & Stuart, 2012). In addition, storytelling analogies are identified as supporting deeper understanding of a subject and enabling knowledge retention (Moon, 2010). However, their use results in a large amount of information being presented to students. This can be overwhelming. Students can find it challenging to extrapolate the most pertinent information required in relation to the subject being taught (Bishop, 2006).

Investigation of my use of the teaching tool enabled me to recognise that I repeatedly employed stories to explain, and provide context, during explanation of different components of occupation. What also emerged was my realisation that the teaching tool on its own provides no context or story. It exists purely as a physical representation of the target domain of occupation. Hence, the teaching tool itself cannot be construed of as a storytelling analogy. Rather, the stories are constructed around a vehicle (the teaching tool). Hence, the teaching tool appears to be a *far* analogy of occupation, with storytelling analogies used to draw parallels to the constituent parts of occupation.

Emergent from the data was also my use of analogies. These consisted of examples of different forms of occupation. The most predominantly used being gardening. Hence, the storytelling analogies provide contextual understanding of the occupation examples, which are used by me and by student-participants.

In addition to coding data that related to occasions when student-participants and I utilised stories, I separately coded our use of analogies. This initial code was applied to capture each example of occupation drawn upon by me or student-participants during the teaching-learning events of Phase I. Analogies were grounded in the data fifty-five times (Tutor

Analogies: G40; Participant Analogies: G15). These initial codes separated occasions where an occupation was referred to in the teaching-learning from occasions where contextual explanation was given through storytelling.

Occupations, drawn upon as examples, can be considered as analogies which are both proportional and near. As previously identified proportional analogies are useful for drawing direct comparisons to a target domain that share attributes (Bollegala, et al, 2013). This is due to their near resemblance to the target analogy. The difficulty that occurs is that for each separate example of occupation that is drawn upon the parallel component of occupation can vary. An example of this can be seen when considering the component of environment. All occupations are performed within a surrounding physical environment. When employing the example of gardening as an occupation the physical environment typically consists of an outdoor space. However, gardening can also take place within indoor spaces, typically in the form of greenhouses. As an alternative considering the occupation of swimming, this occupation can occur outdoors, in rivers or the sea. It can also take place indoors through the availability of a swimming pool. The variations that exist in relation to the component of physical environments are multiple. Hence, occupations cannot be used as proportional analogies as direct parallels cannot be drawn.

Using occupations as the base domain also results in the use of *near* analogies. *Near* analogies can be advantageous for knowledge development in that there is a close resemblance between the domains (Iding, 1997). However, when the analogy used for the base domain is too near the target domain, students can perceive the parallels being draw as obvious. This results in students conceiving of the information as commonplace, perceiving of themselves as already in possession of the required knowledge. This results in

students assuming their prior knowledge of the subject as being commensurate with the new knowledge, limiting development of a new conceptualisation of the subject being formed.

The physical form of the teaching tool allows students to see occupation as conceived of as an abstract concept. The physical shapes, which make up the teaching tool, bear no resemblance to the physical structures of the components of occupation. Hence, the teaching tool support use of examples of occupation as near analogies, acting as a conduit, providing distance between the base and target domains.

An initial conclusion drawn from the findings is that the physical form of the teaching tool provides a far analogy of the concept of occupation. However, as a base domain it is too far removed from the target domain to support knowledge development on its own. Its use requires the support of occupation-based analogies as examples, in conjunction with storytelling analogies, providing context. Use of the three together enable student to develop knowledge of the concept of occupation as commensurate with the understandings of occupational therapy.

Consideration of the physical structure of the teaching tool acting as an analogy of occupation identifies it as a concrete object-based analogy. Bishop (2006) identified these forms of analogy as acting as a visual aide-mémoire. When employed in conjunction with verbal explanation, such tools engage two forms of working memory that are identified as important in learning large quantities of information.

9.2.2 Teaching Tool as a Visual Aide and Aide-Mémoire

Developing knowledge of occupation entails learning a large amount of information. Retention of the knowledge of occupation is essential for occupational therapy students to

employ occupation as their form of intervention. Use of object-based analogies, in conjunction with verbal explanations, is one method, which supports the learning of large quantities of information (Bishop, 2006). It is further strengthened by providing students with a memorable portrayal of a subject that supports their construction of a mental representation of the subject.

Findings demonstrate student-participants perceived the teaching tool to be a visual aide to their learning (Visual Aide: G24). The teaching tool was also identified as an aide-mémoire (Aide-Mémoire: G5). The use of a visual aide supports the use of two forms of working memory essential for knowledge development; visual and auditory (Mayer and Moreno, 1998). Aide-Mémoire, on the other hand, are identified as useful in developing understanding of a subject.

9.2.2.1 Visual Aide

Students engaged in teaching-learning, that requires reconceptualization of a subject, require the capacity to hold and process the information in their short-term memory (Entwistle, 2009). For this to take place, students must know which aspects of presented information require attending to. Once identified, students can begin to process the information in their working memory. To support the processing of information prior knowledge of the subject is drawn from long-term memory for use in working memory. However, working memory is noted as having limited information capacity (Newton, 2012).

Mayer and Moreno (1998) discussed two forms of working memory that support the development of knowledge and understanding of a subject; visual and auditory. Used in combination these forms of working memory support students to process larger quantities of information than each could accommodate when used alone. Their findings suggested

that visual images, used in combination with verbal explanation, stimulated use of visual and auditory working memory together. Hence, increasing the capacity of the working memory system (Baddeley, 1981).

The teaching tool provides students with a visual representation of occupation and engages their visual working memory. As the teaching tool is unpacked, and the tower constructed, verbal explanation is given. Hence, auditory working memory is also stimulated. Thus, verbal explanation in combination with active visual use of the teaching tool enables students to process a larger quantity of knowledge. This is essential for developing knowledge of occupation, which is constructed by the combination of multiple component parts.

Newton (2012) also discusses the forms of information processing that take place in working memory; automatic and controlled. Automatic processing requires students to pay little conscious attention to the information. For automatic processing to occur it is necessary for the student to be familiar with the subject. This is a risk when teaching students about the concept of occupation. Familiarity with occupations through personal experience can result in students employing automatic processing. This could result in them not attending to the new knowledge which is being imparted. Controlled processing is more beneficial to the development of new knowledge, or conceptual reconstruction (Newton, 2012). Controlled processing requires consciously attending to information. This can be supported through clear focusing of students' attention and use of novel pedagogic methods.

The design of the teaching tool necessitates a methodical unpacking of blocks and construction of the blocks into a tower. This supports a structured explanation of the components of occupation. Throughout the teaching-learning events of Phase I, I provided verbal explanation of each component, whilst simultaneously showing the related box or

block to student-participants. This behaviour was captured through my use of the initial code of 'Directing Attention' (G: 977). This is the most grounded code to emerge within my research. My behaviour prompted student-participants to consciously attend to each block in turn. Thus, my use of the teaching tool supported students in undertaking controlled processing of the information.

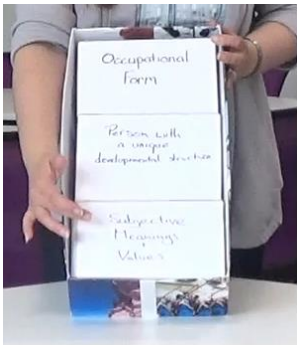
The structure of the teaching tool is borrowed from a commercially available game (Chapter 3). Games used in tertiary education are beneficial for engaging students in active learning (Whitton & Moseley, 2012). Their use is noted for enabling students to develop personal understandings of a subject (Thompson, et al, 2011; Hook, et al, 2015; Suvajdzic, 2016). Students' participation in games also promotes collaborative learning (Whitton & Moseley, 2012). The teaching-learning events employed in Phase I relate to my use of the teaching tool. Whereas, the teaching-learning method of Phase II was based around student-participants' shared use of the teaching tool. Findings of the teaching tool employing the familiar physical structure of the commercially available game in the different research Phases will be explored separately. I begin by exploring its use in Phase I.

Throughout the teaching-learning process of Phase I, I repeatedly revealed sub-concepts and components of occupation. I also undertook the construction of a tower. Hence, I continuously interacted with different elements of the teaching tool. Presenting a core concept of occupational therapy to students through this approach, as an alternative to theory presented via PowerPoint supported lectures, provided a novel teaching-learning experience. Furthermore, students-participants were familiar with the game from which the structure of the teaching tool is sourced. When the commercially available game is played, once the tower is constructed, the aim is to remove blocks from within the tower without

the tower collapsing. During teaching-learning student-participants displayed curiosity as I open and unpacked each of the boxes. Following construction of the tower they continued to appear curious as to whether the teaching tool would be engaged with reflecting the nature of the game. Thus, adoption of the form of a familiar game provided a novel teaching-learning experience whilst also stimulating curiosity.

Adoption of the structure of the game provided further benefits in the teaching-learning of occupation. Firstly, my continuous interaction with the teaching tool directed and maintained focus on the information to be learnt (Figure 35), as previously discussed. Student-participants prior knowledge of the game, added to their prior knowledge of occupation, enabled them to also gain insight into several important characteristics of occupation as a concept.

Figure 35: My Interactions with the Teaching Tool



Professional understandings of occupation identify it as complex and constructed through a combination of many interdependent components (Nelson & Jepson-Thomas, 2003). Employment of the form of a constructed tower mirrors the construction of occupation, with the wooden blocks both supporting and being supported by other wooden blocks. Once the tower is constructed, I can move, or remove, individual blocks from the tower (Figure 36).

Figure 36: My Removal of Individual Blocks

Movement of individual blocks results in movement of alternative blocks in the tower. This action demonstrates the dynamic, interdependency of the components within occupation. In addition, it illustrates the fragile nature of the tower that represents occupation. When individuals experience a trauma or develop a medical condition, aspects of their physical, psychological and or social function are impacted upon. These functions, required to perform occupations, are encapsulated through the blocks housed within the box of 'A Person and Their Unique Development Structure'. Hence, they form part of the tower. Movement, or removal, of these specific blocks enabled student-participants to see the potential of the tower collapsing. Hence, impact on a component of function can collapse an occupation, removing the capacity of occupation to exist. Student-participants recognised these features within the teaching tool, identifying them as beneficial in developing knowledge of occupation as a complex, dynamic concept. Each feature, as it emerged from the data, was coded. Discussion of the interdependency of the components was grounded in the data on 44 occasions; discussion of the fragility of occupation emerged on 19 occasions. Data related to the dynamic nature of occupation emerged on 14 occasion, with identification of occupation as a complex concept being grounded in student-participant data on 31 occasions.

"… seeing it in that tower it kind of reinforces the fact that taking one away this is how it all impacts …" (BSc First Year 2015/16).

"And also if you take some of the blocks out it collapses. That's like the effect when someone can't do their occupation and that's the need for us." (BSc Final Year 2013/14).

Identification of a range of features of occupation by student-participants indicated the occurrence of knowledge development of the concept of occupation during Phase I of the research. Glaser (1984) identified knowledge development as being able to be supported through use of explicit organised structures. The teaching tool provided student-participants with a dynamic, physical structure that could be explained in an organised manner. Hence, the teaching tool provided a visual framework for the organisation of the large quantity of information required for development of holistic knowledge of occupation.

In Phase II the student-participants were free to use the teaching tool however they wished in relation to a given case scenario (Appendix 5). The individual of the fictional scenario had developed a medical condition. The symptoms of the medical condition were, in turn, impacting on the occupational performance capabilities of the individual.

Student-participants physically engaged with components of the teaching tool. They used the blocks to explore (G:35), and later categorise (G:40), aspects of occupation that may have been impacted upon by the medical condition (Figure 37). Student-participants' active use of the teaching tool was coded on 154 occasions; the second most grounded code in my research (G:154). Their active use of the components of the teaching tool provided them with a visual focus around which their discussions were based. Hence, the teaching tool again acted as a visual aide to learning.

Figure 37: Photographs of Student-Participants' Action of Categorising

The code of 'Active Use' was used as student-participants physically interacted and consciously attend to each block. Thus, student-participants' use of the teaching tool reflected my use of the tool in Phase I for directing attention (Figure 23). In Phase II on each occasion an individual student-participant interacted with the tool the individual focused their attention on the specific component. Student-participants then participated in discussion and debate regarding the selected component, demonstrating the occurrence of collaborative learning (Kirschner, Pass & Kirschner, 2009). Thus, the attention of fellow student-participants was also directed to the component under discussion. Hence, student-participants' use of the teaching tool supported themselves and their peers in undertaking controlled processing of the information.

The development of understanding of a subject can be facilitated by enabling students to actively engage with the subject (Entwistle, 2009). Active engagement with the concept of occupation requires students to manipulate large quantities of knowledge flexibly and in novel ways. The wealth of knowledge to be manipulated is beyond the capacity of working memory. Hence, the physical presence of the teaching tool not only provided a visual aide,

but with access to the terminology of the component parts of occupation being visually provided, enabled to the teaching tool to also act as an aide-memoire.

9.2.2.2 Aide-Mémoire

An aide-memoire is an abridged record of a subject that prompts memory recall for an individual (Petty, 2014). The code, 'Aide-Memoire' (G:5) was present only in Phase II data. Whilst student-participants identified this property of the teaching tool on only five occasions, the teaching tool was discussed as a prompt to student-participants' memories on a variety of other occasions in both Phases of data collection. These additional codes include 'Remembering' (G:13) 'Revision' (G:25) and 'Teaching Tool is Memorable' (G:14).

'Teaching Tool is Memorable' was a code I applied to data in which student-participants discussed the properties of the teaching tool as enabling them to recall their knowledge of occupation.

"… when I think of occupation I think of [name of game] blocks. Like it's, like it's just stuck in my mind and it's just formed my learning and how I explain OT throughout the years." (BSc Final Year 2015/16).

"… I wouldn't be able to tell you a lot of lectures I went to. It's different to the rest which is better I think. You pay more attention when something is different" (MSc Final Year 2015/16).

In addition to identifying the teaching tool itself as being memorable, student-participants also identified the teaching tool as beneficial for prompting recall of knowledge of the concept of occupation.

"It could help us look at things that we might be leaving out" (HEI 1 2014/15).

Occupational therapists consider the people they work with, and occupation, from a holistic perspective. Hence, having the tool available for active use, whilst considering a clinical scenario, appeared to support student-participants to recall the wealth of knowledge required to understand occupation holistically. Student-participants referred to the property of the teaching tool as reflective of the holistic nature of occupation on twenty occasions. Providing a holistic representation of occupation appeared to also support student-participants to consider the potential impact of a medical condition on all components of occupation that together facilitate occupational performance.

"Everything here we're dealing with holistically and this is a holistic box." (HEI 1 2014/15).

Student-participants also discussed the teaching tool as a potential tool for revision.

"It's like a practical mind map isn't it." (HEI 1 2014).

Occupation is a highly complex concept. In order to utilise it as a therapeutic intervention, occupational therapy students require understanding of the concept in order to use it in novel ways. Findings suggest that occupation could be considered a threshold concept of occupational therapy (section 9.1). One characteristic a threshold concept can hold is liminality (Baillie, et al, 2013). This occurs when student knowledge of a concept alternates between prior and new knowledge of a concept. The availability of the teaching tool for independent revision may have potential to bring liminality to an end by enabling students to repeatedly revisit the professional conception of occupation. However, this can only be inferred as no research has been undertaken to investigate this potential.

Hence, during Phase I, my use of the teaching tool enabled it to act as a visual aide to the development of knowledge in two ways. Firstly, displaying of each box and block that represents a component of occupation provided visual focus during verbal explanation. These actions directed student-participants regarding what information was to be attended to. This enabled students to note and gain knowledge of the many varied components of occupation. Secondly, the dynamic property of the teaching tool enabled student-participants to develop knowledge of the dynamic, interdependent nature of occupation and its fragility through a physical representation of the concept.

The teaching tool also demonstrated utility for the development of understanding. This was demonstrated in Phase II due to the teaching tool's facility for active use by student-participants. Their active use of the teaching tool facilitated group-based discussion and support of knowledge recall, acting as an aide-mémoire. Student-participants were observed to use components of the tool to categorise elements of occupation they considered as potentially impacted upon by a stated medical condition.

However, whilst providing a physical representation of occupation through the teaching tool demonstrated benefits in development of knowledge and understanding, several challenges to the design features were also raised by student-participants. Two challenges related directly to the development of knowledge and understanding; 'Requires Guidance' (G:3), 'Requires Information' (G:4). Both codes emerged only during Phase II of data capture when student-participants were using the teaching tool independently. Each code related to the role of the academic in supporting student learning. In addition, the data coded under 'Requires Information' indicated the teaching tool as requiring accompanying material if it were to be used for independent learning and revision.

9.2.3 Scaffolding Student Learning through use of the Teaching Tool

Two initial codes, emergent from Phase II student-participant data, identified challenges to the utility of the teaching tool. Firstly, the effectiveness of the teaching tool for development of knowledge and understanding was limited in the absence of an expert of the subject (Requires Guidance). Additionally, student-participants identified that to use the teaching tool independently would require the accompaniment of written explanation of a few of the terms used to represent components of occupation (Requires Information). Below I consider the findings relating to each code separately.

9.2.3.1 Requires Guidance

Developing understanding of a subject requires students to become personally engaged with the material. However, for students to develop accurate understandings, support from an expert of the subject has also been identified as necessary (Newton, 2012).

During Phase II data capture events, student-participants predominantly used the teaching tool independently of me. One aim of Phase II was to investigate student-participants' use of the teaching tool to explore an occupational therapy-based case scenario (section 6.3.2). Occupational therapists must be able to use their knowledge of occupation in novel situations as each client lives within unique circumstances. In addition, presentation of the symptoms of their medical condition, likewise, can be idiosyncratic. These elements add additional layers of complexity to that of developing understanding of the concept of occupation.

Whilst I was present for the duration of each Phase II data capture event, I principally participated when directly requested by student-participants. Hence, they predominantly used the teaching tool in a collaborative-learning format; exploring the impact of a stated

medical condition upon the occupations and occupational performance of an individual. Collaborative-learning has been identified as resulting in improved learning outcomes when utilised for the education of more complex learning tasks (Kirschner, et al, 2009). This relates to the excessive number of elements that complex learning requires outweighing the working memory capacity of an individual. Collaborative-learning enables a group of students to share the cognitive load during the learning process (Kirschner, et al, 2009).

Whilst student-participants used the teaching tool predominantly without my involvement, they did actively seek my input on a variety of occasions. This resulted in my creation of six initial codes in Phase II that captured my behaviours (Figure 21). These included;

1. Tutor Confirming (G:7)
2. Tutor Enquiring (G:14)
3. Tutor Explaining (G:12)
4. Tutor Guiding (G:21)
5. Tutor Prompting (G:38)
6. Checking Learning (G:2)

The codes of 'Tutor Enquiring', 'Tutor Guiding' and 'Tutor Prompting' illustrate my principle behaviours during Phase II. Together these codes represent ways in which I guided the learning of student-participants. I posed questions to prompt and guide student-participants' thinking. On occasion these were open questions, on other occasions the questions were to enable student-participants to link their discussions to previously taught theory.

"How do you feel about what you've pulled out in regard to the impact his life is having on his occupational ability?" (Participant-researcher, 2015/16).

"So, whilst equipment can be important to enable a lot of occupations to happen, sometimes we need to add additional equipment to a person's life to enable occupation to happen. Which approach is that?" (Participant-researcher, 2014/15).

Some of my behaviours were also self-initiated. These occurred when I observed student-participants as having become hesitant about what the information meant, or what steps to take next in their investigation. The combination of my self-initiated behaviours and direct requests from student-participants demonstrated that it was necessary for me to actively support student-participant learning.

Wallace and Louden (2003) identified the importance of academics working as partners with students, in support of construction of knowledge. Furthermore, for the development of understanding, they identified the role of academics as being one in which academics illuminate the relationships that exist within the factual knowledge. This is commensurate with the work of Northedge (2003), who drew upon the educational philosophy of Dewey. Northedge (2003) emphasised the importance of recurring teacher-student dialogue for the creation of shared meanings and students' internalisation of the learning. Hence, the teaching-learning can be conceived of as a co-occupation (section 4.2) occurring between academics and students. Entwistle (2009) and Kolb (2015), drawing upon Vygotsky's educational philosophy, concurred. Each identified learning as occurring through interpersonal interactions within social contexts. Kolb (2015) further identifying learning as taking place through reflection and discussion of the unfolding experience. Hence the behaviours I displayed in Phase II appear commensurate with an active learning approach.

Furthermore, my interactions with student-participants appear to align with Vygotsky's concept of scaffolding learning, whereby the academic carefully structures the learning to build the students' knowledge. However, the design of Phase II did not involve careful construction of the learning by me. Rather student-participants were free to work together as a group, independently of me. Therefore, use of the teaching tool in Phase II is more reflective of the work of Leont'ev who introduce the notion of 'division of labour' in the teaching-learning experience.

Ashwin (2012) identified Leont'ev's concept of the *division of labour* as being the actions of the academic working in combination with the questions and debates raised by students. This can be seen in a range of behaviours I displayed, using prompts and questions to stimulate student-participants to explore and create their own understandings of the subject. Division of labour is also reflected in several student-participant behaviours that were coded including 'Debating' (G:93), 'Asking Tutor' (G:2), 'Enquiring' (G:2). These codes were reflective of student-participants' interactions with me. Together these codes demonstrate a division of labour between me and the student-participants.

However, there were additional codes created that captured further interactions student-participants undertook with each other during the learning process; Peer Checking (G:55), Peer Enquiry (G:55), Peer Explaining (G:39), Sharing Information (G:13), Peer Inviting (G:2), Peer Prompting (G:30) and Leading Learning (G:9). These codes also illustrate a division of labour amongst the student-participants themselves (Figure 26).

Whilst Leont'ev's concept of the division of labour can be useful in gaining some insights to the behaviours being displayed by me and student-participants, he is noted as conceiving of

teaching and learning as being two separate activities (Ashwin, 2012). In my research I have drawn on the work of Ashwin (2012) who discusses teaching-learning as one activity.

Identification of teaching-learning as one activity enables consideration of the actions of academics and students working in partnership to create the shared meanings necessary for development of knowledge and understanding (Ashwin, 2012). Building on the work of Vygotsky and Leont'ev, Engström (2001) conceived of teaching-learning as one activity. He identified individuals as utilising an object to direct their activity, and through the creation of meaning, transform their knowledge. He referred to the object as a *mediating artefact*, identifying that mediating artefacts could exist in a variety of forms including other individuals, language, virtual or physical objects.

Reflecting on a variety of the learning behaviours displayed, student-participants appear to have utilised me, and each other, as mediating artefacts. They directed their actions of seeking opinions and information through their interactions with others to create shared meanings. I also drew upon the discussions of student-participants to frame the questions I posed, utilising student-participants as mediating artefacts to direct my activities. The interactive communication between all research participants (myself and students) illustrates teaching-learning as having been one activity with multiple actors performing as mediating artefacts for each other. However, the teaching tool can also be considered as a mediating artefact in the teaching-learning events.

In each Phase II data capture event, student-participants were observed to direct their activity through use of the teaching tool ('Active Use' G:154). Focusing their activity and discussions, as they selected and manipulated blocks of the teaching tool, revealed further learning behaviours. As student-participants selected individual blocks from the teaching

tool they expressed their opinions of the scenario ('Expressing Own Opinion' G:64) and verbalised their thinking ('Facilitates Thinking' G:45). This led to the emergence of student-participants' debate and discussion regarding the topic identified on each block as it was selected ('Debating' G:93 and 'Facilitated Discussion' G:57). Hence, student-participants utilised the teaching tool as a mediating artefact throughout the teaching-learning events.

At the closure of each data capture event, student-participants were provided with opportunity to reflect on, discuss and ask questions regarding the design, purpose and use of the teaching tool. The codes of 'Facilitates Thinking' and 'Facilitates Discussion' also captured some of the student-participants' perceptions of the use of the teaching tool.

"It generates discussion doesn't it." (HEI 1 2015/16).

One further code that emerged from student-participants' reflections of the teaching tool was the perception that its use facilitated depth of consideration of occupation ('Facilitates Depth G:3).

"It made you look a lot deeper, a lot deeper than just reading that [the written scenario] and picking" (HEI 1 2015/16).

Hence, findings highlighted that the teaching tool can be used as a mediating artefact through the adoption of an Activity Theory approach to teaching-learning. However, during the initial development of knowledge and understanding of occupation its' use is enhanced with participation of an academic, i.e. its' use can require guidance from an expert.

The second challenge raised by student-participants was that for them to be able to use the teaching tool independently for their learning, and or revision, it required additional information.

9.2.3.2 Requires Information

The second main challenge to the design, and independent use, of the teaching tool 'Requires Information' (G:4) shares similarities with 'Requires Guidance'. Student-participants expressed that without additional information from an independent source (academic or text), the teaching tool would be too challenging for them to use independently. Whilst this code only emerged within Phase II data, it reflects student-participant commentary emergent in Phase I ('Challenging Utility' G:4), each of which may reflect different student-participants preferred form of learning.

"… I'm a word person. … I'm looking at that and thinking there aren't enough words for me …" (BSc Final Year 2015/16).

Fleming (2001) identified individuals as having preferred modes of learning and noted the existence of a variety of learning style theories. His research focused on how individuals gather, organise and consider information through use of their senses to create their learning (section 7.5.1). Whilst no assessment of student-participant learning styles was undertaken in my research, ten student-participants made direct reference to their preferred style, or mode, of learning during the data capture events.

Eight student-participants, across Phase I and II, identified themselves as visual learners, and discussed the teaching tool as a visual aide to their learning (section 9.2.2.1). Further examination of the data enabled me to identify that three of those who stated themselves to be visual learners also identified their ability to learn as occurring more effectively through word orientated formats. It was these student-participants who identified that the tool would be enhanced with the addition of text-based material. This suggests that these

student-participants were dual or multimodal learners, but with a potential preference for the Read/Write modality (Khanal, et al, 2014).

Consideration of the teaching tool using the V.A.R.K. learning styles theory suggests that its design, and use, can support different learning modes. The teaching tool provides a visual representation of the concept of occupation, thus providing visual learners with a tool through which to create visual memories. My involvement in the teaching-learning, presenting knowledge and explaining relationships, supports aural learners who benefit from verbal explanations of material. The Phase II format of teaching-learning, which allowed student-participants to directly interact with the teaching tool could accommodate the sensory preferences of kinaesthetic learners who learn best through their own experiences.

"… there's all these things being impacted that I've never even thought of without sitting here and having bricks to play with, you wouldn't think about it." (HEI 1 2015/16).

Finally, considering the challenge raised by student-participants, if accompanying text-based material were to be developed, the teaching tool may have benefits to read/write learners also.

"… like one word prompts I think would be quite hard for me to understand" (HEI 2 2014/15).

The discussions undertaken by student-participants resulted in their consideration of the potential to develop the teaching tool in different formats, or with accompanying material.

"A brief explanation just so if someone's unclear they can refer to that." (HEI 1 2014/15).

Hence, through the code of 'Requires Information', student-participants identified that addition of accompanying text-based material would better enable them to use the teaching tool for independent learning and revision of the concept of occupation. Discussion of the different formats that student-participants identified are not directly relevant to the pedagogic investigation of the utility of the teaching tool under consideration here. However, they are of interest, requiring further consideration and research. Hence, the alternative formats of the teaching tool identified by student-participants are presented and considered, in brief, in Chapter 13: Post-Doctoral Research.

9.2.3.3 Further Challenges

Five further challenges relating to the design and function of the teaching tool were raised by student-participants:

1. The teaching tool was designed predominantly for the explanation of one occupation, that of gardening;
2. Types of components were missing from the teaching tool, including additional forms of subjective meaning and the sociocultural component of politics;
3. The teaching tool require consideration of more component parts than would be considered when in a practice setting;
4. The teaching tool facilitated an objective interpretation of the impact of a medical condition;
5. Use of the teaching tool prompted problem-focused thinking.

The first two challenges stated above emerged from Phase I data, whilst the teaching tool was being employed to teaching the discrete concept of occupation. The remaining three challenges emerged from Phase II data, whilst student-participants used the teaching tool to explore the impact a medical condition could have on an individual and their occupational performance.

9.2.3.3.1 Phase I Challenges

- Two student-participants identified the teaching tool as being useful to explain the concept of gardening, expressing their belief that that was its' focus. On each occurrence I invited the groups of student-participants present to suggest an alternative occupation; to then re-examine the teaching tool applying the component parts to the alternative occupation. On each occasion student-participants came to recognise the teaching tool as having ability to be used to identify the components of any occupation.

"…I'm trying to think if it's anything that's not there, it's em, yeh, it's all of them …" (BSc Final Year 2014/15).

- The second challenge related to forms of subjective meaning and value not being present in the blocks.

"… I think relaxing's one of the main ones that made me think was missing, …" (MSc Final Year 2014/15).

Recognition that there are many, varied forms of subjective meaning and value that could be attributed to an occupation, I chose to add a selection of blocks to the box labelled 'Subjective Meanings and Values'. These additional blocks are unlabelled. This enables an

individual to attribute any form of subjective meaning or value they wish represented. The additional block one student-participant identified as absent from the teaching tool was one labelled 'political'. Blocks housed within the sociocultural dimensions of occupation form box identified national, international influences, however, political influence was not specifically present. Rather than add to the blocks, note has been made to articulate the political influences that emerge from societal influences.

9.2.3.3.2 Phase II Challenges

- One Phase II student-participant, using the teaching tool to explore the impact of a medical condition on occupation, identified the teaching tool required many more components to be considered than would occur in practice.

"But there's a lot in that. In practice you wouldn't necessarily take into account all those factors." (H.E.I. 2 2015/16).

However, seven student-participants, who also participated in Phase II, identified the teaching tool as enabling them to have a more holistic consideration of occupation.

"… on my last placement I was so caught up in the physical that you put the occupation to one side and I think it is just useful to break it down and discuss it." (H.E.I. 1 2015/16).

- The final two challenges identified relate to the perspective adopted when exploring the case scenario.

"… you do end up being a little bit problem focused …" (H.E.I. 1 2015/16).

The teaching tool being originally designed for teaching-learning the concept of occupation has not initially been considered for use in alternative elements of occupational therapy

education. Whilst data identifies the teaching tool enables students to consider occupation holistically in conjunction with a case scenario, further research would be necessary to test its utility in this manner; to ensure the teaching tool retains an approach commensurate with the perspectives of occupational therapy in being solution-focused.

SUMMARY

The findings demonstrate that for the teaching tool to have utility for peer-learning, independent learning and revision it requires guidance and or additional information to be made available to students. Consideration of the two codes of challenge has highlighted the benefits of using the teaching tool when an Activity Theory approach to teaching-learning is being used. However, also of note was that neither of the two codes under discussion emerged from the data of Phase I. This is reflective of the different forms of teaching-learning employed during each Phase of data collection. Phase I being situated toward the teaching end of the teaching-learning continuum, with an expert guiding and providing information. Whilst Phase II data captured activities being situated toward the independent learning end of the continuum (Figure 27).

Within this chapter I have begun by considering occupation as a threshold concept of occupational therapy. I have explored findings that demonstrate the influence of several properties of the teaching tool in relation to categories of tutor behaviours and learning behaviours and development of knowledge and understanding. I will now consider further properties of the teaching tool as they emerged from the data; how they supported development of knowledge and understanding of the concept of occupation.

9.2.4 The Teaching Tool as a Representation of Occupation as a Concept

Analysis of preliminary data from Phase I raise the question as to whether the teaching tool provided students with a representation of the concept of occupation commensurate with the understandings of occupational therapy. In order to explore this issue, I chose to recruit occupational therapy students who had received professional education regarding the concept of occupation, but who had no knowledge of the teaching tool (section 6.5.2). My aim was to investigate student-participants' perceptions of the teaching tool as representing professional conceptualisation of occupation with limited information being provided to them.

Four of the sixteen student-participants recruited from H.E.I 2 identified the teaching tool as being a representation of the concept of occupation (Figure 15). None of the remaining twelve student-participants verbalised any disagreement with this identification when given the opportunity. Two student-participants from Phase I, in their final year of education, also independently identified the teaching tool as representative of their professional understanding of occupation.

"… it suddenly makes sense that this is actually what an occupation is" (MSc Final Year 2015/16)

"… this is occupation …" (MSc Final Year 2014/15)

Student-participants identified the concept of occupation as being complex on twenty-nine occasions in Phase I data ('Identifying Complexity' G: 29; Figure 29). They also discussed how challenging it could be to learn about the concept through reading written material or reviewing notes from a didactic lecture format (Not Learning Through Reading G: 6).

"I've read a whole book and not got a word of it." (BSc First Year 2014/15).

"… just because I went through some lecture notes, I have no idea what the difference these terms is. I was literally clueless." (BSc First Year 2015/16).

One of the reasons student-participants attributed as a cause of the difficulty was the profession's interchangeable use of terminology ('Problem with Terminology' G: 8).

"… there is no universal language of what activity is, of what occupation is, and if we don't understand it ourselves how can we explain it to other people …" (BSc Final Year 2015/16).

The problems of interchangeable use of terminology, by the profession, has been recognised in occupational therapy literature (Golledge, 1998; Hooper, 2006; Krishnagiri, et al., 2017). Di Tommaso, et al (2016) identified this as resulting in students struggling to know when something is an occupation as compared to a purposeful activity, or activity. Thus, impeding knowledge development.

However, my findings illustrated that use of the teaching tool enabled student-participants to begin to differentiate between the three terms ('Differentiating Terminology: G:27).

"… it makes it clear that the activity and the purposeful activity and the occupation" (MSc Final Year 2015/16).

"… your concept of what makes an activity and then how we you know can make it purposeful but how that's not really, not an occupation and what needs to be included the subjective meanings of the individual to make that the occupation." (BSc Final Year 2013/14).

Student-participants' ability to correctly differentiate between the terms was captured in a variety of initial codes; 'Purposeful activity' G: 13, 'Occupation' G: 24 and 'Differentiate Terminology' G: 27. This demonstrated knowledge development to have occurred.

My design of the teaching tool was based on Nelson and Jepson-Thomas (2003) definition that occupation is *"… a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance"* (p. 90). My intent had been to create a teaching tool that would support students to gain knowledge and understanding of the concept of occupation. What I had not anticipated was that the physical form of the teaching tool would also enable differentiation of the additional terms of activity and purposeful activity. This only became apparent to me during initial use of the teaching tool.

Activity, purposeful activity and occupation are closely related terms (Golledge, 1998). Use of the teaching tool demonstrated that an occupation encompasses both an activity and a purposeful activity. In addition, the tool demonstrated that a purposeful activity contains an activity. The deconstruction of occupation into multiple component parts, and the rebuilding in a step-by-step format illuminated this property of the teaching tool (Appendix 4). Hence, activity can be construed as a dynamic, interdependent relationship between occupational form and a personal and their unique developmental structure. A purposeful activity being an activity to which a definable purpose can be attributed, either by the individual and, or by others. Finally, with the further addition of the subjective meanings and values, attributed solely by the individual, a purposeful activity transforms into an occupation.

Emergent from the data was also student-participants' identification that the teaching tool had the potential to be used to support two activities that are core skills of an occupational therapist ('Activity Analysis' G: 3, and Occupational Analysis' G: 2).

"Could use them in an activity analysis" (HEI 2 2015/16)

"… doing an occupational analysis." (HEI 2 2015/16).

Activity analysis has been defined as "*… the process of breaking up an activity into the components that influence how it is chosen, organized and carried out …"* (Bryant, Fieldhouse & Bannigan, 2014, p. 53).

Occupational analysis, also referred to as occupation-based activity analysis, has been defined as the analysis of an activity as undertaken in methods unique to the individual (Thomas, 2015). Hence, the unique circumstances and skills of the individual are analysed. Furthermore, consideration of the importance the individual attributes to the activity are acknowledge. Hence, the analysis is of an activity to which an individual has attached subjective meaning and value results in the analysis of an occupation.

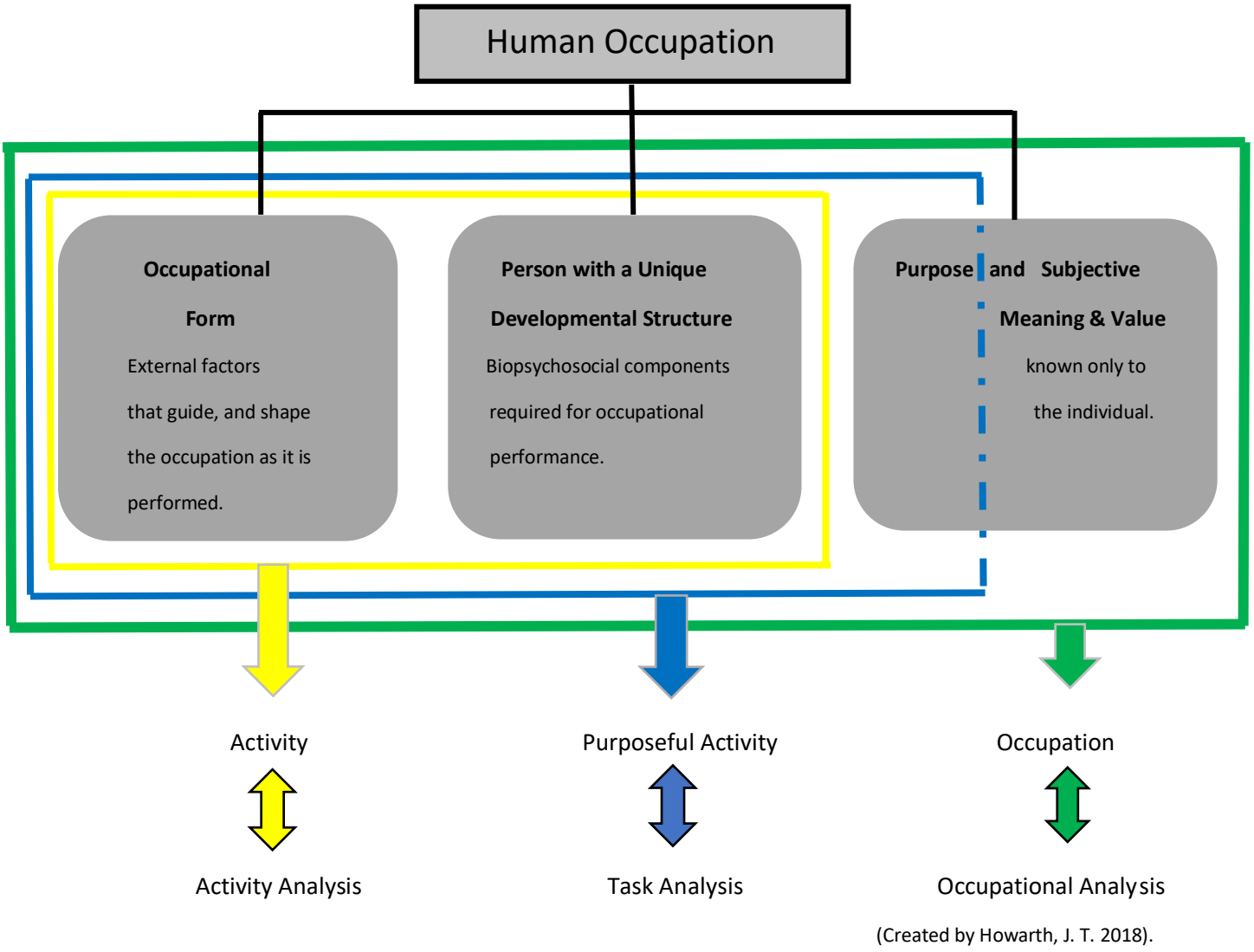
In addition to these two skills a third related skill is present in occupational therapy literature; task analysis. A task has been defined as "*A series of structured steps … intended to accomplish a specific goal. The goal could either be: (1) The performance of an activity or (2) A piece of work the individual is expected to do."* (Bryant, et al, 2014, p. 35). Hence, a task can be identified as an activity with an identifiable purpose, i.e. a purposeful activity. The term task analysis thus relates to the analysis of a purposeful activity.

As with the requirement to have knowledge of the terms activity, purposeful activity and occupation, occupational therapists are required to develop ability and skill in analysing

each (HCPC, 2013; COT, 2014; WFOT 2016). Analysis of activities, purposeful activities and occupations being the initial step toward understanding the requirements for the performance of each. The ability to complete the analysis being the preceding step toward developing ability to create therapeutic activity and therapeutic occupation for use as intervention (Bryant, et al, 2014).

The ability to differentiate terminology is important for clarity of knowledge and development of understanding. It is also important for enabling an occupational therapist to correctly select which form of analysis requires completion in relation to future intervention. The teaching tool not only provides clear differentiation between activity, purposeful activity and occupation. It can also be used to provide clarification between the skills of activity analysis, task analysis and occupational analysis (Figure 38).

Figure 38: Diagrammatic Representation of Terminology Encapsulated in the Teaching Tool in relation to Practice Skills



(Created by Howarth, J. T. 2018).

This diagrammatic representation of all three definitions (Figure 38), encapsulated by the teaching tool, enables students to see the distinct, yet inseparable, relationships between each term, that currently, are used interchangeably. Furthermore, it enables direct correlation to be draw between each of the different terms and the related skills employed by an occupational therapist. This was recognised by three student-participants who

identified that the teaching tool could be used to support their completion of activity analysis and occupational analysis, as previously noted;

"I suppose you would look at each one of these things through an activity analysis." (HEI 2 2015/16).

A further nine student-participants identified the teaching tool as holding properties that suggested the tool to have utility beyond only that of teaching-learning the concept of occupation. Seven student-participants identified their use of the teaching tool as enabling them to relate theory to practice (G:7).

"… you can sort of integrate like theory into it like grading …" (BSc Final 2013/14)

A further two student-participants identified that their own use of the teaching tool facilitated their consideration of assessments they may use with clients (G:7).

"Having these could give you an idea of what assessments you would actually you think you would want to carry out …" (HEI 2 2015/16).

When creating the teaching tool my intent had been to develop a tool that would enable occupational therapy students to develop knowledge of the concept of occupation. Findings of my research have demonstrated use of the teaching tool as supporting student-participants to develop both knowledge and understanding of the concept. Developing my own understanding of the pedagogic utility of the teaching tool through reflection on my findings resulted in my conceptualisation of the teaching tool as a mediating artefact that supports students to cross a knowledge gap.

9.3 The Conceptual Bridge Model of the Occupation Focused Teaching Tool

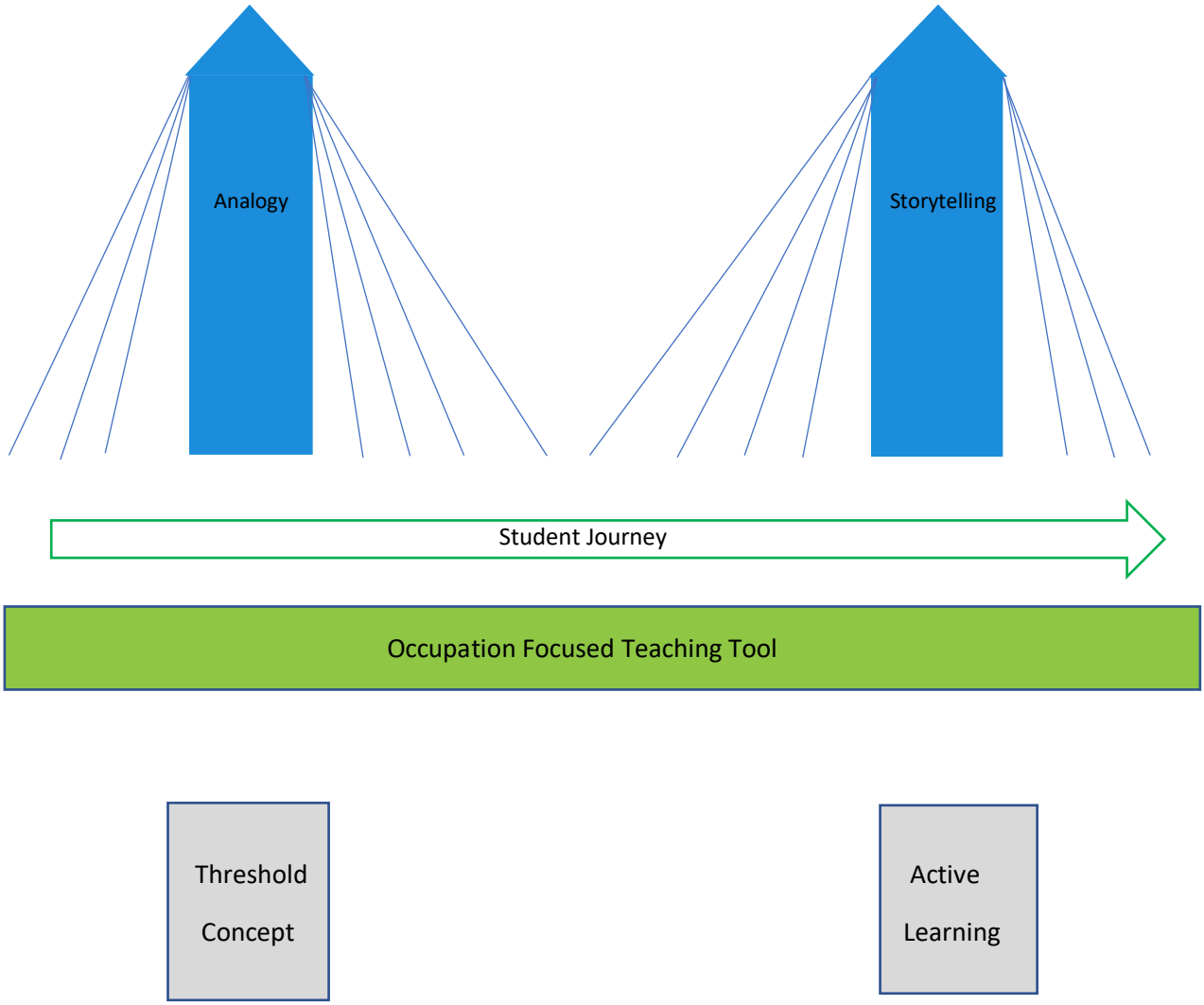
Developing knowledge and understanding of the concept of occupation, commensurate with professional understandings of occupational therapy, requires students to cross a knowledge gap. It requires transformational learning to be undertaken; for original conceptions of occupation to be altered and reformed. However, occupation is a complex concept and is challenging for students to grasp (Di Tommaso, et al, 2016).

Key findings of my pedagogic investigation have demonstrated that use of the occupation focused teaching tool as a mediating artefact provides a pathway that supports students on a journey of knowledge development (Figure 39).

Mediating artefacts, when uses as a pedagogic tool, function effectively when supported by an active learning approach (Ashwin, 2012). In addition, for the teaching tool to be utilised successfully it requires that occupation be given discrete focus. This can be achieved by viewing occupation as a threshold concept (section 2.6 & section 9.1). Thus, the use of the teaching tool as a mediating artefact is supported by two foundation stones; an active learning approach and occupation as a threshold concept (Figure 39).

The use of the teaching tool as a pathway, supported by pedagogic theories of threshold concepts and active learning, maintain a secure structure for academic use of analogies and storytelling throughout teaching-learning events. Analogies and storytelling provide support towers, with multiple cables representing multiple analogies and stories being used to provide examples and context, thus securing the pathway in place (Figure 39).

Figure 39: De-Construction of the Conceptual Bridge Model of the Occupation Focused Teaching Tool



Active Learning, threshold concepts, analogy and storytelling as pedagogic techniques and methods can each, in their own way, be employed to assist students to cross a knowledge gap. Findings of my research demonstrates use of the occupation focused teaching tool as a mediating artefact enables academics to employ the combined strength of all four, distinct, pedagogic methods in harmony. Used together they provide a bridge, or scaffolding, to

support students to travel across the knowledge gap during their journey to become an occupational therapist.

9.4 A Return to Diagramming

Final diagramming I undertook during my conceptualisation of the teaching tool was completed manually. This enabled my consideration and reflection upon predominant categories that had emerged from my analysis (Appendix 11). Conceptual understanding emerged for me as I revisited the original problem I had set out to resolve, which led to my creation of the teaching tool; How do I support students to cross the knowledge gap required for them to develop professional knowledge and understanding of occupation? As with so many gaps in a person's journey – before we can cross to the other side we first have to construct or locate a bridge. My construction of my conceptual understanding of the occupation focused teaching tool has enabled me to cross my own knowledge gap. My intent is that through its creation I can continue to direct, support and facilitate the journey of others.

10.0 Limitations of My Research

The most notable limitation to my research is that of researcher bias (section 6.6.5; Finlay, 2002). As the creator of the teaching tool I acknowledge my own vested interest in identification of the positive impact of the teaching tool in the development of knowledge and understanding of the concept of occupation. To manage researcher bias, I undertook careful examination of the data to identify any criticisms and challenges to the design and utility of the teaching tool that emerged from student-participant data. These I captured and presented in section 8.7, Figure 32 and Figure 33, and discussed in section 9.2.3. Furthermore, I undertook reflexivity throughout my research with the aim of presenting an open account of the processes undertaken.

The second most notable limitation was my relationship with student-participants recruited from H.E.I. 1. Sixty-six of the eight-two student-participants were known to me prior to my commencement of my research. Of the sixty-six student-participants, thirty-five were individuals were in the second or final year of their programmes of education. Hence, I had a previous, and for the eight in the second year of their programme, an ongoing academic relationship with them. Hence, the potential of student-participant responses to be positive exist within my data.

A limitation specific to Phase II of my research relates to the wording used in the participant information sheet for H.E.I. 2 student-participants (Appendix 6). I had identified that the teaching tool related to independent learning and development of knowledge of occupation and occupational therapy. Hence, student-participants, recruited from H.E.I. 2, were provided with some indication that the tool had a relationship to the concept of occupation.

This may have influenced their perception of what the teaching tool represented, providing a suggestion that it represented occupation; an identification they articulated in the data.

A final limitation relates to a design aspect of Phase II; choice of case scenario (Appendix 5). Case scenarios are commonly used in occupational therapy education (Coker, 2010) to enable students to consider individuals of different situation and link theory to practice (Neistadt, Wright & Mulligan, 1998; Scaffa & Wooster, 2004). Case scenarios created in education vary in complexity. Typically, case scenarios investigation utilised in the education of first year students contain limited detail of information. This allows consideration of specific aspects that affect an individual's occupational performance. As students' progress through their programme of education, and develop knowledge, case scenarios provided become increasingly more complex.

The student-participants involved in Phase II had all progressed to either the second or final year of their education I utilised a case scenario available from the curriculum of H.E.I. 1. Whilst this was reflective of the knowledge application expected of second year students, I had not accounted for its appropriateness for research of the teaching tool specifically. A typical case scenario presents the students with a picture of an individual embedded in their own occupational life, hence, multiple occupations and dysfunctions are present to reflect the real world. This resulted in student-participants having to use the tool to consider multiple occupations simultaneously. Employment of a case scenario designed specifically for use with the teaching tool may facilitate more focused learning, prior to increasing the complexity of the scenario. This may support more defined insights regarding use of the teaching tool in conjunction with a case scenario.

11.0 Conclusions & Contribution to Knowledge

Through the completion of my research I have demonstrated that the occupational focused teaching tool that I created supports the development of knowledge of the conceptualisation of occupation, commensurate with contemporary perspectives of both occupational therapy and occupational science.

Furthermore, the unique teaching tool and process I have developed can be used to enable occupational therapy students to develop understanding of occupation, exploring novel examples of the impact of medical conditions upon occupational performance.

I have developed a teaching tool that provides clear differentiation between the terms of activity, purposeful activity and occupation, thus providing distinction in the use of each term in both education and practice. In addition, use of the teaching tool enables clarification of the relationship between the terminology and practice skills of activity analysis, task analysis and occupational analysis. Hence, the teaching tool provides a theory to practice link.

Findings from my research add to the evidence base that occupation can be treated as a threshold concept within occupational therapy education.

The occupational focused teaching tool can be employed in the education of alternative discipline areas who also focus on the concept of occupation, e.g. occupational science. Professions for whom knowledge of the influence of occupation on health and well-being has been identified as necessary, e.g. medics (W.H.O., 2001; section 2.3), can also be taught the complex concept of occupation through use of the teaching tool.

Since publication of my article introducing the teaching tool (Howarth, et al, 2018) I have received a number of inquiries as to the function of the teaching tool and its availability for use in occupational therapy education programmes. Hence, I have demonstrated the occupation focused teaching tool as having national and international interest (Appendix 12).

12.0 Outputs to Date

- Presentation: Doctoral Colloquium, University of Cumbria, 2014; Occupation as a Complex Concept; education pre-registration students.

- Presentation: Doctoral Colloquium, University of Cumbria, 2015; Occupation as a Complex Concept; Educating pre-registration occupational therapy students.

- Paper Presentation: Occupational Science Europe Conference, Bournemouth, 2015; The Emerging Development of an 'Occupation' Teaching Tool.

- Paper Presentation: College of Occupational Therapists Annual Conference, Harrogate, U.K. 2016; A Pedagogic Investigation of an Occupation Focused Teaching Tool.

- Paper Presentation, European Network of Occupational Therapy in Higher Education, Bulgaria 2016; The Emerging Development of an 'Occupational' Teaching Tool.

- Publication: Howarth, J. T., Morris, K. & Cox, D. L. (2018) Challenges of teaching occupation: Introduction of an occupation focused teaching tool. *Journal of Occupational Science*, 25(1) pp. 142-148. http://doi.org/10.1080/14427591.2017.1397535

13.0 Post-doctoral Research

My post-doctoral research aims to further investigate the use of the teaching tool in a range of applications. Several potential applications identified by me, were also identified by student-participants and reflected in the data (Figure 40 & Figure 41). In addition, student-participants discussed a range of formats that they perceived the teaching tool could be developed toward, which would further support teaching-learning (Figure 42).

Figure 40: Student-Participants' Perceptions of the Utility of the Teaching Tool

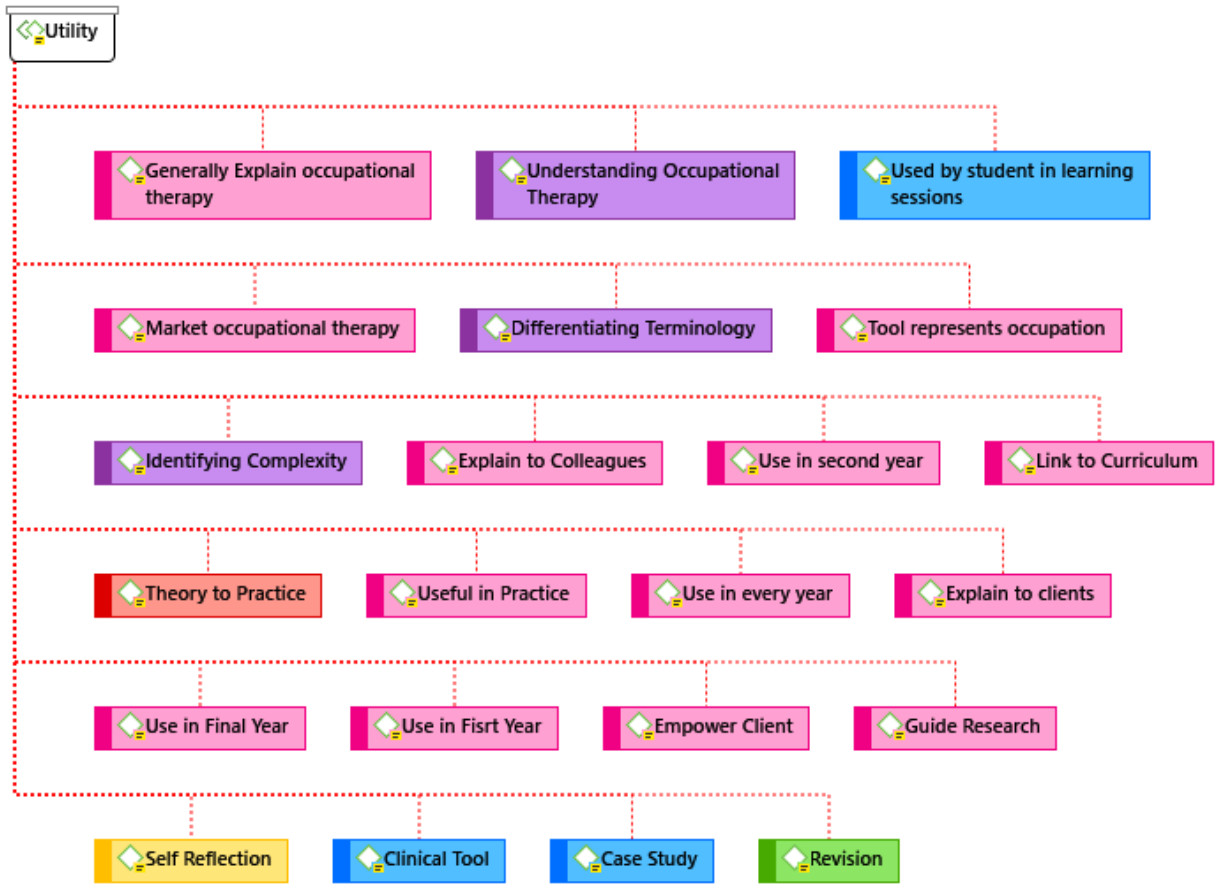


Figure 41: Additional Uses of the Teaching Tool

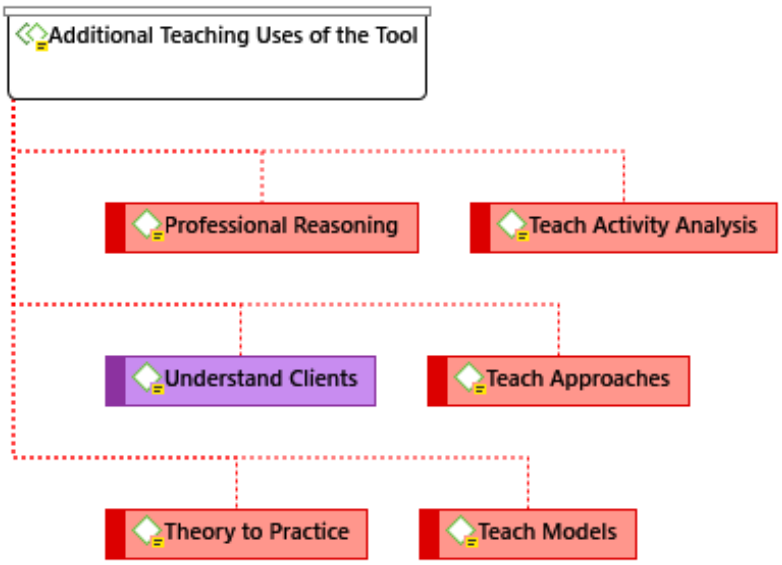
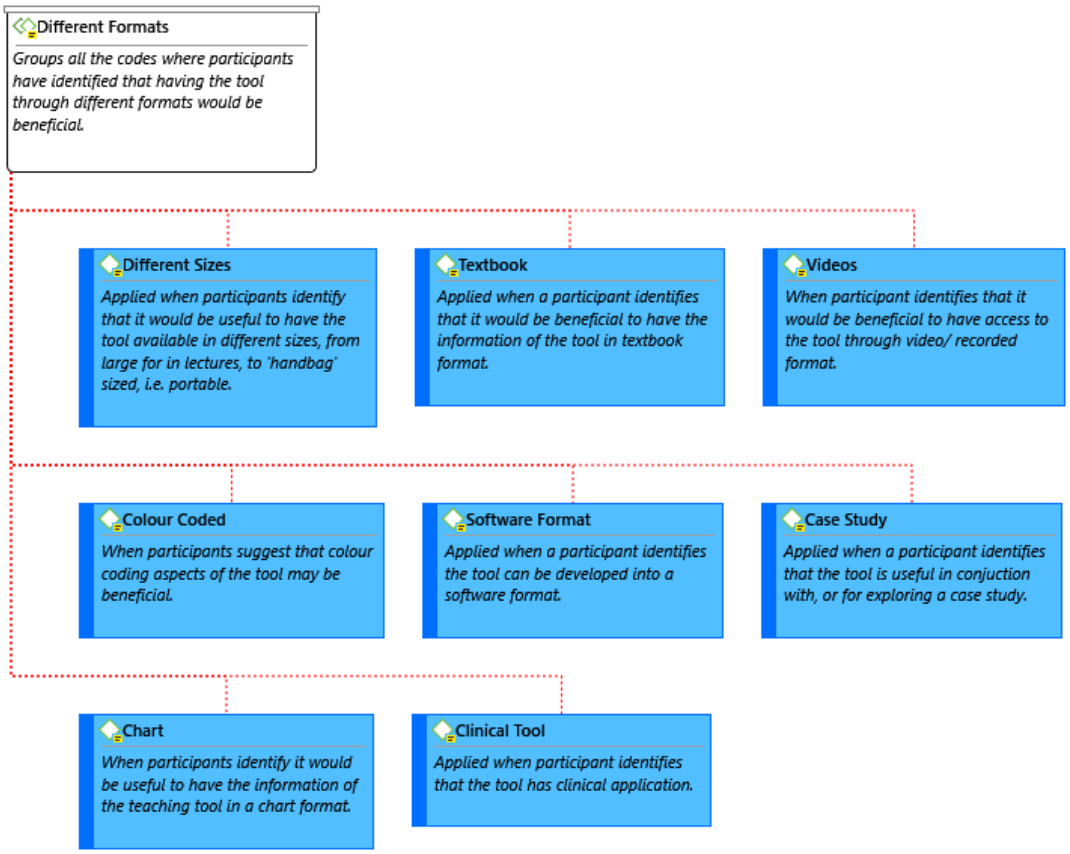


Figure 42: Student-Participants' Identification of Alternative Formats



My post-doctoral research will comprise of:

- Investigation of alternative uses of the teaching tool within occupational therapy curricula.
- Investigation of alternative formats in through which the teaching tool can support teaching-learning, e.g. software format, considering any potential compromise to the pedagogic power the current physical format provides.
- Investigation of the cultural transferability of the teaching tool for use in occupational therapy education internationally, mindful that the teaching tool has been developed in English.
- Investigation of the potential of the teaching tool being adapted for use with clients receiving occupational therapy intervention, enabling those individuals to develop insights to their own occupational needs.

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15.0 Appendices

Appendix 1: Application for Ethical Approval H.E.I. 1

Request for Ethical Approval for Individual Study / Programme of Research by University Staff

Please complete this form and return it to the Chair of your subject area/subject cluster Ethics Committee, via email or post. Your proposal will be screened and a decision on ethical clearance will be made. Once approval has been given, you will be eligible to commence data collection.

1. Your Name:	Joan Howarth	**2. School, Subject Area/ Research centre/group (if internal applicant)** Health Sciences
3. Contact Info	**Email:** **Tel No.** **Address:** [redacted]	
4. Position:	Senior Lecturer - Occupational Therapy subject area	

5. Title or topic area of proposed study

Exploration of the perceived impact on students' understanding of the concept of occupation through the utilisation of a recently developed teaching tool.

6. What is the aim and objectives of your study?

To explore the use of a recently developed teaching tool in relation to students' understanding of the concept of occupation.

7. Brief review of relevant literature and rationale for study (attach on a separate sheet references of approximately 6 key publications, it is not necessary to attach copies of the publications)

"Occupation is the central concept in [the] … profession of occupational therapy; … [and], as a method of therapy what makes the profession unique and valuable to society" (Nelson & Jepson-Thomas, 2003, p. 89). In order for occupational therapists to utilise occupation therapeutically it is essential for them to gain a comprehensive understanding of this key concept. "Occupation-centered practice is the focus of occupational therapy" (Royeen, 2002,p. 112 cites Nielson, 1998, Toth-Fejel et al, 1998 and Wood, 1998) and has been noted as instrumental in education reform in occupational therapy both nationally and internationally (COT, 2008; Royeen, 2002).

Conversely, it has also been acknowledged that a clear understanding of the term 'occupation' is lacking (Royeen, 2002; Hocking, 2009) and occupational therapists and occupational scientists have spent the last two decades undertaking research in an attempt to define what occupation is and how it relates to individuals and communities; their health, well being and identity (Laliberte-Rudman, 2002, Stone, 2003, Hocking, 2009). What essentially has emerged is the acknowledgment that the concept of occupation is highly complex and challenging to define (Wu & Lin, 1999; Hocking 2009).

Many definitions have been produced, however, a large number of these relate to what occupation does and what it gives to individuals rather than simply what it is. In development of the teaching tool, the definition selected was one which provided a clear breakdown of the component aspects that together constitute the concept of occupation (Nelson & Jepson-Thomas, 2003). The definition selected also focuses on aspects of the individual and group rather than on the power-relationship that occupation has with society and politics (Jonsson, 2008) which, whilst important, is believed to direct research and intervention away from the health focus.

The creation of the teaching tool is based on, and grew out of, a culmination of sixteen years of education practice and literature-based knowledge focused on the education of occupational therapists at pre-registration and post-registration levels. It was originally developed with the aim of providing students with a physical tool that facilitates a clear, comprehensive understanding of the concept of occupation and its constituent parts, whilst gaining an understanding of the complex interrelated aspects of this apparently simple term. The initial innovation comprises

nested boxes which help convey the interdependent concepts and linkages within the field of OT and specific field of occupation and therefore, in its current format, the teaching tool aims to enhance the education of locally based occupational therapy students in their knowledge and use of occupation as a therapeutic intervention.

Enhancement of the understanding of the core concept of occupation by occupational therapists is important in strengthening the identity of the profession (Hocking, 2009). Students who develop a more comprehensive understanding of the concept will develop greater understanding of the interdependent relationship between occupation, health, well being and life satisfaction and will be better placed to focus their clinical treatment on occupational interventions.

This aspect of research forms an initial stage of data gathering as part of a larger PhD study.

8. Outline of study design and methods

The study design will utilise audio / visual methodologies and have narrative content.

Data will be collected through the videoing / audio recording of a one hour taught session in which students will be taught the concept of occupation through the use of the teaching tool. The tutor will be videoed, and verbal interactions will be audio recorded of the participants and tutor.

Participants will be taught about the concept of occupation as a complex concept through the use of the teaching tool.

Participants will be asked to participate in the taught session as they would naturally participate in any taught session, asking questions as they feel appropriate for their learning and understanding.

Content data analysis will be undertaken to examine students' response to the teaching tool in relation to their understanding and learning about the concept, and in relation to their learning experience if this is commented on voluntarily by any participants.

Data for the first-year sample groups will be compared to data from the final year sample groups to identify any differences noted in the participant responses.

Data from the BSc sample groups will be compared to data from the MSc sample groups to explore any differences in responses.

It will be explained to the potential participant group that their participation in the research is voluntary. Non-attendance to the taught session will not be noted in any way. Prior to the commencement of the taught session the copyright protection of the teaching tool will be made explicit for all participants of the study.

9. Research Ethics

PROPOSALS INVOLVING HUMAN PARTICIPANTS MUST ADDRESS QUESTIONS 9 - 13.

Does the proposed study entail ethical considerations Yes.

If 'No' provide a statement below to support this position.
If 'Yes' move on to Question 10.

10. Ethical Considerations Please indicate how you intend to address each of the following in your study. Points a - i relate particularly to projects involving human participants.

a. Consent

Signed consent for participation in the research will be gained from each participant (see submitted consent form). Signed consent forms will be stored in a locked cabinet in a secure room within the university and destroyed on completion of the study.

b. Deception

N/A

c. Debriefing

Participants will be verbally debriefed on completion of the data gathering.

d. Withdrawal from the investigation

Participants are able to withdraw from the study at any point prior to the recording of the taught session. As the session will only video the researcher it would not be possible to remove the audio data from the sample for an individual participant who wished to withdraw.

e. Confidentiality

As stated above signed consent forms will be stored in a secured area within the University of Derby and destroyed on completion of the study.

Whilst a specified cohort of students will be approached for participation in the research no personal information will be gather; thus, anonymity of individual participants and their perceptions of the teaching tool will be protected.

f. Protection of participants

Joan Howarth, the principal researcher, is employed within the role of senior lecturer of the identified participant population. Participation or non-participation in the research will not be noted in relation to any students. Participation or non-participation does not relate to any aspect of the continued education of the student group. Non-participation will have no adverse effects in regard to the education of the group or individuals.

Students will be directed to contact [redacted] Manager for Occupational Therapy, if there are any issues of complaint.

g. Observation research [complete if applicable]

Whilst this research will be a recorded observation, participants will be fully aware of the planned recording prior to agreeing to participate.

h. Giving advice

N/A for this study

i. Research undertaken in public places [complete if applicable]

N/A

j. Data protection

No personal data will be collected. Consent forms will be held in a locked cabinet in a secure room within the University of Derby. For further information relating to data protection please see the participant consent form (submitted as attachment). All data will be destroyed on completion of the research.

k. Animal Rights [complete if applicable]

N/A

l. Environmental protection [complete if applicable]

N/A

11. Sample: Please provide a detailed description of the study sample, covering selection, number, age, and if appropriate, inclusion and exclusion criteria.

A self-selected sample of max. 40 students will be requested for participation in the research; four different groups of 10 participants each, two from the BSc (Hons) Occupational Therapy programme and two groups from the MSc (pre-registration) programme.

One group of BSc participants will be first year students who have had no prior teaching in relation to the concept of occupation.
One group of MSc participants will be first year students who have had no prior teaching in relation to the concept of occupation.
The second group of BSc participants will be final year students who have previously been taught about the concept of occupation.
The second group of MSc participants will be final year students who have previously been taught about the concept of occupation.

The sample populations will initially be approached at the beginning of a scheduled taught session. The principle researcher will briefly explain the research and request voluntary participants contact her by email. The first 10 students who identify that they are willing to participate will form the sample for each group.

Information relating to their participation or non-participation will also be included in the verbal introduction in order that the target population are aware that their decision will have no advantageous or adverse impact on their education.

Inclusion Criteria: University [redacted] occupational therapy students studying at level 4, 6 and 7.

Exclusion Criteria: University [redacted] occupational therapy students studying at level 5.
Students studying other subject areas.

12. Are payments or rewards/incentives going to be made to the participants? If so, please give details below.

N/A

13. What study materials will you use? (Please give full details here of validated scales, bespoke questionnaires, interview schedules, focus group schedules etc and attach all materials to the application).

The occupation teaching tool.
Simulated teaching session of one hour per group.

14. What resources will you require? (e.g. psychometric scales, equipment, such as video camera, specialised software, access to specialist facilities, such as microbiological containment laboratories).

Video and audio recording equipment.

15. Have / Do you intend to request ethical approval from any other body/organisation? No

16. The information supplied is, to the best of my knowledge and belief, accurate. I clearly understand my obligations and the rights of the participants. I agree to act at all times in accordance with University [redacted] Code of Practice on Research Ethics

Date of submission……18.09.13 Signature of applicant……Joan Howarth……

Appendix 2: Memo of Analogy

Have I, through the design of the teaching tool, created an analogy of the concept of occupation? What role do analogies have in teaching-learning? Do analogies hold specific pedagogic properties?

Both analogies and metaphors are discussed in literature as useful tools that support students to make successful leaps of knowledge. Analogies and metaphors are both noted as enabling individuals to transfer their prior knowledge of a subject and re-form the information into new knowledge. Is this what is happening for students?

There are numerous types of analogy documents in educational literature (Iding, 1997; Wallace & Louden, 2003). If the tool is an analogy, which type of is it and why? And how does this support learning?

If I am using various examples of occupation during my use of the teaching tool, then those examples are all analogies. This is because I draw comparisons between internal components of the occupations and relate them directly to boxes and blocks of the teaching tool. Therefore, can the teaching tool be an analogy if the analogies I use are examples of occupations?

It could be an analogy because it is a physical entity that is a representation of occupation. However, the similarity the teaching tool holds to occupation is not obvious. It requires extensive explanation, without which, an individual with no professional knowledge of occupation would be unable to identify what the teaching tool represents.

Hence, does the teaching tool simply have analogic properties? But properties that can only support learning when used in conjunction with full analogies (examples of occupation)? If so, what does this mean the teaching tool is?

I contextualise the analogies through storytelling. My addition of stories allows students to draw on their prior knowledge of the example of occupation I am using. Doing this enables them to reconstruct their old knowledge into new. So, the teaching tool appears to be a vehicle that helps students to cross a knowledge gap.

With teaching-learning conceptualised as one activity (Ashwin, 2012) then depending on what learning needs to occur and how the tutor uses the teaching tool, its' position on the teaching-learning continuum can be altered.

The positioning of the teaching tool then supports either development of knowledge or development of understanding of occupation. For students with little or no professional knowledge it is necessary to use it more for the development of knowledge. When used in tutor-supported peer-learning the teaching tool can be used to facilitate the

development of understanding. This relates to Engeström's theory of expansive learning (Woll & Bratteteig, 2018). His discussion proposed the transformation of knowledge as being facilitated through use of a 'mediating artefact'. Is the teaching tool therefore a mediating artefact?

Once students are proficient in their knowledge and develop sliding levels of understanding of occupation there exists the potential for them to use the teaching tool independently (at the extreme learning end) to continue their learning and exploration of the concept. Can individuals use mediating artefacts independently to enhance their learning?

The teaching tool does hold analogical properties! But mainly it is a mediating artefact through which I can connect the occupation analogies through to the terminology that together creates the concept! So it is an analogy, but one that is too far to be useful on its own.

Appendix 3: Tool Kit for the Occupation Focused Teaching Tool

Occupation

Occupational Therapy
Joan Howarth

Learning Outcomes:

- To gain understanding of the place of Occupation in Occupational Therapy
- To gain basic understanding of the concept of Occupation.
- To gain initial understanding of the interrelated concepts within Occupation.
- To begin to understand occupational terminology.

The Place of Occupation

- "Occupation is the central concept in our profession of occupational therapy." (Kramer, Hinojosa, Brasic Royeen, 2003, p. 89)
- "Our profession's focus on occupation as a **method** of therapy is what makes the profession unique and valuable to society." (Kramer, Hinojosa, Brasic Royeen, 2003, p. 89)

What do we mean when we use the term Occupation?

- Write a list of your Occupations.

Could Be Anything you **do** in life

eating, sleeping, singing, reading, cooking, ironing, brushing teeth, drinking, exercising, playing computer games, entertaining friends, showering, filing nails, dressing, brushing hair, hovering, driving, teaching, sewing, running, swimming, skiing, painting, decorating, embroidering, walking, dusting, shopping for food and house, travelling, writing, shopping for self, designing curriculum, counselling students, caring for cats, watching TV, having sex, tidying house, painting nails, dieting, managing programme, quilting, croqueting, telephoning friends and family, writing letters, growing vegetables, making business calls, washing car, cycling, marketing, digging, pruning, caring for loved ones, dancing, socialising, going to cinema, doing crosswords, doing jigsaws, shaving legs, putting on make-up, juggling, watching a play/musical …

Simplicity and Complexity

- Occupation appears to be a simple thing; understood by all people.
- Occupational Therapists understand occupation as highly complex; formed of many interrelated concepts.

Definition:

- "Occupation is a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance." (Nelson & Jepson-Thomas, in Kramer, Hinojosa, Brasic Royeen, 2003, p.90)

Concepts within Occupation:

- Occupational Form
- Subjective Meaning and Purpose
- Person with unique developmental structure
- Occupational Performance

Occupational Form

- "… is the objective set of physical and sociocultural circumstances, external to the person, at a particular time. The occupational form guides, structures, or suggests what is to be done by the person." (Kramer, Hinojosa, Brasic Royeen, 2003, p.90)

Occupational Form explained

- 'external to the person' i.e. everything that surrounds an individual (and is not part of them) is said to be part of their occupational form – e.g. clothes, objects, etc.
- Occupational form is objective.

Occupational Form explained

- Physical Dimensions
  - Shape
  - Size
  - Weight
  - Distance
  - Sound
  - Moment-to-moment change (temporal)
  - etc
- Sociocultural Dimensions
  - Norms
  - Roles
  - Language rules
  - Family
  - Regional
  - National
  - etc

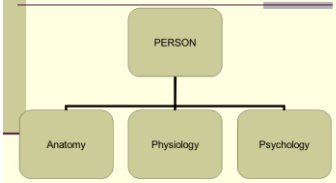
Physical Dimension

- Temporal Change – moment-to-moment change influences occupational performance. E.g. 'eating' - occupational form changes, i.e. the quantity of food reduces signalling the end of the occupation.

Sociocultural Dimension

- Sociocultural issues are often too pervasive and familiar, as such they can be hard to identify, or we may be unaware of them.

Person with unique developmental structure



Subjective Meaning **AND** Purpose

- Self esteem, love, belonging, self actualisation, self expression, caring, challenge, achievement, reward, motivation, confidence, friendship, satisfaction, …

Occupational Performance

- "… is the active doing of the person in the context of the occupational performance." (Kramer, Hinojosa, Brasic Royeen, 2003, p.90)
- "The person's voluntary doing in the context of occupational form." (Nelson, 1996, p. 777)

So …

- "Occupation is a dynamic relationship among an occupational form, a person with a unique developmental structure, subjective meanings and purposes, and a resulting occupational performance." (Kramer, Hinojosa, Brasic Royeen, 2003, p.90)

Review:

- Identified the centrality of Occupation in Occupational Therapy
- Gained basic understanding of the concept of Occupation.
- Gained initial understanding of the interrelated concepts within Occupation.
- Begun to learn & understand occupational terminology.

Appendix 4: Procedure for Using the Teaching Tool; developing knowledge of occupation as a complex concept.

I proceed to open the main box (Figure 4). Situated within the largest box were three internal boxes (Figure 4) which were shown to the student-participants. The words written upon the lid of each internal box reflect concepts from the definition; 'occupational form', 'personal with a unique developmental structure', and 'subjective meanings and values' (Nelson & Jepson-Thomas, 2003). I removed the box labelled 'Occupational Form' and proceeded to provide verbal explanation of that concept. Throughout the explanation of occupational form, I held up the lid of the box, with the concept written upon it, in order that student-participants could see the term that was being explained. I proceeded to show the student-participants the content of the box. The box contained two further boxes, one labelled 'physical dimensions', one labelled 'sociocultural dimensions'. I removed the box labelled 'physical dimensions', proving explanation that contained within the box were a range of physical dimensions of occupational form that were required to be present to guide and shape the occupation and enable occupation to occur. The box housed 15 wooden blocks, each with a term written upon it than represented a component of occupational form, e.g. physical environment, clothing, lighting etc. I then commenced unpacking each component of the physical dimensions of occupational form from within the box. As each was removed and shown to student-participants an explanation of the term and its function within gardening was verbally provided. As explanation of each component was completed, student-participants had the opportunity to ask for and receive clarification of the term being explained. Each block, once explained, was placed on the table positioned at the front of the teaching-learning environment. This process continued with each component (wooden block) being laid out in the form of the game of Jenga™, i.e. the first three blocks are laid parallel to each other on the table. Blocks four, five and six being placed on top of the first three perpendicular to the positioning of the lower blocks (Figure 6). As all 15 blocks were unpacked and placed in alternating sets of three, they formed a tower. This process was continued until all the components of physical dimensions were unpacked, explained and placed.

I then directed student-participants' attention to the second box housed within the box of occupational from, that of the sociocultural dimensions. Removing this box, I again direct student-participants' attention to the term written on the lid and provided a verbal explanation of the term, keeping the wording on the lid of the box in view of the student-participants. The process of unpacking, explaining and placing of the next set of 15 blocks on top of those already placed continued.

Numerous components housed within the box representing occupation form required minimal explanation. For example, for the development of student-participant knowledge of the required physical dimension of 'clothing' in relation to gardening I articulated the wearing of 'gardening clothes' as opposed to wearing a suit. However, the influence of a variety of components, and how each could guide and shape the performance of an occupation, required greater explanation. Hence, for these components I provided more than one example. One instance of this being the explanation of the component of lighting. At the point where the component of lighting was presented to student-participants I explained that gardening required the appropriate lighting and that gardening does not occur in the dark. I then proceeded to enquire as to those student-participants who arrived at university by driving a car. I asked them to acknowledge whether during their journey they encountered traffic lights, and what actions they undertook depending on whether the traffic lights displayed red or green light. The secondary example linked to lighting served varied purposes. Firstly, utilisation of a secondary example aimed to enable student-participants to develop knowledge that each component within the physical dimensions of occupational form could occur in different variations. This understanding being an important aspect for developing knowledge of varied occupations. My second purpose of enquiring as to an activity student-participants may have undertaken personally was to facilitate them to draw upon their prior knowledge and link it to their development of new knowledge. My final purpose was to encourage active engagement of student-participants during the teaching-learning process. Thus, whilst the example of gardening was predominantly used within the teaching-learning event, I also drew upon a wide variety of alternative occupations as required.

Once all 15 components of the physical dimensions of occupational form had been unpacked, explained and placed I repeated the process with the blocks housed in the box labelled sociocultural dimensions. The blocks representing the sociocultural components being placed on top of those representing physical dimensions. Thus, gradually creating a tower of components (Figure 6). I then repeated the whole process with the box labelled 'Person with a Unique Developmental Structure', in which are housed the boxes labelled 'Physiological' and 'Psychological'.

Once all the components housed within the internal boxes of 'Occupational Form' and 'Person with a Unique Developmental Structure' had been placed in the form of a tower I identified to student-participants that the tower, at that point, contained all the required components that together represented a human activity. Student-participants were requested to consider this and identify any human activity they could conceive of that they believe did not require those components. This allowed them to again draw upon their prior knowledge of human activities and relate their knowledge to the many components required for the human activity to exist. I then articulated that

in relation to definitions used within occupational therapy literature the tower represented an understanding of the term 'Activity'.

In reference to published literature it has been identified that 'Occupation' comes into existence at the point an individual attaches their own subjective meaning and value to the human activity they perform (Pierce, 2001). The terms activity, purposeful activity and occupation, have been, and continue to be used interchangeably within professional literature (Golledge, 1998a). This can result in confusion as to the differentiation of the terms (Howarth, et al, 2018). Through my use of the teaching tool, in addition to developing student-participants' knowledge of occupation as a complex concept, I aimed to enable them to differentiate between these three terms. At this point in the teaching-learning event student-participants were presented with a clear definition and visual representation of the term 'Activity'. This then led to my unpacking of the third internal box, that of 'Subjective Meanings and Values'.

Emphasis was provided to student-participants at this point that only when an individual attaches their own subjective meanings to what they do does an occupation come into existence. However, prior to adding my subjective meanings of gardening to the tower I asked student-participants to identify what happens to 'Activity' when I add a block labelled 'Purpose'. Students-participants, in the main, responded by identifying that the tower now represented the term of 'Purposeful Activity'. Hence, the second term requiring definition was present in front of student-participants, i.e. an activity for which there is a purpose constituted purposeful activity.

From this point, the remaining blocks were removed from the third internal box labelled 'Subjective Meanings and Purposes'. Upon each block is written a word(s) of subjective meaning or value that an individual may attribute to what they do in life. With each block selected I provided explanation of the meaning that gardening holds for me, e.g. self-expression through the design of my flower beds, caring for others by growing fruit and vegetables I know others like to eat, etc. as with the blocks from the previous boxes, each was added to the tower.

Appendix 5: Case Scenario

The following gentleman has been referred to you, the community occupational therapist:
Kim Kook-Hui was born in South Korea in 1927. He had two brothers and a sister. In 1946 he left home to study biochemistry at the University of Colorado, USA. He was keen on sports and excelled in basketball at university. Just as Kim graduated in 1950 the Korean War broke out. He returned home to serve in the South Korean army. His two brothers were killed in action. He has never talked about his experiences and becomes angry if encouraged to do so.
After the war Kim visited London and met Mary; they eventually married in 1954. They lived in Ealing, London, and Kim worked for the Ministry of Agriculture. They had one son (John) who now works as a solicitor and still lives in London. Kim is proud that his son worked hard at university and obtained a good job. Mary divorced Kim after a few years. She said she found it very difficult that Kim insisted in frequently travelling to Korea to see his parents and sister.
After his divorce Kim moved a few miles to a first floor flat in Elephant and Castle where he remains today. He never remarried. He sees John every few weeks but thinks he should see him more often. He keeps in contact with his sister in Korea but has not visited her for many years. He played for the London Civil Service hockey team for many years and has maintained his interest in sport by regularly watching it on television. He also practises tai chi each morning. He is a Christian and attends a local church that has a large Korean congregation. After he retired in 1987 he helped establish a bookshop that sells Korean novels and, until recently, enjoyed spending time sitting in the shop talking to the customers. He is proud to be Korean and enjoys meeting Korean people and talking about his country. His wish is one day North and South Korea will be unified.
Kim was diagnosed as having type 2 diabetes a few years ago, which he manages without taking medication by being careful about his diet. He also has developed osteoarthritis in his knees and John has been encouraging him to move to a ground floor flat. Kim has always been fiercely independent and tells John to stop nagging him and instead order him a new set of legs.

However, Kim's situation has changed over the past year. John has become increasing worried about his father and recently discussed this with Kim's GP. John told the GP he is concerned about Kim as he does not seem to be his normal self and seems to have lost interest in life. He no longer keeps his flat tidy - something he would always insist in doing previously. Kim has not been seen at church or the bookshop for the past few months, and seems to have given up watching television or doing his tai chi. John suspects he stays in bed for long periods. John is also concerned he is not looking after himself. For instance, he doesn't appear to be cooking meals but living on buns and cakes bought from a bakery round the corner. When he challenges him about this John reports that Kim he tells him he can't be bothered cooking anymore. John has also been increasingly concerned about Kim's mobility and bought him a walking stick, which Kim refuses to use. Kim sometimes complains of feeling dizzy and has had a number of falls over the past year. Six months ago two South Bank University students helped him home when he felt dizzy in the checkout of his local Tesco. Kim was extremely embarrassed about this and John suspects he has not been to Tesco since. A few weeks ago John found Kim on the bathroom floor. Fearing he may have fractured his leg, John took him to A&E. He was admitted to hospital for a few days. Though he had not fractured any bones, Kim was found to be dehydrated and have a low blood glucose level.
After much persuasion from his GP, and John, Kim agreed to be referred to the community occupational therapist.
Considering the occupations in Lim's life, use the occupation box to explore the components that are impacted upon.

Appendix 6: Participant Information Sheet and Consent Form, H.E.I. 2

Title

Occupation as a Complex Concept; Educating pre-registration occupational therapy students

Participant Information Sheet

About the study

This research is a pilot study exploring the use of an occupational therapy focused teaching tool by occupational therapy students. The goal of the study is to gather preliminary data for the utility of the teaching tool in relation to independent learning and developing knowledge of occupation and occupational therapy. The pilot study will require you to participate as an occupational therapy student in a one hour facilitated workshop, exploring the teaching tool.

Some questions you may have about the research project:

Why have you asked me to take part?

The research relates to occupational therapy education and requires participation from occupational therapy pre-registration students.

What will I be asked to do?

You will be asked to participant in an occupational therapy group study session utilising a teaching tool.
The study session will be recorded to capture visual and auditory data. Whilst no identifying personal information will be requested it would be possible for you to be identified visually. This is a pilot study and therefore the data will be viewed only be the primary researcher and the supervisory team. Results from this data collection will inform future research.

Where will this take place?

The research is planned to be undertaken on Friday 26th September 2014, pm.

How often will I have to take part and for how long?

You will be requested to participate once for approximately one hour.

When will I have the opportunity to discuss my participation?

You will have the opportunity to discuss your participation prior to the research commencing. You will also be offered an opportunity for debrief at the end of the data collection session.
You are able to withdraw from the pilot study prior to the facilitated workshop commencing. If you chose to withdraw before the research commences you will not be required to explain your reasons for withdrawal. Participation or non-participation will have no impact on the continuation of your studies.
As data will be gathered during a workshop it will not be possible to extract your individual data from that of other participants once the data has been collected.

Who will be responsible for all the information when the study is over?

The primary researcher and the University of Cumbria.

Who will have access to it?

The primary researcher will have sole access to the data. For the purpose of supervision the primary researcher may share the digital recordings with her supervisory team.

How long will data be kept and where?
The data will be kept until the completion of the PhD study (approximately 5 years). Digital recordings and consent forms will be stored in a locked cabinet in a secure room at the primary researcher's place of employment.

What will happen to the information when this study is over?
All data pertaining to this pilot study will be destroyed on completion of the PhD study.

How will you use what you find out?
Results will be used to inform the future use of the teaching tool.
Results will also be disseminated to the profession of occupational therapy as appropriate.

Will anyone be able to connect me with what is recorded and reported?
As this is a pilot study it is not anticipated that the recordings for this research will be observed by anyone outside of the primary researcher and her supervisory team.

How long is the whole study likely to last?
This pilot study is one aspect on an ongoing PhD study. It is anticipated that the PhD study will be completed in 2017/18.

How can I find out about the results of the study?
Participants will be provided with some summary results of the pilot study. The Course Leader will be informed of any further forms of dissemination of results in order to be able to communicate to the whole student cohort.

What if I do not wish to take part?
Your participation in the study is entirely voluntary.

What if I change my mind during the study?
You are free to withdraw from the study prior to the commencement of data gathering without having to provide a reason for doing so.
As the research is being conducted in a group it will not be possible to extract your data from that of other participants once data gathering commences.

Will I need to sign any documentation?
You will be asked to sign a consent form before participating in the study.
You will have the opportunity to ask questions of the primary researcher before signed consent is given.

Whom should I contact if I have any further questions?
Please contact the researcher directly (details below).

Complaints
All complaints from the participants are in the first instance to be directed to the Director of Research Office and Head of the Graduate School, University of Cumbria, Bowerham Road, Lancaster, LA1 3JD

Researcher Contact Information:
Joan Howarth

[redacted]

Tel: [redacted]
Email: [redacted]

Supervisor:
Dr Karen Morris

Senior Lecturer (Occupational Therapy)
Department of Rehabilitation & Social Work
Fusehill Street
Carlisle
CA1 2HH

Tel: 01228 616163
Email: karen.morris@cumbria.a.uk

Example of Consent Form

Title of Investigation

Participant Consent Form

Please answer the following questions by circling your responses:

Have you read and understood the information sheet about this study? YES NO

Have you been able to ask questions about this study? YES NO

Have you received enough information about this study? YES NO

Do you understand that you are free to withdraw from this study prior to commencement of the data collection, and without having to give a reason for withdrawal? YES NO

Your responses will be anonymised before they are analysed.

Do you give permission for members of the research team to have access to your anonymised responses? YES NO

Do you agree to take part in this study? YES NO

Your signature will certify that you have voluntarily decided to take part in this research study having read and understood the information in the sheet for participants. It will also certify that you have had adequate opportunity to discuss the study with an investigator and that all questions have been answered to your satisfaction.

Signature of participant:..... **Date:**.....

Name (block letters):.....

Signature of investigator:..... **Date:**.....

Please keep your copy

Researcher Contact Information:

Appendix 7: Email to Course Leader; HEI 2

Dear

My name is Joan Howarth; I am a Senior Lecturer in Occupational Therapy, University

of [redacted]

and currently studying toward my PhD at the University of Cumbria. My supervisory team is Professor Diane Cox, Dr Karen Morris and Dr Helen Wilby.

I am emailing to request permission to approach the students enrolled on the MSc Occupational Therapy (Accelerated) programme, of which you are Course Leader, for their participation in an aspect of my research. Their participation in this proposed pilot study would be voluntary.

The focus of my PhD research is the concept of occupation and the education of occupational therapy pre-registration students. Ethical approval for this pilot study has been gained from the University of Cumbria.

The research would require participants to be involved in a one hour facilitated teaching session, to take place on the afternoon of Friday 26th September 2014. The participant information sheet and consent forms are attached.

If you are in agreement with me approaching the students enrolled on the programme please email me to confirm your agreement. I would also request that you copy and send the following information to the student cohort, attaching the Participant Information Sheet and Consent forms to the email for their information.

'Dear Student

I am currently study toward my PhD at the University of Cumbria. I am investigating the concept of occupation and the teaching and learning strategies used within occupational therapy pre-registration education. My supervisory team is Professor Diane Cox, Dr Karen Morris and Dr Helen Wilby.

With permission from your Course Leader I am requesting that you consider being a participant in the research of one aspect of my study. The research is planned to take place on the afternoon of Friday 26th September 2014.

Attached is the Participant Information sheet, that provides you with further information regarding this research. In addition there is also a Consent form for you to consider. Consent forms will be provided prior to the research being undertaken. There will be an opportunity for questions prior to you being required to sign the consent form indicating your agreement to participate.

If you are willing to participate please indicate this by email me at [redacted]

Thank you for your time in considering this request.

Yours sincerely

Joan Howarth

PhD Student (probationary)

Senior Lecturer

[redacted]

Appendix 8: Request for Ethical Approval H.E.I. 2

No:

[redacted]

Research Ethics Application

for University Staff and Post Graduate Research (PgR) students

Application for study involving Human Participants

All fields will expand as required.

1. Title of Project: **Occupation as a Complex Concept; Educating pre-registration occupational therapy students**
2. If this is a PgR student project, please indicate what type of project by ticking the relevant box: X PhD Thesis □ PhD by Published Works □ MPhil
3. Type of study X Involves direct involvement by human subjects □ Involves existing documents/anonymised data only. Contact the Chair of Ethics before continuing via research office,
4. Peer Review It is expected that all research is peer reviewed before applying for ethical consideration. Please indicate who your proposal has been discussed with (Mentor, Supervisor (s), Expert in field). Dr Karen Morris, supervisor, Senior Lecturer in Occupational Therapy, [redacted]

Applicant information
5. Name of applicant/researcher: Joan Howarth
6. Appointment/position held by applicant PhD student (probationary)
7. Contact information for applicant: E-mail: [redacted] Telephone: [redacted] Address: [redacted]
8. Project supervisor(s)/mentor, if different (or applicable) from applicant: Name(s): Professor Diane Cox; Dr Karen Morris; Dr Helen Wilby. E-mail(s): diane.cox@cumbria.ac.uk ; karen.morris@cumbria.ac.uk ; helen.wilby@cumbria.ac.uk
9. Appointment held by supervisor(s) and institution(s) where based (if applicable): Professor Cox – Director of Research and Head of Graduate School, University of Cumbria. Dr Morris – Senior Lecturer in Occupational Therapy, University of Cumbria.

Dr Wilby – Senior Lecturer in Occupational Therapy, University of Cumbria.

It is proposed that this study will be undertaken at [redacted] Therefore, whilst Professor Cox is the lead supervisor, for the purpose of this proposal Dr Morris is [redacted]

10. Names and appointments of all members of the research team (including degree where applicable)

Joan Howarth, PhD student (probationary), Senior Lecturer in Occupational Therapy.

The Project
NOTE: In addition to completing this form you must submit all supporting materials such as participant information sheet (PIS) and consent form.

11. Summary of research project in lay terms (maximum length 150 words).

"Occupation is the central concept … of occupational therapy; … [and], as a method of therapy … makes the profession unique and valuable to society" (Nelson & Jepson-Thomas, 2003, p. 89). For occupational therapists to utilise occupation therapeutically it is essential for them to gain a comprehensive understanding of this key concept.

A teaching tool has been developed for use in pre-registration occupational therapy education. It is used to develop depth of understanding of the core concept of the profession of occupational therapy; the concept of occupation.

This aspect of research is to gather data of students' observations and perceptions of the teaching tool as an aid to their learning, and to critically explore the use of the teaching tool in conjunction with identified clinical case scenarios. This ethical proposal relates to data gathering as an aspect of a larger PhD study.

12. Anticipated project dates

Start date: September 2014 End date: September 2017/18.

13. Please describe the sample of participants to be studied (including number, age, gender):

The aim is to recruit 8 pre-registration occupational therapy students as participants.

Due to the gender bias within the profession of occupational therapy, participants are most likely to be female. The participant sample will be recruited from the MSc (pre-registration) Occupational Therapy programme, [redacted] ; thus participants will be over the age of 21.

14. How will participants be recruited and from where? Be as specific as possible.

An email (appendix 1) will be send to the Course Leader of the MSc (pre-registration) Occupational Therapy programme, University of [redacted] by the primary researcher, requesting that the information be forwarded to all enrolled students on the programme.

Individuals who choose to participate will be requested to email the primary research to indicate their indent participation. The first 8 individuals will be recruited and emailed the 'Participants Information' and 'Consent' sheets prior to the research being undertaken (appendices 2 and 3).

15. What procedure is proposed for obtaining consent?

Participants will be provided with information relating to the research and their role as a participant prior to the pilot study being undertaken (appendix 2 – Participant Information).

Prior to the commencement of the research, participants will be able to ask the primary researcher for any further clarification they require.
Signed consent (appendix 3 – Consent Form) will be gained from participants at this point. Any individual who does not wish to continue as a participant will be able to withdraw at this point.

16. What discomfort (including psychological), inconvenience or danger could be caused by participation in the project? Please indicate plans to address these potential risks.

None

17. What potential risks may exist for the researcher(s)? Please indicate plans to address such risks (for example, details of a lone worker plan).
None

18. Whilst we do not generally expect direct benefits to participants as a result of this research, please state here any that result from completion of the study.

Participants will potentially enhance their understanding of the concept of occupation in line with the occupational therapy profession perspective.

19. Details of any incentives/payments (including out-of-pocket expenses) made to participants: None.

20. Briefly describe your data collection and analysis methods, and the rationale for their use

Data will be gathered by audio and visual recordings. Participants will be recorded exploring the teaching tool, initially without explanation and then with explanation of how the tool explains the concept of occupation. Participants will then be requested to use the teaching tool to explore occupation in relation written case scenarios.

Thematic analysis will be applied to the data.

The aim of this study is to explore whether the teaching tool can be understood and used as an aide to independent learning and whether its use with identified case scenarios further enhances students understanding of the concept of occupation.

Results from this study will be used to inform future research related to the teaching tool.

21. Describe the involvement of users/service users in the design and conduct of your research (where applicable). If you have not involved users/service users in developing your research protocol, please indicate this and provide a brief rationale/explanation.

This research aims to test a teaching tool that was developed by the primary researcher. Whilst data is gathered from the use of the tool in teaching sessions no modifications have been undertaken based of participant feedback. A key aspect of this PhD study is to test the utility of the teaching tool in occupational therapy pre-registration education.

22. What plan is in place for the storage of data (electronic, digital, paper, etc.)? Please ensure that your plans comply with the Data Protection Act 1998 and University of Cumbria Data Storage Guidelines such as consideration of data archiving, password protection and data encryption.

Data will be digitally recorded and DVDs will be encrypted. All consent forms and digital recording and transcripts will be stored in a locked cabinet in a secure room at the primary researcher's place of employment.

23. Will audio or video recording take place? □ no X audio X video

If yes, what arrangements have been made for audio/video data storage? At what point in the research will tapes/digital recordings/files be destroyed?

The teaching session will be both audio and visually recorded to capture primary data for analysis. The digital records will be held in a locked filing cabinet at the home university of the primary researcher and destroyed on completion of the PhD study.

24. What are the plans for dissemination of findings from the research (reports, transcripts, summaries, publication, conferences)? Please give detail of how you plan to provide a summary of research findings in lay terms to participants.

This is a study to explore the utility of the teaching tool as an aide to independent learning and its' use with case scenarios. Dependent on the results of the study this aspect of research may be repeated at the home university of the primary researcher. If similar data were to be discovered following the pilot study and results were compatible, then the data of the pilot may be incorporated with further data collection. It is intended that finding of the overall PhD study and findings of specific elements of data gathering will be disseminated in a variety of forms; conferences, publications, etc. A written summary of the findings of the pilot research will be provided to the course leader, and dissemination directly via email to the participants of this study. This would be undertaken in consultation with the supervisory team to ensure the integrity of the ongoing PhD study.
25. What particular ethical problems, not previously noted on this application, do you think there are in the proposed study? The primary researcher will conduct the study. As there is no relationship to the participant group bias is minimal.

Signatures: Applicant: …Joan Howarth.....

Date: ……28/07/14….....

Project Supervisor (if applicable): ……..

Date: ……..

Supportive Materials Checklist

Please attach all necessary supportive materials and indicate in the checklist below.

Please tick as appropriate

Participant Information Sheet	√
Consent Form	√
Letter of invitation	√
Other (please state, and explain) Email to Course Leader, MSc Occupational Therapy (Accelerated). As the anticipated participants will be students enrolled on the above named programme, permission to approach the students will be sought from the course leader.	√

Appendix 9: Participant Information and Consent Form, H.E.I. 1

Participant Information Sheet

A teaching tool has been developed in relation to the teaching of the concept of occupation. This research aims to test the perceived impact of the teaching tool on students' understanding of the concept of occupation.

As a participant of the research you will be required to sign the attached form to indicate your agreement to participate in the research.

In agreeing to participate you will be required to participate in one taught session, of up to one hour, asking any questions you wish in relation to the teaching that is presented.

The teaching session will be videoed / audio recorded to capture data.

The video will only be of me teaching the session, with audio capturing the taught content, student questions and tutor responses.
No personal identifying details will be required.
Participation in the research is entirely voluntary.

Participants are at liberty to withdraw from the study at any point prior to the recording of the session. **Participation, non-participation or withdrawal from the research has no impact in relation to your education programme.**

Any issues of complaint are to be referred to [redacted]

The issues of ownership of the Intellectual Property (IP) and Copyright of the teaching tool will be explained and an opportunity to ask questions regarding these issues will be provided prior to your agreement to participate in the research.

Data from this research may be used in relation to future literature publications.

[redacted]

Participation Agreement:

I understand that participation in this research is voluntary and that my verbal communication will be audio recorded during the session for use in the data analysis.

I understand that the Intellectual Properties (IP) and Copyright of the teaching tool are protected and that to divulge the details of the product during the research period or attempt to reproduce the product at any time would be in breach of IP, Copyright Laws.

I understand that the data I provide will be anonymous and held confidentially by the principle researcher, Joan Howarth.

I have been made aware of who to contact in regards to any issues of complaint.

I agree to participate in this research of the teaching tool.

Name (print) ……

Signature …… Date: ……..

Appendix 10: Code Lists; Phase I and Phase II

Project: Phase 1 Report created on 13/07/2019

Code Report: All (83) codes

- **Analogy:** *Applied when a participant identifies the tool as an analogy.*

- **Applying Prior Knowledge:** *When a participant is noted as drawing on their own prior knowledge and or experiences to test out their learning.*

- **Applying Professional Knowledge:** *When a participant is noted as drawing on their own professional knowledge and or experiences to test out their learning.*

- **Attributes of the Tool:** *When participant identify properties of the tool and what they perceive the properties do for their learning.*

- **Case Study:** *Applied when a participant identifies that the tool is useful in conjunction with, or for exploring a case study.*

- **Challenge:** *Applied as a code when a participant displays behaviour that is challenging the information that is being taught. Though it is important to note the challenge is of enquiry and enhancing learning. It does not appear to be negative or dismissive of the teaching or the teaching tool.*

- **Challenging Utility:** *Applied when a participant challenges the design of utility of the tool.*

- **Chart:** *When participants identify it would be useful to have the information of the teaching tool in a chart format.*

- **Checking Learning:** *Used when I am enquiring from participants what they have learnt, and whether they are understanding the material being taught.*

- **Clarifying:** *When a participant is looking to clarify that they have understood the information and to gain confirmation that their learning is correct.*

- **Clinical Experience:** *Applied when a participant draws on or relates discussions to experiences they have gained through clinical placements.*

- **Clinical Tool:** *Applied when participant identifies that the tool has clinical application.*

- **Colour Coded:** *When participants suggest that colour coding aspects of the tool may be beneficial.*

- **Comprehensive Information:** *Participant identifies that the tool provides comprehensive information that makes up occupation.*

- **Confirming Learning:** *Applied when a participant confirms that they have learnt and understood the material.*

- **Consolidate:** *Applied when a participant identifies that the use of the tool is beneficial in consolidating learning.*

- **Debating:** *When participant uses the tool with their knowledge to debate an issue.*

● **Different Sizes:** *Applied when participants identify that it would be useful to have the tool available in different sizes, from large for in lectures, to 'handbag' sized, i.e. portable.*

● **Differentiating Terminology:** *Applied when a participant is able to differentiate between terms of activity, purposeful activity and/or occupation. Any combination of the three.*

● **Directing Attention**: *Applied when I point to a box, or hold up a block in front of participants, in order to actively direct participants' attention to the subject or topic that I am explaining.*

○ **doing things:** *In Vivo. Applied when participants describe what they think occupation is before teaching begins.*

● **Dynamic:** *Applied when participants identify the dynamic nature of the tool to be useful to their learning.*

● **Empower Client:** *Applied when a participant identifies that using the tool in a clinical setting with a client, this would empower the client within the therapeutic relationship and intervention.*

● **Enquiring:** *When a participant is asking for more explanation.*

○ **Every day occurrence:** *Applied when a participant explains their understanding of occupation as an everyday occurrence and taken for granted activity, before teaching has commenced.*

● **Explain to clients:** *When participant identifies that the tool would be useful in working with clients to be able to explain what occupation is , and the purpose of occupational therapy intervention.*

● **Explain to Colleagues:** *Applied when participant identifies the tool can be used to explain occupational therapy to professional colleagues.*

● **Familiar Game:** *Applied when a participant identifies that the form of the tool, being the same as that of a well-known game, assists their learning and understanding of the concept.*

● **Fragility:** *Applied when a participant come to know that occupation is a fragile entity. That with the removal of key or too many blocks occupation is under threat or cannot come into creation.*

● **Generally Explain occupational therapy:** *Applied when participants identify that the tool is useful for explaining what occupational therapy / an occupational therapist is, without any specific target group identified.*

● **Guide Research:** *Participants identify different utilities of the Tool, e.g. for teaching, research, etc.*

● **Holistic nature of occupation:** *Applied when a participant identifies that the tool enables them to recognise the holistic nature of occupation.*

● **Identifying Complexity:** *When a participant identifies and / or acknowledges that they understand occupation as being complex.*

● **Impact of Tool:** *Participant identifies a positive feeling / impact the tool has on themselves.*

● **Importance:** *Applied when a participant identifies that they have recognised and learnt how important occupation is in life.*

● **Interdependent Components:** *When participant independently identify that they now understand that the component parts interdepend on each other, and together create occupation.*

● **Learning:** *When participant demonstrates that new learning has occurred for them. They have made a connection to the information and can begin to draw their own understanding and conclusions correctly.*

● **Link to Curriculum:** *Applied when participants recommend that the tool is linked to the curriculum, and used to explain the content of the programme.*

● **Market occupational therapy:** *Applied when participant identifies that the tool would be a useful way of marketing what occupational therapy is.*

● **Memories Fragmented:** *Applied when a participant identifies that they only recall some aspects of the tool.*

● **Not Learning Through Reading:** *Applied when a participant explains that they have not been able to learn the concepts through their reading of lecture slides or literature alone.*

○ **obvious:** *This is an In Vivo code. it is applied whenever a participant identifies that occupation and its' components are commonly understood everyday things when seen from a layperson's perspective.*

● **Occupation:** *When participant is able to identify that occupation is created through the attachment of subjective meaning and value.*

● **Occupation Creates Identity:** *When a participant identifies that occupation (what we do with meaning) influences or shapes our identity.*

○ **Own One:** *Applied when a participant identifies that they would like to have the tool themselves.*

● **Participant Analogy:** *When a participant uses their own choice of analogy to represent occupation.*

● **Participant Storytelling:** *Applied when a participant is noted as telling a story.*

● **Physical Structure:** *Participant identify that the physical structure is useful for representing occupation and for their learning.*

○ **Positive Recollections:** *Applied when participants who have seen / been taught with the tool before provide a positive recollection about the use of the tool.*

● **Problem with Terminology:** *Applied when participant discusses that there is a lack of consensus in relation to terminology used within the profession. That there is no agreed differentiation between activity, purposeful activity and occupation.*

● **Professional Reasoning:** *Applied when a participant identifies that the tool would assist in them considering and reflecting on their professional reasoning, used when making clinical decisions.*

● **Purposeful Activity:** *Participant is able to correctly differentiate purposeful activity as something separate to occupation or activity.*

○ **React Positively:** *When a participant gives a positive reaction to the tool without giving a specific reason of why they find it useful.*

● **Revision:** *Applied when a participant identifies that the tool is useful for revision of their learning.*

● **Self Reflection:** *When a participant reflects on themselves and their occupation(s).*

● **Software Format:** *Applied when a participant identifies the tool can be developed into a software format.*

● **Teach Activity Analysis:** *Applied when participant identifies the tool could be used to teach activity analysis.*

● **Teach Approaches:** *Applied when a participant identifies use of the tool could be beneficial when being taught about intervention approaches (e.g. behavioural, compensatory etc.).*

● **Teach Models:** *Applied when a participant identifies use of the tool would be useful when being taught about models of practice.*

● **Teaching Tool is memorable:** *Participant identifies that they remember being taught with the teaching tool previously.*

● **Testing:** *When a participant uses an example of their own to test out whether they have understood what is being taught.*

● **Textbook:** *Applied when a participant identifies that it would be beneficial to have the information of the tool in textbook format.*

● **Theory to Practice:** *Applied when a participant identifies and uses the use of the tool to assist in linking theory to practice.*

● **Tool as a Metaphor:** *Participant identifies the tool acting as a metaphor.*

● **Tool is Useful:** *When a participant identifies that teaching the concept of occupation through the use of the tool is perceived by them to be a good way to teach it. Participant at this point does not identify any specific reasons as to why the tool is beneficial.*

● **Tool represents occupation:** *Applied when a participant identifies that the tool in its' entirety represents the concept of occupation.*

● **Tutor Analogy:** *Applied when I use an analogy (example) of what could be an occupation.*

● **Tutor Confirmation:** *Applied when I confirm to a participant / or the group of participants that their learning is correct.*

● **Tutor Explaining:** *Applied when I give a further explanation to the information following a participant asking for more information.*

● **Tutor Guiding:** *Applied when I pose a question to prompt participants' thinking and discussions.*

● **Tutor Storytelling:** *Applied when I tell elements of my story to illuminate the teaching.*

● **Understand Clients:** *Applied when participant use their knowledge of the tool and applies that knowledge to explore and better understand what is happening for the client.*

● **Understanding Occupational Therapy:** *When a participant discusses what they now understand the role of an occupational therapist / occupational therapy to be, and that this understanding is correct.*

● **Use in every year:** *Apply when participant identify the tool could / should be used for learning in every year of occupational therapy pre-registration education.*

● **Use in Final Year:** *Applied when participant identifies the tool should support learning in the third / final year of the education programme.*

● **Use in First Year:** *Apply when participants identify the tool should be used in the First year of occupational therapy pre-registration education.*

● **Use in second year:** *When participants identify to use the tool in second year.*

● **Used by student in learning sessions:** *Applied when participant identifies that is would be beneficial to learning if the students were able to use the tool themselves in learning sessions.*

● **Useful in Practice:** *Applied when participant identifies that the tool would be useful in practice settings.*

● **Videos:** *When participant identifies that it would be beneficial to have access to the tool through video/ recorded format.*

● **Visual Aide:** *Applied whenever a participant identifies that having something physical to look at facilitates the development of their learning about the complex concept.*

○ **Volunteer:** *Applied when participants volunteer to be participants in any future research or development of the tool.*

○ **your job, or work:** *In Vivo. When participants identify occupation, in layperson's terms, their initial understanding of what occupation can be.*

Project: Phase II Report created on 13/07/2019

Code Report: All (80) codes

● **Active Use:** *Applied when a participant actively uses the teaching tool to explore the scenario and/or their thinking.*

● **Activity Analysis:** *Applied when a participant identifies that the teaching tool can be used to facilitate an activity analysis to be undertaken.*

● **Agreeing:** *Applied when participants agree about information that is being discussed.*

● **Aide Memoire:** *Applied when a participant identifies that the teaching tool can be used as an aide memoire.*

● **Applying Professional Knowledge:** *Applied when a participant applies their professional knowledge.*

● **Articulating Knowledge:** *Applied when a participant articulates and uses the knowledge they have developed.*

● **Asking for Agreement:** *Applied when a participant asks / enquires as to whether their peers agree with their verbalised thinking.*

● **Asking Tutor:** *Applied when a participant seeks information from the tutor rather than from peers. This is a seeking of 'expert knowledge'.*

● **Assessments:** *Applied when a participant identifies that use of the tool facilitates them to begin to identify forms of assessments that may be needed for a client.*

● **Attributes of the Tool:** *When participant identify properties of the tool and what they perceive the properties do for their learning.*

○ **Brought to Life:** *Applied when a participant identifies that use of the tool has brought the subject to life; made the situation and the learning more real.*

● **Case Study:** *Applied when a participant identifies that the tool is useful in conjunction with, or for exploring a case study.*

● **Categorising:** *Applied when participants are noted as using the blocks to categorise the components of occupation into groups.*

● **Challenging Utility:** *Applied when a participant challenges the design of the utility of the tool.*

● **Checking Learning:** *Used when I am enquiring from participants what they have learnt, and whether they are understanding the material being taught.*

● **Clinical Experience:** *Applied when a participant draws on or relates discussions to experiences they have gain through clinical placements.*

● **Clinical Tool:** *Applied when participant identifies that the tool has clinical application.*

● **Colour Coded:** *When participants suggest that colour coding aspects of the tool may be beneficial.*

● **Communicate:** *Applied when participants talk to each other generally during the peer shared learning*

● **Comprehensive Information:** *Participant identifies that the tool provides comprehensive information that makes up occupation.*

● **Confirming Learning:** *Applied when a participant confirms that they have learnt and understood the material.*

● **Consolidate:** *Applied when a participant identifies that the use of the tool is beneficial in consolidating learning.*

● **Debating:** *When participant uses the tool with their knowledge to debate an issue.*

● **Differentiating Terminology:** *Applied when a participant is able to differentiate between terms of activity, purposeful activity and/or occupation. Any combination of the three.*

● **Difficult to Explain:** *Applied when a participant identifies that occupation and occupational therapy is difficult to explain.*

● **Enquiring:** *When a participant is asking for more explanation.*

● **Explain to clients:** *When participant identifies that the tool would be useful in working with clients to be able to explain what occupation is, and the purpose of occupational therapy.*

● **Exploring:** *Applied when participants are exploring what the tool may be.*

● **Expressing Own Opinion:** *Applied when a participant expresses their own opinion during the shared learning.*

● **Facilitates Depth:** *Applied when a participant identifies that use of the tool facilitates them to think more deeply about the information.*

● **Facilitates Discussion:** *Applied when a participant's use of the tool facilitates discussion amongst them and their peers.*

● **Facilitates Thinking:** *Applied when a participant identifies that the use of the tool assists them in facilitating their thinking.*

● **Familiar Game:** *Applied when a participant identifies that the form of the tool, being the same as that of a well-known game, assists their learning and understanding of the concept.*

- **Fragility:** *Applied when a participant comes to know that occupation is a fragile entity. That with the removal of key or too many blocks occupation is under threat or cannot come into creation.*

- **Generally Explain occupational therapy:** *Applied when participants identify that the tool is useful for explaining what occupational therapy / an occupational therapist is, without any specific target group identified.*

- **Hardware Format:** *Applied when a participant identifies they would like the teaching tool in a hardware format, or that having a hardware version to use is beneficial.*

- **Holistic nature of occupation:** *Applied when a participant identifies that the tool enables them to recognise the holistic nature of occupation.*

- **Holistic Teaching Tool:** *When a participant identifies that the teaching tool is a holistic representation.*

- **Identifying Complexity:** *When a participant identifies and / or acknowledges that they understand occupation as being complex.*

- **Impact of Tool:** *Participant identifies a feeling / impact the tool has on themselves.*

- **Interdependent Components:** *When participant independently identify that they now understand that the component parts interdepend on each other, and together create occupation.*

- **Leading Learning:** *When a participant shares their thinking in order to lead the learning.*

- **Learning:** *When participant demonstrates that new learning has occurred for them. They have made a connection to the information and can begin to draw their own understanding and conclusions correctly.*

- **Memories Fragmented:** *Applied when a participant identifies that they only recall some aspects of the tool.*

- **Mirror Other Theory:** *Applied when a participant identifies that the tool mirrors or represents another theory or conceptualisation of occupation as a concept.*

- **Not Learning Through Reading:** *Applied when a participant explains that they have not been able to learn the concepts through their reading of lecture slides or literature alone.*

- **Occupation:** *When participant is able to identify that occupation is created through the attachment of subjective meaning and value.*

- **Occupation Creates Identity:** *When a participant identifies that occupation (what we do with meaning) influences or shapes our identity.*

- **Occupation Focused:** *Applied when a participant identifies that use of the tool facilitates them to maintain an occupation focus.*

- **Occupational Analysis:** *Applied when a participant identifies the tool may be able to be used for the analysis of an occupation; occupational analysis.*

- **Own One:** *Applied when a participant identifies that they would like to have the tool themselves.*

- **Peer Checking:** *Applied when a participant asks other participants if they are in agreement to progress with learning.*

- **Peer Enquiry:** *Applied when a participant asks peers to explain the information.*

● **Peer Explaining:** *Applied when one participant explains to other participants information that supports the learning of peers.*

● **Peer Inviting:** *Applied when one participant invites another / others to express their views / thinking.*

● **Peer Prompting:** *Applied when one participant poses a question to stimulate the thinking of the group.*

○ **Positive Recollections:** *Applied when students who have seen / been taught with the tool before provide a positive recollection about the use of the tool.*

● **Prompts Learning:** *Applied when a participant identifies that use of the tool prompts them to revisit previous learning or investigate new material to enhance their knowledge.*

● **Purposeful Activity:** *Participant is able to correctly differentiate purposeful activity as something separate to occupation or activity.*

○ **React Positively:** *When a participant gives a positive reaction to the tool without giving a specific reason of why they find it useful.*

● **Recognise Design Features:** *Applied when a participant recognises that one or more design features of the tool mirrors / represents the features of the concept of occupation.*

○ **Remembering:** *Applied when a participant identifies that in seeing the teaching tool again they remember it from before.*

● **Requires Guidance:** *Applied when a participant identifies that increased guidance from the tutor whilst using the teaching tool as students, would enhance the learning experience.*

● **Requires Information:** *Applied when a participant identifies that to use the teaching tool more independently, it would be beneficial to have supplementary information. This could be via textbook, manual, or dropdown information in a software version.*

● **Revision:** *Applied when a participant identifies that the tool is useful for revision of their learning.*

● **Sharing Information:** *Applied when a participant shares general information with peers.*

● **Software Format:** *Applied to identify the positive reactions of participants when identified the tool can be developed into a software format.*

● **Supports New Knowledge Development:** *Applied when a participant identifies that having knowledge of the teaching tool enables them to draw on that knowledge when they are developing new knowledge.*

● **Teach Activity Analysis:** *Applied when a participant identifies the tool could be used to teach activity analysis.*

○ **Teaching Tool is memorable:** *Participant identifies that they remember being taught with the tool previously.*

● **Theory to Practice:** *Applied when a participant identifies and uses the use of the tool to assist in linking theory to practice.*

● **Tool is Useful:** *When a participant identifies that teaching the concept of occupation through the use of the tool is perceived by them to be a good way to teach it. Participant at this point does not identify any specific reasons as to why the tool is beneficial.*

- **Tool Represents Occupation:** *Applied when a participant correctly identifies the tool as being a representation of the concept of occupation.*

- **Tutor Confirmation:** *Applied when I confirm to a participant/ or the group of participants that their learning is correct.*

- **Tutor Enquiring:** *Applied when I am asking participants for explanation of their point.*

- **Tutor Explaining:** *Applied when I give a further explanation to the information following a participant asking for more information.*

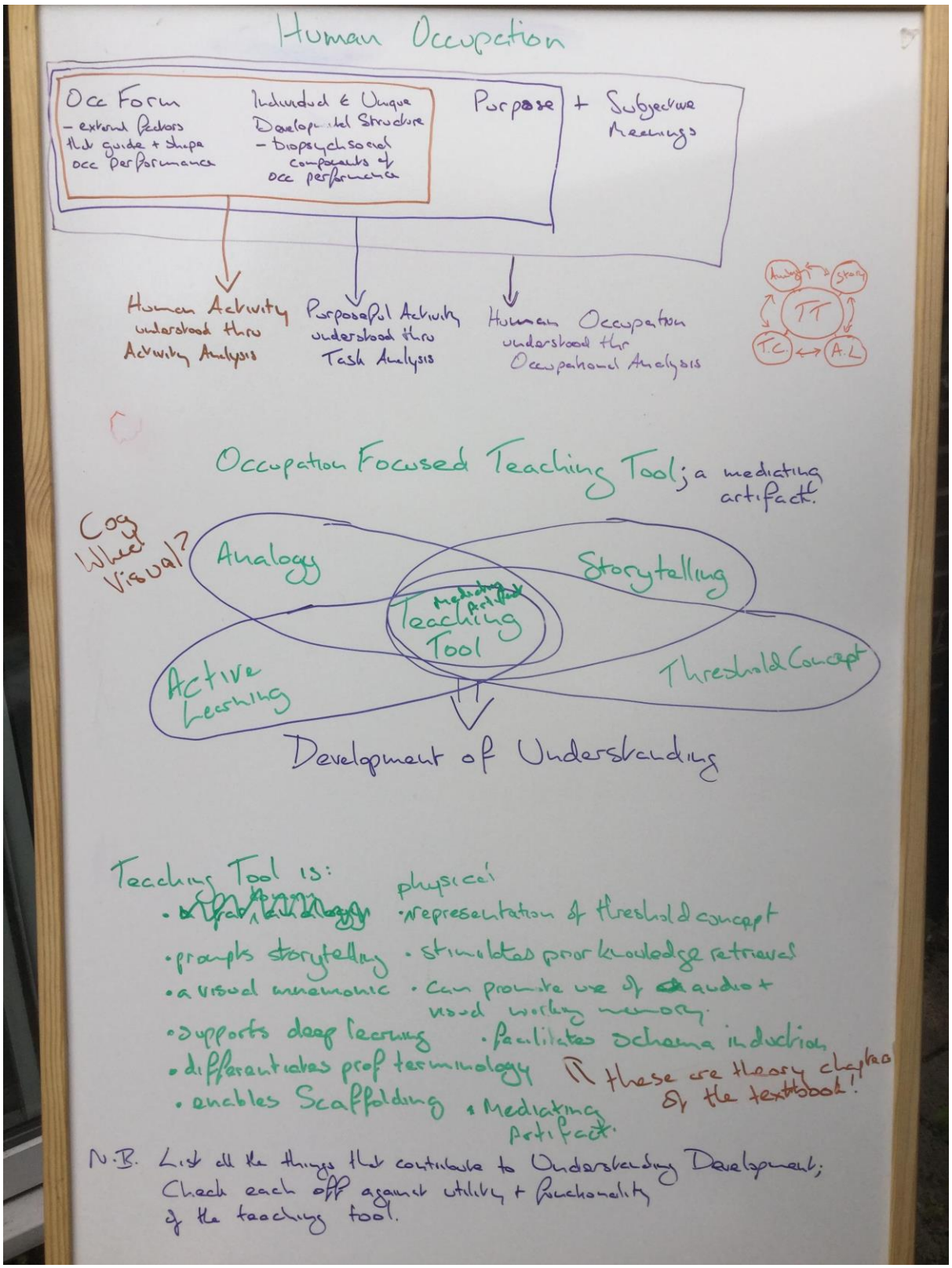
- **Tutor Guiding:** *Applied when I intervene in the participant discussions to guide their thinking, discussions and interactions in my chosen direction.*

- **Tutor Prompting:** *Applied when I pose a question to prompt participants' thinking and discussions.*

- **Useful in Practice:** *Applied when a participant identifies that the tool would be useful in practice settings.*

- **Visual Aide:** *Applied whenever a participant identifies that having something physical to look at facilitates the development of their learning about the complex concept.*

Appendix 11: Photograph of Final Diagramming



Appendix 12: Inquiries regarding the Teaching Tool

The electronic communications presented below document interest in the teaching tool. Names have been redacted for confidentiality. However, I can confirm that each enquirer is employed as an occupational therapy academic.

[redacted] Massachusetts, US

Thank you for connecting with me on LinkedIn. I would love to talk about the teaching tool. My direct email is

[redacted] I teach a course related to theory, history, and practice. For two years I have used the McColl, Law, Baptiste text and have used the metaphor of the book to have students create an electronic portfolio. This year I am using Gaynor Sadlo's 2016 article as the framework for the course - I like her application of threshold concepts to the OS systems created by my former professors at USC (Zemke, Clark, Yerxa, et al). Your tool might help provide the students with structure as they create a metaphor project in the second half of the course so if you are interested in discussing this further, please let me know. Thank you.

[redacted] Alborg, Denmark

Dear Joan,

I have with deep interest read your and your colleges work presented in the paper “Challenges of teaching occupation: Introduction of an occupation focused teaching tool”. I felt so glad and understood while reading it, the feeling of not being alone came to me

I have worked pedagogical with this challenge for the past ten years. Two years ago, I designed “my way” of creating an learning experience for the students that enables us to work more in deep with the challenge of understanding occupation. I believe that we need to experience the power of occupation, feel the needs, challenges and dynamic of occupation in order to use occupation as a therapeutic tool in OT. In the “Explotorium of occupation” all students choose an activity to participate in for teen weeks, they share on blogs and reflect on their experiences with use of theory.

I would love to share more of my ideas and work, but my first reason too contact you is to find the teaching tool that you have designed. I have searched, but not been able to find the tool and the visual model described in your article. I hope that you can lead me to it as I´m continuously keen on developing my methods and approach to learning occupation.

Thank you for addressing the challenge in the paper, and thank you for taking time to respond to me

[redacted] Glyndwr University, Wales

I have been reading with interest your article entitled ‘Challenges of teaching occupation: Introduction of an occupation focused teaching tool’. I am due to present the initial occupational science lecture to our first year students and wondered if there is a template for the tool which you would share with me.

[redacted] Griffith University, Australia.

Dear Joan,

I am an academic from Griffith University in Australia. I am currently completing a PhD exploring how occupation is taught in pre-entry occupational therapy programs in Australia, and how students respond to this teaching .I am interested in finding out more about your PhD and teaching tool. Are you able to provide any more information? I have read your paper in the journal of occupational science, which is how I came across your work.