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International students becoming Physiotherapist

A post qualitive inquiry

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International Students Becoming Physiotherapist:

A Post Qualitative Inquiry

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International Students Becoming Physiotherapist:

A Post Qualitative Inquiry

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Contents

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Abstract

While there has been much written about international students' experiences of studying in the UK and to a lesser extent, the experiences of international nursing students, there is little known about the experiences of international physiotherapy students. In response to the recent trend for international students seeking to complete their physiotherapy degree in the UK, this inquiry aims to examine international students *becoming physiotherapist*.

Previous research in this area is based on the epistemological theory of social constructionism, viewing 'becoming a physiotherapist' as a linear process of professional socialisation, where students assimilate new attitudes, knowledge and skills, and assume a new identity as a professional physiotherapist. However, this post qualitative inquiry offers a novel approach. Drawing on Deleuze and Guattari's (1983; 1987) concepts of affect, assemblage and multiplicity, I present b*ecoming physiotherapist* as a rhizome: expanding, elongating, changing shape in a relentless, dynamic process of unforming and forming connections with a range of different bodies, entities, assemblages.

Through a series of unstructured interviews over a three year period, 12 international physiotherapy students shared stories relating to their experiences of becoming physiotherapist. Using a rigorous process of thinking with theory (Jackson and Mazzei 2012), I engaged with a range of theories as I worked with the data (MacLure 2010) and through this intense process, theory became entangled with the students' stories around their becomings, from which a number of insights emerged.

Becoming physiotherapist was different for each of the students and was presented as a process of deciphering a range of codes, relating to the human body, movement and also communication. While all of the international students had some familiarity with the code of physicality, and quickly became familiar with new cultural and learning codes, language codes presented challenges in different ways throughout the three years. However, despite this, becoming physiotherapist continued. Capacity building was viewed in terms of the ability to affect and to be affected by other bodies in a particular environment, and this was different for each student. A number of factors were highlighted as important to the ability of students to express capacity: the structure of the learning environment, the behaviour of those with whom they were learning and their own imaginaries. This inquiry has provided an alternative view of international students' engagement and challenges the deficit model often described in literature. Rather than viewing engagement as the responsibility of the student, it is seen as a response to affects flowing through a particular environment. Recommendations are made for physiotherapy education, including the scheduling of time and multiple opportunities for students to move flexibly between striated learning spaces (to gain familiarity with new codes and structures) and smooth learning spaces (for adapting and refining behaviours). Broader educational implications are raised, including impact of contextual hospitality on both the student's experience and their ability to express capacity on practice placements. The concept of the Body without Organs is used to explore the powerful impact of educators who approach students with humility, who are vigilant to affects within a learning milieu. Students responded to such behaviour by expressing their unique capacities, and entering into productive relationships which further enhanced their becoming physiotherapist.

Chapter One: Introduction

Introduction

This inquiry presents a novel perspective on the process of international students becoming physiotherapists. Working with theories of Deleuze and Guattari, a number of interesting pedagogical implications have emerged relating to the education of physiotherapy students from diverse backgrounds, both in university and while on professional practice placements. The inquiry breaks with the traditional methods used in qualitative research, and in line with this, the thesis is structured in a rather unorthodox way. Rather than aligning my thinking and actions with accepted methodology and methods, I have used a post qualitative approach (Jackson and Mazzei 2012; Lather and St. Pierre 2013; Taylor 2016; St Pierre 2011; 2018; St Pierre 2019), aligning myself with theory, allowing theory to direct my thinking and interactions with the data. Although unconventional, a strong narrative provides a logical structure, and rigorous scholarship assures the so-called 'trustworthiness and credibility' of the conclusions.

Beginnings and the Idea of Journey

This inquiry began as a more 'traditional' educational research project which aimed to contribute to the development of the physiotherapy curriculum at a UK university. I was an experienced physiotherapy lecturer and for many years held a specific role supporting internationally educated physiotherapists through their postgraduate studies. Through this work, I developed a passion for supporting international students through their transition to university and to practising as physiotherapists in the UK. Thus it happened that two years before 'the start' of this inquiry, my attention was drawn to a new development in the undergraduate physiotherapy course, which as part of the university's internationalisation agenda, had started to recruit international students. It had become apparent that based on the undergraduate assessment results, the international physiotherapy students were not progressing through the course at the same rate as the 'home' students and based on feedback from clinical educators and the students themselves, the international students were having particular challenges on professional practice placements. This inequity between the home and international students might be considered unsurprising as international students' life experiences in a different education, health-care and social

culture would not have prepared them for the UK education and health systems in a way the British students' life experience arguably would have. However, in order to mitigate the influence of these differences, the university's internationalisation agenda included a drive to adapt curricula so that learning would be accessible to students from all cultural backgrounds. This led me to consider whether the BSc Physiotherapy curriculum was appropriate and accessible for international students. After finding limited research to guide this work, I felt that to gain a better understanding of the apparent inequity between the home and international students, it would be useful to explore the experiences and perspectives of international students themselves, as they progressed through the course. Thus, my research question seemed very clear: *how do international students experience becoming a physiotherapist?*

The research aims also seemed very clear:

1. To examine international physiotherapy students' perceptions and experiences of becoming a physiotherapist, as they move through their three-year physiotherapy degree
2. To critically evaluate the factors that contributed to international students becoming physiotherapists
3. To synthesise the study findings to inform the development of an inclusive and accessible physiotherapy curriculum

While my initial plan seemed uncomplicated and the process I needed to follow, well defined, my early findings (based on stories shared with me by the international students participating in the inquiry) suggested otherwise, and pushed me away from my well-made plans, to rethinking the whole inquiry.

There is No One Path, Only Entangled Multiplicities

The aim of this inquiry was to examine the experiences of international students becoming physiotherapists. I thus set out and recruited (as I explain further in Chapter three, page 49) twelve international physiotherapy students from the same cohort, and met with them individually, at intervals over the three-years of their physiotherapy degree, inferring that it would be during those three years that they 'became physiotherapists'. However, my early

conversations with the students made it clear that 'becoming physiotherapist' was something that began long before the start of the physiotherapy course. In fact, there did not seem to be a specific 'start' for any of the individual students. There was something quite unique about the capacity of each individual student to be *affected* by the people, structures, ideas they encountered in their lives, and how these encounters made them feel or changed their actions. For example, as one of the international students, Aida, reflected on her experiences of healthcare during her schooldays in Hong Kong:

> "I studied chemistry and biology so I wanted to do a course that is related to the medical field, at university, but I'm quite afraid of blood so nursing and doctor must not be my choice. I'm afraid of wounds too – bleeding. Also I have a friend who is an athlete - he is preparing for the Olympics…
>
> … when I see him injured, I saw his physiotherapist came to help him. As he is my idol, I want be like those people too!"

Aida's facial expressions revealed the disgust she felt at the thought of dressing a bleeding wound, contrasting with the joy she expressed at the thought of her friend returning to the sport he loved, after his physiotherapy treatment. These experiences *affected* her in a unique way, and her narrative certainly suggested that these experiences contributed to her becoming a physiotherapist. Another international student, Rosie, was a passionate sportswoman with a degree in sports coaching. As she reflected on her experiences before starting her course, her love of sport was evident in many of her stories, but her facial expressions and tone of her storytelling revealed a stronger emotional response to her observation of the caring physiotherapist helping her Grandma. Again, Rosie was *affected* by these experiences in a unique way which contributed to her becoming a physiotherapist.

While Aida and Rosie seemed to be driven to become like the inspiring physiotherapists they had encountered before university, other students had only a limited idea of what it meant to be a physiotherapist. While some students settled into university life quickly, others found it very challenging. While some excelled in their assessments, others failed and struggled to reach the pass level.

As I tried to analyse the stories, my overriding feelings related to how different each student's 'becoming' appeared. Some moved quickly, some moved slowly, some reacted

positively to certain experiences at certain times, while others found the same experience challenging. The challenges of these complexities caused me to deviate from my original plan and turn to theory. I was drawn to the work of Deleuze and Guattari whose ideas were renowned for embracing difference, multiplicity and the concept of 'becoming'. Deleuze was a French philosopher, a contemporary of Foucault who lived in the 20th century and published many works in collaboration with the psychiatrist Guattari, including their seminal work, A Thousand Plateaus (Deleuze and Guattari 1987). As post-structuralists, they challenged the ideas around the way society and many systems and organisations were structured, in a fixed, hierarchical manner (Savin-Baden and Major 2013). They likened the structure of society to a tree, which has a definite top and bottom, growing in a predictable direction, from roots to trunk to branches, and contrasted this to their concept of the *rhizome* (Deleuze and Guattari 1987) which has no clear top or bottom and grows in an apparently irregular manner, as a response to factors in the environment. They emphasise that unlike the tree, whose location, structure and size depends strongly on the tree from which it descended, the rhizome's size, structure and growth is less dependent on the plant from which it descended and is more strongly linked to influencing factors in the environment. Water and nutrients are essential to both the tree and the rhizome but the *affects* are different; the response of the tree will be to continue to grow in its predictable pattern, while the rhizome's growth will be unpredictable, depending on the amount and location of water, light, chemicals in the soil. The tree is very clearly a tree; we recognise it from its shape and behaviour but the rhizome is not defined by shape or structure and so cannot be easily named; it is in a continual state of *becoming*.

Deleuze and Guattari used the concept of the rhizome in their notion of 'becoming' which they applied to many different contexts in their publications, and in recent years their ideas have been applied to areas such as architecture, film and nature but also to education, for example, Christancho and Fenwick (2015) examined the professional development of surgeons, and Taylor and Harris-Evans (2018) explored students' transition to higher education. Relating these ideas to my inquiry, I present 'becoming physiotherapist' as a rhizome, evolving in a non-linear way and influenced by many factors in the environment and factors relating to each individual's unique story. Becoming is a *process* that requires

more than the individual, it involves alliances, connections; becoming is a multiplicity (Deleuze and Guattari 1987), which is different for each student.

Deleuze and Guattari (1987) stress that to understand an individual, we must examine how that individual *affects* others, how that individual is *affected* by others and also how the connections the individual forms with others, produces something *more,* as it becomes other (something different). This point brings with it another conundrum. How is it possible to examine such a multiplicity? How would I understand an international physiotherapy student, as just one part of many interconnected alliances which are constantly changing and becoming? This complexity starkly contrasts with more traditional approaches to research which aim to find patterns and themes and averages which can be generalised. This complexity is also reflected in Deleuze and Guattari's writing. Their unconventional writing style has been commented upon by many (including Bahnisch 2003; Williams 2013; DeLanda 2016 and Buchanan 2020) and is notoriously difficult to read and comprehend. It is complex, lacking in clear definitions, and scattered with inconsistencies between the two authors. As a rhizome itself, this writing style illustrates the complexity of rhizomal becomings: difficult for an outsider to follow, with inconsistencies which cannot be pinned-down or boxed-in, for example, through traditional research approaches. Understandings can be considered through careful examination, but always recognising that knowledge will only ever be *partial*, and understanding always *incomplete*. Yet, by acknowledging these limitations, flecks of understanding may emerge, with contextual wisdom. So, it is with my inquiry. The context in which this inquiry emerged was part of my own rhizomal development, *becoming educator,* which through my engagement with this inquiry, transformed into *becoming researcher.* My original goal was to gain an understanding of international students' experiences so that in turn, the experiences of future international students might be enhanced. I naively saw myself as a researcher and put in place strategies that would ensure distance between myself and the participants (to minimise my influence on their story telling). However, in my attempt to provide a safe, relaxed environment for students to share their experiences, I had unwittingly created the perfect setting for each student to *affect* me and for me to *affect* each of them; for us to form connections, form new multiplicities, intrinsic to each of our becomings. I later came to recognise this and discuss further in Chapter three, page 51 and 67).

This snapshot of the multiple *becomings* that were unfolding, with each of the students, becoming physiotherapist and with me becoming inquirer, illustrate the energy at work as becomings emerged rhizomally, as affects were felt and responded to, as different connections were made and unmade. This dynamic process is one of the central concepts in Deleuze and Guattari's philosophy, as they describe *assemblage:* the way multiple bodies (human and non-human) interact to form a functioning multiplicity, productive of a particular shared output (Deleuze and Guattari 1987). It was evident from my inquiry that as the students engaged with their studies, with their clinical placements and with their social lives, many assemblages were in the process of becoming. I will explore the concept of assemblage in detail in Chapter four, page 85 and utilise this concept throughout the inquiry as I explore the connections students made while studying in university and practising on clinical placements, becoming physiotherapists.

However, before focusing on the international physiotherapy students, I will first provide context in the following section which discusses the trend for students to travel to different countries to complete their undergraduate education. I will then critically review research which has explored international student' experiences of studying in a new country, including some of the factors which influence these experiences. This section will conclude with a discussion around the term 'international students', questioning its value as a label for the highly diverse group of students who travel to a new country for their education.

Students Seeking International Education

Over the past two decades, there has been a gradual increase in the number of international students studying at UK Universities (Thorpe et al. 2017). Recent statistics from the Higher Education Statistics Agency (HESA 2023), indicated that in 2020-21, 22.2 per cent of all students in England were international students, making up 17.9 percent of the undergraduate population. The cause of this increasing trend arises from two directions. Firstly, the British government's targets for increasing the numbers of international students in Higher Education (HE) can partly be explained by the significant contribution international students make to the UK economy (through tuition fees, living costs and from family and friends' spending while visiting), with a total economic benefit rising from £31.3bn in

2018/19 to £41.9bn in 2021/22 (Cannings, Halterbeck and Conlon 2023). Secondly, there is a drive from young people themselves, choosing to complete their degree overseas, motivated by career aspirations or for the sociocultural experience of studying in a different country (Beech 2017; Civera, Meoli and Paleari 2023). In terms of international students enrolling in health related degrees in the UK, the desire to find professional work in the UK after graduation is likely to feature highly, particularly with the current shortfall in the health care workforce. In 2016, the World Health Organisation (WHO) predicted a global shortage of 18 million health workers by 2030 (WHO 2016). This report related specifically to doctors, nurses, midwives, dentists and pharmacists but by association, this highlights a projected shortage of allied health professionals including physiotherapists, worldwide. In the UK, the recently published, NHS Long Term Workforce Plan (NHS England 2023) documented the longstanding pressures on the healthcare workforce, reporting current vacancies of more than 112,000 health care staff (including physiotherapists). More specifically, the Chartered Society of Physiotherapy (2023) recently highlighted the need to expand the physiotherapy workforce within the UK, stating that there is currently one physiotherapist for every 1,136 people, while in Australia, there is one physiotherapist for every 742 people and Germany, one for every 430 people. These combined factors reflect the recent change in demographics of the undergraduate physiotherapy courses in the UK, to include a growing number of international students.

There is a wealth of research which has tried to examine the journeys of international students: some focusing on success factors such as degree classification (for example, Li, Chen and Duanmu 2010; Ren and Hagedorn 2012; Crawford and Wang 2015), while others focus on the overall experiences of students (for example, McLachlan and Justice 2009; Marginson 2014; Singh 2018). Based on the National Student Survey data for 2021, international undergraduate students reported an overall positive experience of studying in the UK (Office for Students 2022). While this can be considered encouraging for UK universities and the students themselves, it must be recognised that this is an average score. Many students may not have contributed to the survey, some may have had less positive or more exceptional experiences, some universities may have performed better than others. More detailed studies are needed to provide more meaningful data. Two studies which analysed the HESA data (Morrison et al. 2006 and Ianelli and Huang 2014)

found that there were variations in performance of different international students. The data did not allow analysis of students' actual achievement, only their overall attainment. Thus the findings were inconclusive and it is difficult to unpick meaningful information about particular groups of students (such as physiotherapy students).

Two specific factors have been widely recognised as particularly important to student success: not surprisingly, English language proficiency and prior academic achievement (Li et al. 2010; Ren and Hagedorn 2012; Iannelli and Huang 2014; Crawford and Wang 2015; Thorpe et al. 2017). For students who are engaging on health related courses, such as physiotherapy, English language proficiency becomes more significant, because of the relationship between effective verbal, written and face to face language skills, to effective patient care (Garner 2007). The findings of studies exploring other influencing factors have been equivocal. For example, Ren and Hagedorn (2012) examined the influence of PhD and MSc students' *home country* and compared students' performance. They found that African students performed better in MSc study, while Southeast Asian, European and South American students performed better in PhD study. However, when other factors are considered, it would seem over-simplistic to simply label a student's nationality as a factor to predict academic success. For example, Africa comprises many different nations and cultures, so that to consider all African students in the same category seems grossly inappropriate. The findings relating to the influence of *gender* were similarly complex. Crawford and Wang (2015) found that gender had no influence for Chinese students but was an important indicator for UK students, where females scored better. Ren and Hagedorn (2012) found that females performed better in MSc study while males performed better in PhD study. Like the studies which categorised student success according to nationality, using the binary categories of male or female is too simplistic: many other intersecting issues considering gender identity, age, cultural, social and environmental factors may influence students' performance.

Some studies have examined how particular behavioural characteristics of international students influence attainment, which could be considered more appropriate and educationally useful. Ren and Hagedorn (2012) surveyed a range of international, postgraduate students in an American Research Institution and found that in *all* students, those that studied more intensely performed better. Singh (2018) used a different approach

to examine students' perspectives and carried out interviews with 55 international students in a Malaysian university. He also found that the attitude of students was important, reporting that students considered self-discipline, hard work and independent learning as important factors for success. Motivation to learn was highlighted again by Li et al. (2010), who found that a strong predictor of performance was the student's perceived significance of their success to their family. If a student felt that it was important to their family that they succeed, it was more likely that they would succeed. Thus the pressure to fulfil the desires of their family was a strong motivator to learn. These findings are not surprising as it has been widely documented that motivation is a strong factor in enhancing learning (Gibbs 1992; Corno 2007; Phana et al. 2020). This is an aspect of students' behaviour which could be influenced through pedagogical intervention, but considering physiotherapy students specifically, it could be argued that (along with students engaging in other vocational courses) the motivation to become a practising physiotherapist is inherent in the majority of students (international or home students) and is likely to contribute to the experiences of all physiotherapy students.

Social contact with peers was found by Li et al. (2010) to be a key predictor of success in all students, especially conversations in their native language. Singh (2018) also identified this social contact with other students of the same country as particularly important to success. This point highlights the human need for belonging discussed by Baumeister and Leary (1995) and may explain the findings of Beech (2015) whose qualitative study exploring international students' motivations for studying overseas, identified that the presence of social networks were an important factor in students' decisions to study in a particular country. Students' sense of belonging was also identified as an important factor for international students' success on health related courses, which included clinical placements (Levett-Jones and Lathlean 2007 and Mattila, Pitkäjärvi and Eriksson 2010), where enhanced performance was attributed to an improvement in self-confidence and self-esteem.

The importance of this sense of belonging cannot be underestimated and could be considered one of the prominent differences international students encounter when they arrive in a new country, where the culture and local language may be quite different to what they are used to. Thus, many studies have examined the way international students

experience the period of transition to university and the way they adapt to the new education system and sociocultural norms.

Berry (2006) first used the term acculturative stress to describe the frustration and anxiety newcomers experience when trying to adjust to a novel environment. Furnham (2004) recognised that while all students moving away from home to start their degree as independent learners, may experience challenges, international students experience additional challenges relating to culture and language. In some cases, these challenges may impact students' mental health (Furnham 2004), which is understandable, considering some of the experiences reported by international students (Wimpenny and Savin-Baden 2012). In this review of qualitative research, the authors highlighted that far from feeling a sense of belonging, many international students felt alienated from not only their tutors, but their peers and families. In order to minimise these negative experiences and aid international students' adjustment to the new environment, HE institutions commonly implement a range of interventions (Furnham 2004; Kelly, Moores and Moogan 2012; Matheson and Sutcliffe 2016) with the goal of enhancing students' language skills, adaptation to the new environment, their sense of belonging and academic success. However, providing such additional support immediately sets international students apart from the home students, which Sovic (2008) highlighted can also negatively impact international students' sense of belonging. In addition, the concept of standardised intervention programmes also pertains to a key criticism of much of the literature: international students are not a homogeneous group, but a diverse range of individuals with very different abilities, behaviours and cultures.

The term *international student* is used by universities to describe a student's fee-paying status and is generally considered to be a student who moves from a different country for the purpose of study. This might mean students who have travelled many miles, whose native language and culture is different to the host country (for example, students from South and East Asia), or students who travel many miles but whose native language is the same as the host country and whose culture is similar (for example students travelling to the UK from Canada or Australia). Equally, home students may be immigrants or speak different languages to the host country, when they are at home. Thus using one specific term to categorise a large, diverse group of students (implying that they are similar, have similar

experiences, similar backgrounds and need similar support at university) is inappropriate and requires more nuanced appreciation as part of meaningful research. Ploner (2015) drew attention to this in a qualitative study involving three UK universities, where he highlighted the strikingly different experiences of different international students. He criticised the narrowly defined terms such as 'student life-cycle' which suggest that all students follow a similar path. These points link to the observation of Morrison et al. (2006) that much of the early research relating to international students 'problematises' the students, assuming that they perform less well than home students, without necessarily providing the research evidence to support this. Jones (2017) argues that this type of overgeneralisation is also typical of the 'deficit model' where international students are seen as lacking in academic writing or social skills; needing to adapt and develop new skills to fit in, which may lead to negative stereotypes (and overlooking the possibility that similar issues may exist in some home students). This also aligns with the point made by Montgomery and McDowell (2009) who argued that until international students are acknowledged for the skills and attributes they bring to student communities, the sense of belonging across cohorts of students will not improve.

However, there is an increasing body of literature which has provided a more sophisticated perspective on the experiences of international students, acknowledging intersectionality and the interplay of a range of practices and agents in specific contexts (such as Beech 2015, Ploner 2017, and Ye and Edwards 2017). Marginson (2014) argued that international students are individual agents engaging in a process of self-development. Rather than "adjusting to the requirements and habits of the host country" (Marginson 2014: 8), implying a sense of cultural superiority in the host country, Marginson (2014) contended that international students engage in a reflexive process of identity formation, as they deal with the various challenges they face. Jones (2017) actually calls for "reimagining the early student experience" (Jones 2017: 940) because *all* students experience challenges as they transition to university, as they leave home to become independent learners. Rather than viewing transition in terms of international and home students' identifiably different experiences, we should view transition in the way described by Taylor and Harris-Evans (2018), as a rhizome: a unique, non-linear process of becoming, which changes depending

on the connections a student makes with others and the context in which they find themselves.

Thus, with these tensions in mind, for the purpose of this inquiry, I use the term 'international' students to describe the group of non-British students who engaged with the inquiry. I use it as an accepted term in education (and in the absence of a suitable alternative term). I use inverted commas to indicate that I recognise that the label does not describe a homogeneous group, and that each student is unique with different life experiences, capacities and aspirations. In a similar way, I use the term 'home' students for those students who originate from the country of study (recognising that they are also a diverse group comprising students of different ages, from a range of different sociocultural backgrounds). I will now provide an overview of the thesis before focusing more specifically on the 'international' students about which this inquiry pertains: physiotherapy students.

Thesis as a Rhizome

As a rhizome, the development of this thesis has been complex and has emerged as a product of the interactions between me, the students, my mentors, theoretical concepts and research; the current state of the thesis reflects its stage of becoming at a particular point in time. Had the timeline been shorter or longer, so the structure would have been different, so while I am presenting it as a complete thesis, I recognise that should I revisit the theory, or continue reading and writing, so it would change. That said, I will now provide an overview of the *current* thesis structure (illustrated in figure 1, below) and outline the content of each of the chapters.
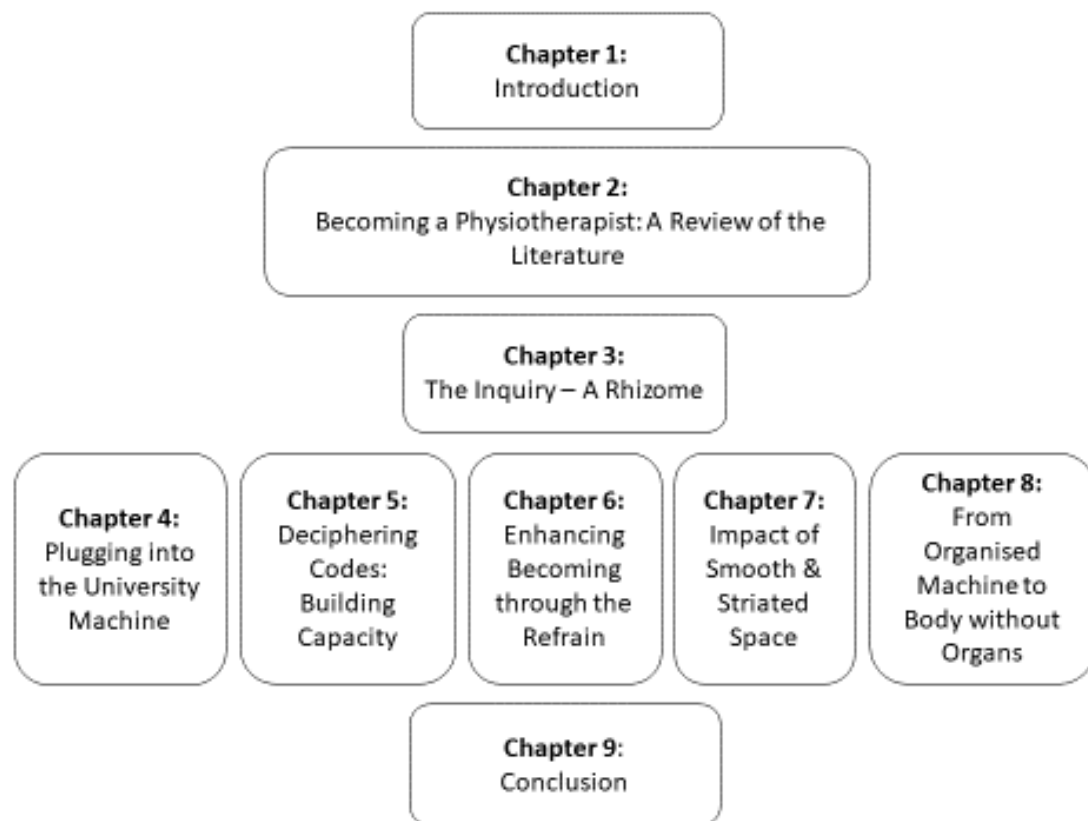
Figure 1: Thesis Structure

In Chapter two, I discuss the requirements which must be met for a graduate to be considered a professional physiotherapist, followed by a discussion around the process by which students develop into autonomous physiotherapy practitioners. Because of the dearth of literature around the way international students experience this process, I draw on literature around the professional development of a range of health professionals to make inferences about international students becoming physiotherapist.

Chapter three introduces my initial ontological framework and methods for recruiting participants, collecting and analysing data and the ethical considerations relating to the inquiry. This chapter also highlights the tensions I encountered, as despite my well planned schedule, the inquiry process turned out to be more complex than I anticipated. I discuss the challenges I encountered to both my approach to data analysis and importantly, with my ontological perspective. Thus, as my initial plans lost their zest, I was drawn to a different way of approaching the study, through post-qualitative inquiry.

I explain the way my thinking was transformed, along with my understanding of qualitative inquiry and my ontological perspective. Before this 'ontological turn', my inquiry was pre-formed, planned, predictable. Afterwards, by engaging with a process of 'thinking with theory' (Jackson and Mazzei 2012), my interactions with the data were driven by theory and so chapters four to eight emerged, as novel perspectives on international students' transformation into professional physiotherapists. These chapters disrupt the traditional view of international students' becoming physiotherapists, which is explored in Chapter two page 29. Rather than viewing *becoming a physiotherapist* as a linear process in which the individual agentic student is central to decision making about how they engage with their learning environment, where they transform from novice to physiotherapist over a period of three years, I view the process through a different ontological lens. B*ecoming physiotherapist* is viewed as the unfolding of many entangled, interweaving flows, which occur as products of the many assemblages which are made and unmade over time.

Chapters four to eight are multiplicities, entanglements of theory with data (stories which emerged from conversations with me and each of the international students) with narratives and interpretations of the wider literature. The chapters should be read in a chronological order, as different theoretical concepts are introduced and illustrated by student stories and more in-depth narratives. However, in reading them, the content of each chapter is presented in a non-chronological way, rather as an aligning of theoretical perspectives which emerged from the process of working with the data (described in Chapter three, page 66), which are used to both interpret and make inferences about the students' stories of becoming physiotherapist. The insights which emerge from the discussions within each chapter are then drawn together in the Conclusion Chapter, in which I also present my reflections on the use of this approach to inquiry and recommendations.

Chapter Two: Becoming a Physiotherapist - A Review of the Literature

Introduction

Based on a critical review of relevant literature, this chapter aims to provide insights into the process of becoming a physiotherapist, for students who travel from a different country for their physiotherapy undergraduate education. There is very little research which examines this directly, so I draw on literature around the professional development of student physiotherapists whose learning takes place in their country of origin, and literature around the professional development of 'international' students engaged in health related degrees, whose education is based in a university and includes practice placements in clinical settings.

In order to provide background I first discuss physiotherapy as a global profession, outlining the requirements of graduates and what is expected of learners in terms of knowledge, skills and attributes, to reach this professional status. I then provide an overview of theories underpinning the learning process for physiotherapy students and a review of research which has explored the way this happens. A general understanding of the process of becoming a physiotherapist for students who are native to the UK, provides a baseline for exploring the experiences of 'international' students, and by synthesising this understanding with what is understood from the wider literature about 'international' students' experiences, I present inferences around 'international' students becoming physiotherapists.

Physiotherapy as a Global Profession

Physiotherapy is a profession that is recognised across the world and it is not unusual for young people to travel overseas either to complete a physiotherapy degree, for postgraduate education, or to practise as a qualified physiotherapist. Grimmer et al. (2016) compared physiotherapy practices across USA, UK and Australia, examining education, expected competencies of graduates and roles within healthcare. As three Global North countries, it was not surprising that they discovered many similarities across the three countries, including education, standards and governance. However, physiotherapy is also recognised across the Middle East and Asia, to the Pacific where despite wide variation in

terms of language, ethics, and development, the recognition and advancement of physiotherapy is common across the region (World Physiotherapy 2023). While different titles may be used in different countries, such as physical therapist or kinesiologist, the World Confederation for Physical Therapy (WCPT) recognises them as part of the same profession and established a description of physical therapy which was intended to be used world-wide:

> "Physical therapy is services provided by physical therapists to individuals and populations to develop, maintain and restore maximum movement and functional ability throughout the lifespan. The service is provided in circumstances where movement and function are threatened by ageing, injury, pain, diseases, disorders, conditions and/or environmental factors and with the understanding that functional movement is central to what it means to be healthy."

> (World Confederation for Physical Therapy 2019a)

However, because of the differing healthcare systems, political environments and cultures across the world, the practices of physiotherapists differ, along with the curricula for physiotherapy education. In an attempt to stimulate international discussion around physiotherapy education, Broberg et al. (2003) developed a conceptual framework for physiotherapy curriculum design, through an international collaboration between physiotherapy educators across Europe. One of the essential elements identified by the group was the socio-cultural context in which physiotherapy is learnt and practised, and Broberg et al. (2003) emphasised the importance of students understanding their own culture and values before being able to recognise and understand those of others. This links to the concept of cultural competence which has become the topic of much research and discussion in recent times (for example, Norris and Allotey 2008; Ward, Mandrusial and Levett-Jones 2018) and highlights an element of professional knowledge that is crucial for all health professionals.

In the multicultural landscape of UK health and social care, all physiotherapists need to be able to understand and take into account the values of their clients and therefore, based on Broberg's et al (2003) argument, they need to understand their own culture and values. This becomes more complex in physiotherapy education when the classroom comprises

students from a diverse range of cultural backgrounds, and may be challenging for students who are learning about practising in a culture which is different to their own. This point was recognised in a policy statement about physical therapy education from the WCPT (2019b), where they stressed the importance of students developing the skills to work flexible in a range of culturally diverse environments:

> "This will enable them to practise within the full physical therapist scope of practice as defined by and/or legislated for in the country in which the education takes place. The education should therefore also respond to the demand for national and international mobility by introducing students and physical therapists to the challenge of meeting a diverse range of licence to practise requirements."

World Confederation for Physical Therapy (2019b)

Thus, students are expected to develop the skills to be able to interact effectively in the clinical environment of the country in which they study, which will clearly be less challenging for those students who are native to the country in which they study and may introduce additional challenges for 'international' students who may not be familiar with local cultures.

In the UK, physiotherapy education is provided by universities in partnership with health and social care providers, and until recently the vast majority of students were from the UK (Universities UK 2017). For these students, the professional development process involved them stepping into an educational and healthcare culture with which they had arguably some familiarity, possibly as service users themselves; so while they may have experienced some uneasiness during the transition to university study and during their first practice placements, it is likely that they would have some understanding of the social norms of these different contexts. In recent years there have been increasing numbers of 'international' students enrolling in UK health related degree programmes (Universities UK 2017) including physiotherapy (Rodger et al. 2007). Emerging evidence suggests that while 'international' students have similarities with 'home' students: being highly motivated to enter the particular health profession (Cant and Higgs 1999), they do not progress through the course in the same way as UK students (Winterton et al. 2015; Mitchell, Del Fabbro and Shaw 2017; Shanley, Knowles and Steele 2018). This is not surprising as 'international'

students originate from a diverse range of cultural backgrounds with different social norms within health care and education so it could be predicted that these students would start their journey from a different position to 'home' students, with different expectations and possibly experience the process in a different way. This will be explored as part of this inquiry in order to provide a clearer understanding of the way 'international' students become physiotherapists, but firstly I move on to discuss the traditional pathway to professional status for physiotherapy students, highlighting the knowledge skills and values students need to develop on their way to becoming physiotherapists.

The Pathway to Professional Physiotherapist

A profession is an organised group who abide by ethical standards, possess specialist knowledge derived from research, education and training at a high level, and are recognised as such by the public (Professional Standards Council 2019). One of the key identifying features of a profession is its unique body of knowledge which other groups do not have, validated by links with universities and the academic disciplines within the university (Eraut 1994). The traditional pathway to professional status in physiotherapy requires an individual to engage with a degree programme which is recognised for both its academic quality, by aligning with the UK Quality Code for Higher Education (QAA 2014) and through validation of the programme by the professional body, and the programme's alignment with the standards of the profession. A student must engage with a broad range of learning experiences to develop the knowledge that will allow them to practise their profession autonomously and effectively, including at least 1000 hours of practice-based learning (Chartered Society of Physiotherapy 2016), where they have the opportunity to practise and learn with guidance from qualified practitioners. According to the Chartered Society of Physiotherapy (CSP) (2011), professional values and behaviour are based on the key principles of professional responsibility, ethical and effective practice and the endeavour for professional excellence. The aim of physiotherapy education (in the form of a three year degree programme in the UK) is to provide individuals with sufficient learning opportunities to develop the knowledge required to successfully fulfil these principles. In fact, all physiotherapy qualifying programmes must "build and consolidate core physiotherapy

knowledge, skills values and behaviours" (CSP 2015: 2). Similarly, the regulating body, the Health and Care Professions Council (HCPC) requires education providers to ensure graduates are able to "meet the expectations of professional behaviour, including the standards of conduct, performance and ethics" (HCPC 2017: 7). Thus, the values and behaviours of physiotherapists are recognised to be just as important to professional practice as factual knowledge and practical skills.

Professional Knowledge

Defining a profession-specific knowledge base for physiotherapy is problematic as the knowledge relating to physiotherapy practice is complex. Higgs, Titchen and Neville (2001) argued that professional practice knowledge (that which is used by a professional) comprises propositional knowledge, derived from theory and research (such as that concerning the human body, its movement, health and illness), professional craft knowledge, derived from professional experience (for example, the motor skills involved in the effective application of therapy techniques and cognitive skills to evaluate the effects of therapy) and personal knowledge, derived from the personal experiences of the individual, for example, awareness of personal abilities and scope of practice. The complexity of the knowledge base required for competent clinical practice illustrates the complexity of what must be learned by a student physiotherapist. If that physiotherapist happens to be a newcomer to the UK, who is also grappling with the challenge of adapting to a new educational and social culture, and a new language, so the magnitude of their learning task becomes apparent. It is not surprising then that the few studies which have examined the progress of 'international' physiotherapy students during their studies, have indicated that their progress is slower than their UK counterparts and they experience particular challenges on clinical placement (Winterton et al. 2015; Shanley, Knowles and Steele 2018), where they must adapt to a novel healthcare culture as well as face the challenges of applying theoretical knowledge to real life.

As experts, practising in a specific professional field there must be a mechanism for assuring the wider society that members of the profession can be trusted to carry out their practice effectively. Thus, members of a profession abide by ethical principles and shared values

that can be appreciated by non-members. Additional aspects of professional knowledge must therefore include self-awareness and the possession of internal values and principles which align with those of the profession, so that the wider community can be confident that the quality of that professional's decision making meets the requirements of the profession (Ajjawi and Higgs 2008). Thus, in order to behave autonomously, be responsible for their own actions and make authentic decisions based on their own interpretations and deductions, newcomers are required to adhere to and practise the professional standards. These behaviours become internalised through a process of professional socialisation (Cant and Higgs 1999; Richardson 1999a) so that the individual's decision making is aligned to what is expected by the public. Thus, over the three years of the physiotherapy degree, student learning is wide ranging and complex, and for students who are newcomers to the UK, studying in a second language, this complexity is intensified.

There are many theories of adult learning, from behaviourism (Merrian and Bierema 2021) to humanism (Rogers and Freiberg 1994) and cognitivism (Piaget 1936). However, considering the complexity of physiotherapy practice, its emphasis on interaction with patients, clients and other professionals in a variety of contexts, theories which emphasise the social nature of learning are deemed here most useful to explain the nature of professional development. The following section thus provides an overview of social learning theories, and based on a review of the literature, I discuss the way in which learners become physiotherapists, through the process of professional socialisation.

Theories of Professional Development

The importance of interacting with others as part of adult learning, was captured by Vygotsky, in his theory of social development (Vygotsky 1978). In contrast to Piaget (1936), who argued that all individuals follow a similar pattern of cognitive development, Vygotsky (1978) recognised the role of social interaction on cognitive development and presented a theory in which the community is seen as crucial to individuals making sense of the world. He argued that a person's cognitive development cannot be considered separately to the context in which the development occurred. In other words a person's ability to interpret the world, reason and solve problems will be related to the context in which they developed

those skills. This may partly explain the challenges of transition that many students experience as they move from secondary to tertiary education (Pampaka, Williams and Hutcheson 2012; Briggs, Clark and Hall 2012; Blair 2017), as each individual student's subject-related knowledge and study skills will relate to the context in which they developed those skills, which will be different from the university context to which they have moved. How much more challenging transition is likely to be for students whose previous learning took place in a totally different socio-cultural context, as with some 'international' students; an issue which has been confirmed in several studies exploring the transition of 'international' students to UK university study (Kelly, Moores and Moogan 2012; Menzies and Baron 2014; Spencer-Oatey, Dauber and Jing 2017), and may explain some of the challenges experienced by the 'international' physiotherapy students.

A key principle of Vygotsky's (1978) theory of social development is the idea that before a learner can carry out a skill proficiently, they move through a phase where they cannot achieve the task independently but can with guidance. He labelled this phase, the 'zone of proximal development' and argued that it was in this zone that learning occurred. He introduced the term 'scaffolded learning', to refer to the way learners are supported in this phase in various ways by interacting with a more knowledgeable other (MKO), who has a greater understanding of the subject than the learner. This could be a teacher but for students on health related courses who spend a significant proportion of their degree on professional practice placements (Rodger et al. 2006; Pitkajarvi, Eriksson and Pitkala 2012; CSP 2015), this MKO may be the qualified physiotherapy educator with whom the student is working (or other health professional, or even a patient) who, through a range of activities will support the student's development.

Lave and Wenger (1991) based their work on Vygotsky's ideas and argued that learning can be demonstrated in the way individuals participate in the social world. Through their research they identified that the behaviour of novices was characterised by limited social interaction at the edge of the social group (termed legitimate peripheral participation) and as their learning progressed, so individuals would move into more influential positions in the social group, leaving the periphery behind. They argued that learning is a ubiquitous by-product of our social interactions and will take place whether our explicit goal is to learn or not. Lave and Wenger's view of knowledge is that rather than existing within the minds of

individuals, it is manifest within the social group, in the form of shared values, beliefs and behaviours. As learners interact within the social group, for example physiotherapy students engaging with a professional practice placement, so they engage with the learning of group norms. It might be assumed that an 'international' student may spend longer in the stage of legitimate peripheral participation, as they gain familiarity with the new socio-cultural norms, but the same might also be true for any student who is uncertain of the behavioural norms of a new social situation. Lave and Wenger (1991) stress that learners must be active for this learning to occur, so it should be considered that in some instances (for example if placed in a location where communication is particularly challenging, such as strong local accents or working with patients who have communication difficulties) the environment might be so challenging that the student is unable to interact and therefore learning may be limited. Thus there may be additional challenges for 'international' students which may come to light through specific inquiry; inquiry which acknowledges the broad range of cultural and educational backgrounds and capacities of 'international' students.

Professional Socialisation

The process by which learners develop the skills, knowledge and values of a particular profession is termed professional socialisation, and defined as:

> "a complex interactive process by which the content of the professional role (skills, knowledge, behaviour) is learned and the values, attitudes and goals integral to the profession and sense of occupational identity which are characteristic of a member of that profession are internalised"

(Goldenberg and Iwasiw 1993: 4)

Such internalisation of the 'rules' of the professional group by the individual who seeks to join, might be considered as indoctrination of the newcomer (Sparkes 2002), but it can also be interpreted through social influence theory (Hogg 1992). This explains the conformity of behaviour in social groups through two processes: normative influence (based on the individual's need to feel 'normal' or acceptable by the group) and informational influence

(based on the individual's dependency on the group for valid information). The apparent passive moulding (or indoctrination) of the newcomer to the profession could explain the way the novice physiotherapists adapts his / her/ their behaviour so that he/she/they are accepted by a clinical team. The student may not actually agree with the values or ideas relating to that behaviour but he/she/they know that to be accepted (or pass the assessment) they must practise in that accepted, 'professional' manner. Thus the idea of professional socialisation being a passive process cannot explain how novices actually come to believe in the values and principles of the group; there must be more to the process. Clouder (2003) explored this aspect of professional socialisation with a group of occupational therapy students. Her findings clearly demonstrated that students quickly became aware of the rules and expectations of professional practice, with many students conforming to the required behaviour by learning to "play the game" (Clouder 2003: 217). Students were aware of this behaviour and consciously presented themselves in a way that fitted in, which Clouder (2003) interpreted as an act of agency (as opposed to passive moulding). Richardson (1999) also argued against the idea of a passive process, reasoning that professional socialisation in physiotherapists is an on-going process which occurs through interaction with the environment and with different situations. This links well to the second process involved in the social influence theory: informational influence (Hogg 1992). This is the way in which individuals depend on the expert knowledge of the group, recognising that they do not possess such knowledge but have a desire to learn. Thus, the student physiotherapist who is lacking in confidence and certainty about their own abilities, looks to the group for guidance and direction. Because the student respects the knowledge held by the group, so they will actively internalise the beliefs, values, behaviours of the professional group; in other words, come to value those things themselves privately (rather than simply purport those things externally for acceptance, while internally holding different views). A number of models have been developed to represent the stages of professional socialisation in nurses (such as Davies 1975; Shuval and Adler 1980). Such studies acknowledge that it happens over time and that the final stage of socialisation is when the values, norms and expectations of the profession have been internalised by the nurse and he/she/they recognises that identity in themselves.

In a qualitative study exploring the professional socialisation of nursing students in South Africa, De Swardt, Rensburg and Oothuizen (2017) highlighted the importance of qualified nurses as role models and of modelling behaviour by students as an important method for developing professional knowledge. The prominence of the finding relating to the imitation and conforming behaviours of the students, emphasises the role of social learning in the development of professional knowledge but also raises a potential negative aspect to this method of learning. If the practice setting is characterised by outdated practice or low standards of care, such as the practice culture reported in the Mid Staffordshire NHS scandal (Holmes 2013), then the negative behaviours and attitudes demonstrated by staff may be perpetuated in the newcomers. Even if students recognised such behaviours as incompatible with professionalism, they may lack the confidence to challenge this and because of this, adopt the unprofessional behaviour themselves in order to conform. While there is no direct evidence that this happens, it should be an important consideration for educators in ensuring the standards of practice placements for all students.

An additional consideration relating to modelling is the way in which spoken language proficiency interacts with the interpretation of behaviours that students are modelling. An important aspect of modelling in complex interactions (such as carrying out a clinical procedure on a vulnerable patient in a compassionate manner) is that the tone, rate and meaning of the spoken word are important to the patient experience, as well as the sensitive behaviours. It could be suggested that a student with limited understanding of the spoken language in such a situation, would still be able to model the tone of speech and behaviour presented by the qualified professional. Thus, relating to the professional socialisation of 'international' students, while spoken English may present a challenge to learning in the classroom (Li et al. 2010; Spencer-Oatey, Dauber and Jing 2017) and in the clinical context (Miguel et al. 2006; Edgecombe, Jennings and Bowden 2013), this aspect of social learning may be an area that is less challenging to 'international' students. Certainly, the nuances relating to professional development of 'international' students in the clinical context requires further examination.

Another important consideration is that while on practice placements, students interact with a range of professional and non-professional staff, patients and family members, as well as a range of policies, procedures and complex medical equipment, which arguably

have an influence on students' professional development. For example a student's behaviour may be impacted by their reading of key hospital policies (such as those relating to infection control or manual handling). In addition, as they interact with patients and carers, so they may recognise the impact of their behaviour on others and so adapt their behaviour, or repeat actions which produce a positive response, when they encounter a similar situation again. Thus, while modelling may be an important factor in students' professional development, there are other factors at play which must be considered to gain a clearer picture of the process.

In a study which explored the professional development of physiotherapy students from universities in Sweden and the UK, Lindquist et al. (2006) interviewed twenty one students at different stages of their education. Factors influencing professional development of students from Sweden and the UK may have been quite different but the data were analysed together, thus diluting any differences and meaning that the findings might not be authentic for either group. However, the researchers identified four developmental pathways with which student physiotherapists engaged on their journey to professional qualification: reflection, communicating with others, performing skills and searching evidence. Interacting with communities of practice was an essential component of each of the pathways, highlighting the important social aspect of learning in professional education. In addition, the dynamic nature of the process was illustrated by the way students' perception and behaviour in relation to each of the pathways changed as they moved towards professional qualification. The authors went as far as describing the process as 'random'. If the learning experiences of the two groups of students were quite different, this might explain the apparent 'randomness' of each student's professional development but it also points to the perspective that each student's learning experience is unique. This would challenge approaches to research which look for commonalities across such a small cohort of students (in order to gain insights which are relevant to all). It also challenges the idea of providing standardised programmes for student learning, which may not be beneficial to students whose learning process differs from the 'standard' profile (for example, 'international' students engaging with an education programme which has been developed with the profile of native students in mind).

A further study which aimed to understand the professional socialisation of physiotherapy students (Bartlett et al. 2009) explored physiotherapy student reflections on critical incidents at various points through their professional education. Students expressed different perspectives on their learning at different points along their journey. Initially they felt very emotional about issues arising from clinical practice, they lacked confidence and focused strongly their *own* perspectives of situations. They found it more difficult to apply their knowledge in clinical practice than in university. After two clinical placements, students recognised the tension between their idealistic views and the reality of clinical practice and as they became less egocentric, recognised the importance of communication. By the end of the course, students were much more *client-centred*, self-confident and comfortable working in the uncertainty of the real world. While students seemed to be at similar levels at the beginning and the end of the course, they developed at different rates. Like Lindquist et al. (2006), Bartlett et al. (2009) noted different learning pathways in different students, possibly due to different learning styles, personality traits or social influences at the time. If these differences were apparent in groups of students from similar cultural backgrounds, it is likely that there will be more differences in the pattern of professional development in students from different cultural backgrounds.

Bartlett et al. (2009) reported further, that as students moved through the course, they recognised the tensions between their idealistic views and the struggles of managing time, resources and client expectations in the real world. This demonstrates a move away from egocentricism towards a more balanced view of clinical practice, where they also became more comfortable with not knowing all of the factual information. This interesting finding could be explained through Dewey's (1938) theory that learning ultimately results in being able to deal with uncertainty. In addition to this, Bartlett et al. (2009) found that at the end of the course, students' perceptions of their clinical instructors changed from seeing them as a tutor to seeing them as a mentor. This represents a real change in the students' perception of themselves in terms of professionalism. Rather than seeing themselves as a novice on the outside of the physiotherapy profession, they came to see themselves as part of the professional group, with their clinical instructor being a colleague who is simply further along their journey of professional development.

To summarise, the literature suggests that the process of becoming physiotherapist is a dynamic learning journey which can be quite different across students. Important features of the journey were reflection (in the development of self-awareness) and to enhance the development of professional behaviours, interacting with others and practising skills in a range of social situations. While the social aspect of learning was emphasised in all studies, the components comprising that social situation and their specific influences on learning, were not examined. The existing research suggests that student physiotherapists move through stages, characterised by initially being emotional, lacking confidence and strongly focused on their *own* perspectives, to becoming more client-centred, self-confident and comfortable with uncertainty, when they are at the end of the course. However, this suggestion is based on a small number of studies, including relatively small numbers of students. It is unclear whether all students follow this process, and even if they do, whether they follow it in the same way. Neither is it clear whether this process is different for students from a different cultural background, whose native language is different to that which is used in the learning environment. The research presented here has also focused on the individual student and how other individuals in the social environment influence their development and ultimately their identity, but none of the research has discussed the way individual students influence others and how that impacts their development.

With this in mind, a more holistic approach to exploring the professional development of physiotherapy students, which takes into account their relationships with others and the context in which the relationships take place, might produce novel insights into students' professional development. The small amount of literature which has examined the professional development of 'international' students' engaging in health related degrees has explored this to some extent, particularly in relation to the way language and culture impact the development of relationships and this will be explored in the following section.

International Physiotherapy Students' Professional Socialisation

A review of literature relating to the experiences of 'international' students for whom English is a second language, reveals that a key barrier to learning relates to language difficulties (Li, Chen and Duanmu 2010; Arthur 2017; Spencer-Oatley, Dauber and Jing

2017). A similar barrier has been identified in more specific research investigating the experiences of 'international' nursing students (Amaro, Abriam-Yago and Yoder 2006; Miguel et al. 2006) and physiotherapy students (Pitkajarvi, Eriksson and Pitkala 2012) particularly while on clinical placements where communication challenges were complicated further by hospital jargon, technical terminology and strong accents (Miguel et al. 2006) or when communication challenges seemed to inhibit students' ability to form positive relationships with supervising staff (Pitkajarvi et al. 2012). The challenge of language cannot be underestimated, for both its implications on professional communication with colleagues and patients, and for its implications on 'international' students' self-esteem, self-confidence and learning. Language may have specific repercussions for social learning, for example if a student did not fully understand the sociocultural and language nuances associated with a particular professional behaviour, then their modelling of that behaviour might not align fully with a particular context.

Edgecombe, Jennings and Bowden (2013) carried out a literature review which explored the clinical experiences of 'international' students from a range of disciplines and applied the findings to nursing. While it was not fully clear which disciplines the different findings referred to, the study did provide some general themes which are useful to consider. All of the students reported interacting with a broad range of personnel during their clinical placements and they felt that this interaction was important to their learning. The authors argued that the socialisation process was influenced by cultural, social, educational and work factors. As in previous studies, this review highlighted the issue of communication and specifically, how language difficulties seemed to limit students' ability to form relationships within the team, including with other students. This was intensified by specific differences between the cultural expectations of the 'home' students and 'international' students: 'international' students *expected* to make friends but waited to be invited by the 'home' students, while 'home' students *expected* to make friends but waited for the 'international' students to join in. This highlights a cultural mismatch which could have a profound impact on social interaction, which not only limited the potential for friendship formation, but also opportunities for peer learning and the formation of a student group culture. This difficulty in friendship-forming between 'home' and 'international' students is a common finding in the wider educational literature (for example, Sovic 2008; Wimpenny and Savin-Badin 2012;

Spencer-Oatley, Dauber and Jing 2017). Peacock and Harrison (2009) argued that if a student's identity is closely aligned with a specific group such as 'international' student or 'home' student, their interaction with others outside of the group can be reduced, thus limiting the overall sense of belonging across the student group, and for health students, possibly limiting the development of professional identity.

The importance of forming relationships was also highlighted by Edgecombe, Jennings and Bowden (2013), who found that 'international' health care students experienced feelings of loneliness, alienation, and difficulties adapting to the new environment and culture. Pitkajarvi et al. (2012) reported similar findings in 'international' physiotherapy students particularly when they were not sufficiently supported by their clinical supervisor while on practice placement. Students expressed that they felt lonely, like an outsider who was not trusted, when their supervisor was not supportive. In addition, a different study by De Swardt, Van Rensburg and Oosthuizen (2017) emphasised the vital role of the clinical supervisor in nursing students' professional socialisation, both in terms of support and also as a role model. These findings strongly emphasise the impact clinical educators make on student's professional development, and particularly, how an effective relationship between educator and student is essential to that learning.

Because of the importance of effective communication and the formation of relationships in terms of social learning, the findings of these studies suggest that the professional socialisation of 'international' students may progress at a slower pace and be more troublesome than for many 'home' students. While many 'home' students lack confidence and feel nervous about starting a clinical placement (and it must be acknowledged that some may experience similar challenges to the 'international' students), most 'home' students would not have the additional challenge of communicating in their second language and adapting to a new culture. This is particularly important in clinical contexts, as a student's sense of belonging has been identified as central to learning, because of its positive effect on confidence and self-esteem (Edgecombe and Bowden 2009).

Closely related to issues around communication is culture. The studies presented so far have touched on cultural differences between 'international' students and their tutors, patients and peers, which may influence both student learning and the ability to form relationships. However, Ladyshewsky (1996) carried out a study which specifically examined

the influence of culture on 'international' physiotherapy students' performance on clinical placement. Although almost 30 years ago, the findings still have relevance for current clinical education in the UK. Through a series of focus groups with 'international' students from East Asia and with clinical educators, the researcher identified specific cultural differences between the students and educators, for example the clinical educators highlighted a perceived longer "waiting time" (Ladyshewsky 1996: 291) after they asked 'international' students a question, which educators perceived as a lack of knowledge (rather than being due to longer processing time, to translate, consider the question, prepare an answer and mentally rehearse). In addition, some educators reported that 'international' students tended to be passive and reluctant to share their opinions. There are many reasons why a student may appear hesitant. It might be a lack of knowledge (as the educators in the study assumed) or it might be a range of other reasons, such as the challenge of language (as I have suggested) or cultural differences based on a mismatch between the expectations of polite behaviour. For example, Zhang (1995) highlighted that the behaviour of East Asian students may be influenced by Confucianism, which emphasises agreement and group harmony, while Western culture is more focused on individualism. Thus, the 'international' students described by Ladyshewsky (1996) may have been acting in a way they felt to be appropriate: being respectful and avoiding disagreement, while the supervisor saw it as inappropriate (passive and lacking initiative). However, the differences in students' behaviours may have been due to personal issues unrelated to the students' cultural background or a combination of reasons. In studies which include small numbers of individuals, it is at best, unhelpful to impose such binary alternatives to describe students behaviours, but might also be dangerous in promoting stereotypical views about students from different cultural backgrounds.

Conclusion

The aim of this review was to discuss the professional development of physiotherapy students, and explore the literature relating to 'international' students becoming physiotherapist. The active and dynamic nature of the professional socialisation process was discussed, highlighting the way different students follow different pathways through their degree programmes. Common features included students' lack of self-confidence as

novices and the imitation of role models as a method of learning, while towards the end of their course, students were described as being more flexible, client-centred and more capable of dealing with uncertainty. The importance of social interaction to professional socialisation was discussed, particularly emphasising the importance of the relationship between the student and their clinical supervisor for both their learning and support. However, the impact of other individuals or learning materials on students' development have not been discussed. The growing body of literature relating to professional socialisation of student health professionals (particularly nursing students) has emphasised the importance of social relationships and those studies which focused on 'international' students unsurprisingly, emphasised the impact of cultural and language differences on the formation of relationships (which in turn, negatively impacted the 'international' students' professional development). While it is recognised that cultural and language differences may have some influence on 'international' students becoming physiotherapists, focusing on these aspects feeds into the so called 'deficit model', where international students are viewed as lacking, when there are many other factors which may be important to the way any student negotiates their unique path for learning. In addition, much of the literature presents the student as an individual actor who changes in response to the influences in the environment, without considering their influence through the relationships they form with others. This inquiry aims to take a more holistic approach, by examining the dynamic interactions between the 'international' students and all of the components comprising the different learning environment with which they engage as they become physiotherapists.

Chapter Three: The Inquiry – A Rhizome

"A rhizome has no beginning or end; it is always in the middle, between things, interbeing, intermezzo. The tree is filiation, but the rhizome is alliance, uniquely alliance. The tree imposes the verb 'to be', but the fabric of the rhizome is the conjunction,

'and... and... and...'

This conjunction carries enough force to shake and uproot the verb 'to be.' Where are you going? Where are you coming from? What are you heading for? These are totally useless questions. Making a clean slate, starting or beginning again from ground zero, seeking a beginning or foundation – all imply a false conception of voyage and movement"

(Deleuze and Guattari 1987: 26)

Introduction

I present this inquiry as a rhizome and in doing so I will first lead you to the middle. Here you will be able to discern the different stories (or becomings) that informed the inquiry and those that were unfolding alongside and interweaving with my own. At this moment, in the midst, it is possible to catch a glimpse of the multiplicity of stories, all at different stages of becoming and existing behind, in front and all around this point. Looking back at the 'starting point' of the inquiry, I see now, that it was an illusion. It was a point when a number of flows became entangled, and then continued their becomings: expanding, shrinking, changing direction and making connections with a range of other flows. My inquiry is not a linear narrative, sitting in isolation from its surrounding context. Instead, the point where I initially asked my research question was the point of intersection of a multiplicity of interweaving stories which were unfurling at that point:

the international drive to globalise education and….

the economic drive within the sector to grow and diversify and…

the growing trend for young people to pursue their education overseas and…

the target-driven culture within universities, forcing staff to focus on standardised metrics as indicators of success rather than student learning and….

the growing mental health crisis among young people and….

my own story, as a physiotherapy educator, my sense of urgency to solve a challenging problem within the curriculum.

The inquiry emerged from the coming together of this array of ongoing, broader stories and looking back, I can see how these broader stories have influenced the inquiry itself and also me, the participants and their stories. Interweaving with these broader flows are many smaller stories, unfurling at different rates and making connections with other different narratives. Each participant has their own narrative, which in turn is made up of other stories, some of which connect with those of other participants and my own, as well as

connecting with the ongoing broader narratives. Here, in the midst, as I look forward to the 'endpoint' of the inquiry, I see that this too, is an illusion. The collection of becomings that feature within the inquiry continue now, including my own: becoming researcher, becoming philosopher, becoming other.

Like the rhizome, the connections made through this inquiry have been ones of alliances. Unlike filiations (as in the branches of a tree, where one branch derives from another), these connections were not tied through internal relations. Instead, the connections between me and the students, my supervisors, the literature; students' connections with one another, with tutors, with patients, are all relationships between independent bodies, characterised by a common interest, which benefitted both: alliances. Deleuze and Guattari (1987) strongly reject of the notion of us discretely moving from one place to another, from start to finish, as "a false conception of voyage" (Deleuze and Guattari 1987: 26). Instead, they view the world in a continual state of flux, movement, change, where the idea of 'being' is meaningless, as nothing stays as it is and everything is always in a state of becoming (as in the context of this inquiry, becoming adult, becoming student, becoming therapist, becoming teacher, becoming researcher).

Thus, I share with you a perplexing tension: how do I examine this multiplicity of complex, interweaving stories, and yet present my insights in a manner that is logical and meaningful? This chapter provides an arbitrary framework which clarifies how I approached this tension. By halting the flow at the illusory, starting point, I zoom in to view my plan that, dominated by positivistic thinking, (I imagined) I constructed, as I initially worked within the structure that (at the time) I perceived to define the research process. I follow this with an overview of the context within which the inquiry was placed: the 'international' students, the structured physiotherapy programme and the associated learning spaces. I then move on to present the tensions I perceived as I worked within this structure, and how thinking about these tensions and the purpose of the research more deeply, resulted in a line of flight (Deleuze and Guattari 1987) away from the familiarity of traditional structures to a novel, open space, where my structured thinking loosened, making me receptive to new ideas. I started to view the becomings which characterised this inquiry differently, making an ontological turn to post-structuralism (Deleuze and Guattari 1983; 1987) and post-qualitative inquiry (Lather and St Pierre 2013; St Pierre 2019). I introduce the concept of

thinking with theory (Jackson and Mazzei 2012) and how I worked with the data (Maclure 2010; 2013). Finally, the chapter ends with an overview of the ensuing five chapters, which present a post humanist perspective of the 'international' students' becomings, comprising an entanglement of the students' stories, with theoretical concepts and wider literature.

Zooming in - The Starting Point and Initial Framework

As an experienced physiotherapy lecturer, confronted with a perplexing problem relating to the experiences of 'international' students engaging with the BSc Physiotherapy course, my course of action seemed uncomplicated. A clearer understanding of 'international' students' learning experiences, I thought would pave the way for developing a more inclusive and accessible curriculum. Thus, at the outset (as discussed in Chapter one, page 3), my research question seemed very clear: *how do 'international' students experience becoming a physiotherapist?*

At this 'starting' point, my thinking was dominated by my assumptions about knowledge and learning. Aligning myself with the epistemological theory of constructionism, I believed that knowledge was constructed by an individual, through their experiences and interactions (Dewey 1938). As my reading progressed, I recognised that the construction of a student's professional knowledge was more than simply a two-way interaction with the environment, rather it was a complex social interaction in changing environmental contexts. This perspective emphasises the view that knowledge is constructed socially through shared experiences, perceptions and views. Thus, my theoretical lens at the start of the inquiry was that of social constructionism (Leeds-Hurwitz 2009). My ontological view at the time was based on my experiences as a physiotherapist and teacher; recognising that each individual has their own subjective experience of the world; that reality can be different for every individual. As a novice researcher and philosopher (but an experienced, pragmatic problem solver) I felt confident that my views were appropriate and robust, and that with a structured methodological framework, I would be able to access 'international' students as research participants, collect data and analyse my findings in a way that addressed my research question in a meaningful way.

Despite the term 'international student' being widely used in education and research to describe a particular category of students, I recognised the broad diversity within this category and (as discussed in Chapter one, pages 11-13) the challenge this brings to group studies. In order to gain a meaningful insight into how 'international' physiotherapy students' professional development is shaped over time, I recognised that a qualitative approach, which explored individual students' experiences would be required, but I needed to consider which particular approach would be most suitable. The inquiry was aiming to gain an in depth understanding of a process about which little is known, from the perspectives of those engaging with it, so there were a number of options which deserved consideration. Cresswell (2013) identified five commonly used approaches to qualitative research, based on his wealth of experience in the field of social and health research: grounded theory, ethnography, case study, phenomenology and narrative inquiry. With the focus of the research being the *experiences* and *views* of 'international' physiotherapy students, two particular approaches seemed more suitable: phenomenology and narrative inquiry.

Certainly, phenomenology would allow me to examine the experiences of individuals (Savin-Baden and Howell 2013), to gain a detailed insight into their professional development, but I felt drawn to narrative inquiry for a number of reasons. Firstly, my exploration of the literature had highlighted the heterogeneity of 'international' students as a group and also the diversity of physiotherapy students' experiences of professional socialisation, so I felt that it was essential that my study examined individual students' unique stories of becoming physiotherapists. Stories would provide me with a way to link the complexity of each student's different experiences with the different influencing factors in a way that was unique to a particular student. Huber et al. (2016: 217) highlight that in narrative inquiry, the subject is not "treated as fixed in place, that is, as static, atemporal, and decontextualized." Thus, it would allow me to capture the temporality of the process of becoming a physiotherapist and any changes students experience in their identity, their abilities and views as they move through their degree. Clandinin and Rosiek (2007: 35) argue that story telling is a "ubiquitous practice" in human history and its development into a research methodology in recent years is not surprising as a way of examining human experience. Thus, I felt that story telling would be an accessible way for students to recount

their experiences. In addition, I felt that it would account for my influence on each of the students' stories. I recognised that through meeting with each student on multiple occasions, where we would discuss and explore personal stories, we would be reconstructing experiences together. Narrative inquiry would embrace this relationship as part of the process, as highlighted by Clandinin and Connelly (2000: 20) when they described the inquiry process as: "a collaboration between researcher and participants over time, in a place or series of places in social interaction with milieus." I felt that this aligned well with my ideas in following students across the three years of their BSc Physiotherapy course, considering their experience at university and during their professional practice placements (in hospitals, clinics, community hubs), and how such milieus would comprise the many learning contexts. Consequently I felt confident that my plan was in place, with an appropriate and well justified methodological approach. I will now present these initial plans, followed by my early findings, before I discuss my ensuing struggle, impasse, and ontological turn.

Ethical Considerations at the Outset

All research should be conducted in an ethical manner so that any risks involved in the research are minimised (Savin-Baden and Howell 2013), whether the risk is to the researcher, the participants or the readers of the research. As I planned the inquiry, I identified a number of specific ethical considerations:

Participants' Wellbeing

Before I approached the participants, I first gained permission from the Director of the BSc Physiotherapy Course, in her role as gatekeeper (Burgess, 1984). She was able to consider whether it was appropriate for me to contact the students, and if it was in their best interests to engage with the study and discuss their learning experiences with me. In addition, participants would be required to reflect on their learning experiences, some of which might have been stressful or upsetting. Thus I planned to provide all participants with information about the university wellbeing service, which they could access if required.

Participant Commitment to the Study

The participants were required to engage with the inquiry intermittently throughout the three years of their BSc course, which demanded a high degree of commitment. There were two main ethical issues relating to this: the potential for coercion and the influence of the power differential between me and the participants.

Potential for Coercion

It would be unfair to ask students to commit to this project if they did not benefit in some way. The interview process would involve the participants discussing their learning experiences and development, which would require a degree of self-reflection, an activity which is an important part of professional development and is a requirement of the course. I felt the benefits of this activity may offset the time commitment. However in order to avoid coercing the students to take part (Cohen, Manion and Morrison 2011), I presented their commitment as the main request, emphasising that participation was voluntary and their refusal to take part would not have any effect on their progression through the course or the relationships with their tutors. The benefits would be outlined as secondary information so that they were not seen as a way of 'selling' the research to the participants.

Relationship between Researcher and Participants

As a tutor within the physiotherapy team, I recognised I held a high degree of power in relation to the participants ('international' physiotherapy students). They may have felt pressured to take part in the research, feeling that not taking part might somehow adversely affect their progression through the course (Cohen, Manion and Morrison 2011). However, when I first met with the participants they did not know me. My academic role comprised very little input to the BSc Physiotherapy course and specifically, no involvement in the first year, in their assessments or in overseeing professional practice placements. This offered a degree of distance between us in terms of my influence on their learning and progression through the course. In addition, I was very clear that my role in the relationship would be that of inquirer and not teacher, tutor or mentor. If any issues arose during the inquiry, while maintaining a professional empathetic connection with the participants, I

would signpost them to the appropriate support (whether academic, pastoral or medical).

Consent

At the time of recruiting the students for the study, it was important to empower them with knowledge about the inquiry and about their own autonomy in relation to the inquiry (Cohen, Manion and Morrison 2011). I was transparent about the aims and expectations, exactly how they would be involved, and made it clear that taking part was totally voluntary. Students could withdraw at any point without any negative effect on their relationship with me, the other tutors or their course progress.

During our first meeting, the requirements and expectations were discussed and students had the opportunity to ask questions. They were provided with a Participant Information Sheet to take away and consider (see Appendix 1, page 258). Participants who agreed to take part completed the Consent Form during the following meeting, and forms were kept in a locked cabinet in my locked office, separate to the data.

Confidentiality

During our first meeting, I asked each participant to choose a pseudonym which they would be referred to throughout the inquiry, to maintain anonymity. Interviews were recorded and the recordings deleted once transcribed. Where there was only a one student from a particular country, their home country was not referred to, only the continent, to minimise the potential to be identified. Any reference to specific individuals (staff or students) or locations were removed or reworded, to maintain anonymity. The transcribed interviews were stored securely on the university OneDrive and destroyed once analysis was complete.

As well as considering each of these specific points and ensuring beneficence and non-maleficence, I sought permission from the university ethics committee to proceed with the inquiry (full ethics proposal can be viewed in Appendix 3, page 262). Ethical approval was gained and the certificate can be viewed on page i.   However, over time as I engaged with the inquiry, additional ethical considerations emerged (which I discuss later, on page 51)

My Position in the Inquiry Process

Savin-Baden and Major (2013) recommend that researchers make a positionality statement to clarify to readers where they stand in relation to the research, the subject area and to the participants. In the early stages of the process, I saw myself as 'the inquirer', separate from the participants, managing the process and stories that emerged from our discussions. In an effort to make my position within the inquiry more transparent, I engaged with ongoing reflection to try to become aware of my views and opinions relating to the inquiry, documenting my thoughts in my reflective log. Buetow (2019) has warned that without an insight into such biases, researchers might perceive patterns within the research, based on their own previous experiences, where no pattern exists. Thus, in my role of inquirer, I recognised that my identity as university tutor, as physiotherapist, my experiences of working with 'international' students in the past and other personal biases would influence the relationships I had with the participants and influence their responses and my interpretations of their responses. Thus, as an integral part of the study, not only was it essential to state my position, but to engage with ongoing reflexivity throughout the research process (Savin-Baden and Major 2013), in order to gain insights into how I constructed meanings or interpreted findings in particular ways.

It was only later that I recognised that my position was changing over time and becoming entangled with thoughts around my reading matter and stories that the students shared. I started to view my own subjectivity differently, no longer viewing myself as outside of the process, looking in. Like the students and the inquiry, my subjectivity was in a process of becoming (which I discuss further on page 51 and pages 63-66).

Sample

Purposive sampling is recommended by Cresswell (1998) as an effective strategy to recruit participants who are knowledgeable about the topic of interest. It involves identifying and selecting specific individuals who have experience with the particular topic: in this case 'international' physiotherapy students. As I was intending to collect a large amount of data from each participant, over a three year period, I was not intending to recruit large numbers of participants. However, in order to recruit a diverse group of participants, in terms of age,

gender, previous work experience and cultural background (so that a diverse range of views and experiences could be explored), I aimed to use the strategy of maximum variation (Savin-Baden and Howell 2013). I therefore approached all of the 'international' students in the cohort, with the goal of recruiting at least twelve students from a diverse range of backgrounds.

Recruitment

After gaining permission from the gatekeeper, I approached the relevant tutors and arranged to deliver a 10 minute presentation about my inquiry to all five seminar groups (covering the whole cohort), during the second week of term. I followed this up with an email to all 'international' students in the cohort (n = 30) informing them of the study and inviting them to take part. Those who were interested were invited to meet with me to discuss the inquiry, where I provided them with detailed information, and assured them that anything we discussed would be treated confidentially. They received a reminder email after a week, which they responded to if they wish to take part. I then arranged a meeting to formally discuss consent and outline the plan.

Data Collection

Sharing rich, personal information with a university tutor might feel uncomfortable for the students so it was essential that I chose the most appropriate method to collect data, to both minimise participant effort and stress, and to maximise the detail and authenticity of the data. There are many possible methods for data collection as part of narrative inquiry, such as face to face interviews, reflective logs and digital recordings of participants' reflections (Reissman 2008). In order to choose the most appropriate method, I carried out a pilot study with a small group of third year 'international' physiotherapy students (a different cohort to the students I was aiming to recruit to the study). I shared with them the research aims and discussed which approach they thought might be most suitable. Thus my precise method of data collection was to be informed by 'international' students themselves.

Pilot Study

After gaining consent from the gatekeeper (Course Director of the BSc Physiotherapy Course), I emailed the 'international' students in the year three cohort, inviting them to meet with me for an informal discussion. Five students (all from Hong Kong) responded and met with me in person and engaged with a 30 minute discussion about the different ways of collecting information about students' experiences. They were unanimous in stressing that they felt students would be unlikely to engage with writing reflections or keeping digital logs, as they would see that as additional work. However, there was a surprisingly positive response relating to face to face meetings. The students felt that students would value meeting with a tutor to discuss their experiences, possibly seeing it as an opportunity for professional development. I therefore chose semi-structured interviews as the main method of data collection, with the potential to include additional, low effort methods to access specific information as the inquiry progressed.

Narrative Interviews - Data Collection

Drawing on narrative approaches (Reissman 2008), a series of semi structured interviews were planned to take place with each participant twice each academic year. In order to remain focused on collecting 'storied' data that was relevant to the research aims, it was important to consider the questions and discussion points for the interviews. Initially, meetings were face to face and driven by a formal interview schedule (see Appendix 4, page 266). Open ended questions were prepared, which aimed to prompt participants to recount their storied experiences of becoming a physiotherapist. While this was adhered to in the first two meetings, as time went by, and the participants became familiar with the focus of the research, the interviews moved from being semi-structured to unstructured but retaining the discussion focus of 'becoming a physiotherapist'. In addition, during the second and third year, all interviews took place online, for convenience. The timing of the interviews were scheduled around professional practice placements, and the exact timings were arranged at the participants' convenience, as illustrated in Table 1, below, which also

highlights additional data collection methods that I used to gain more insight into points raised in the interviews.

In order to ensure the authenticity of the data, each interview was introduced by running through main points from the previous meeting so that participants had the opportunity to clarify points and ensure my understanding. Recordings were transcribed verbatim and deleted once transcribing had been completed.

	Autumn Term			Spring Term			Summer Term		
Year 1		I[1]			W[1]			W[2]	I[2]	
Year 2		I[3]			I[4]				W[3]	
Year 3			I[5]			I[6]				

Key		
		Students on university campus
		Students on professional practice placement
		Interview (I)
		Short written reflective task (W): W[1] - Making connections W[2] - Emotional graph W[3] - Influences on becoming physiotherapist

Table 1 – BSc Physiotherapy Course Structure including Data Collection Points

In all meetings, I remained attentive and reflexive so that appropriate responses and follow up questions could be made to participants' comments (Savin-Baden and Major 2013). In addition to asking questions and listening to responses, I observed participants' facial expressions, posture and eye contact and recorded through note taking. Interviews lasted for approximately 30 minutes and were recorded. My initial plan was to make field notes relating to each interview and my own reflections, using Clandinin and Connelly's metaphorical framework, the three dimensional narrative inquiry space (Clandinin and Connelly 2000). However over time, I noticed my notes became more fluid, relating to what emerged from each interaction between me and each student, and my feelings and perceptions at the time, rather than aligning with my framework. I felt myself being drawn away from my original plans.

The Struggle sets in… Initial Data Analysis Plan

The data comprised a set of interview transcripts, reflections and field notes for each of the participants. Initially I planned to use Clandinin and Connelly's (2000) three dimensional narrative inquiry space framework as my method of analysis. The framework comprises the three dimensions of time, place and social-personal and for each dimension I planned to explore, analyse and interpret the data in a systematic way, to gain a deep understanding of each participant's experience of becoming a physiotherapist. The processes of data collection and analysis would be interpretative, iterative and tightly intertwined, as I would revisit the transcribed data from one interview to prepare for the next (making field notes which incorporated my own interpretation), then revisit experiences with each participant during the subsequent interviews for more in depth examination after the passage of time. Thus, through ongoing discussions and reflection with each participant, my plan was to move backward and forward within the three dimensional narrative inquiry space. This process would conclude with 're-storying' of the complex data relating to each participant, into a single narrative, representing each participant's story of becoming a physiotherapist. However, as I started to engage with the data, I started to feel a tension between my intention to follow the planned process and my instinct to move my notes and thinking in a way that aligned with the *data*, rather than my plan. I started to explore different methods to analyse the data and spent many hours working with the data in different ways but I came to an impasse.

Before I share my struggle, my reflections and eventual way forward, I will first share the early findings. With a clearer understanding of the context of the inquiry, my hesitation, uncertainty and subsequent decision making will become more transparent.

Context of the Inquiry

This section aims to contextualise the inquiry, by introducing the physiotherapy course and the learning environments, and the participants themselves. I also highlight some additional ethical issues which arose once I started meeting with the students regularly. Finally, I

discuss an important consideration about the context of the inquiry: the impact of the Covid pandemic.

Structure of the Learning Milieu

The BSc Physiotherapy course normally takes three years to complete. During this time the student is 'required' to develop the skills, behaviours and attributes of a physiotherapist and at the end of the three years, after passing the required assessments, to graduate as an autonomous physiotherapy practitioner. While there are usually more than 100 students in each cohort, most teaching takes place in small seminar groups comprising between 20 and 24 students, each with a similar number of 'international' and 'home' students. These seminar groups remain the same for the duration of the course.

During the first year of the degree, students are required to attend 'classes' on campus for a mixture of lectures, seminars and practical workshops, where the focus of learning is the theory underpinning physiotherapy, basic assessment and rehabilitation skills and fundamental interpersonal skills. The seminars are interactive classes, where students discuss theoretical ideas and apply such ideas to practice, often using case studies about patients to facilitate this process. In the practical workshops students learn practical physiotherapy skills, such as patient assessment, movement analysis, and treatment techniques. During these activities, students practise therapeutic techniques on each other and receive feedback.

In the second year, after completing one module on campus, students embark on the first of five professional practice placements (each of five to six weeks duration). They engage in experiential learning in a range of clinical settings, from hospitals to private clinics and community settings such a schools and health centres and different areas of practice (such as orthopaedics, neurology or cardiorespiratory specialties) working with children, adults or elderly patients. For the duration of each placement, students are allocated a 'clinical educator', a qualified physiotherapist who works in the location, who supervises the student in developing their professional practice skills and assesses their performance at the end of the placement. Between practice placements, students return to campus for more

advanced taught modules. The structure of the course in terms of university learning and practice learning is outlined in Table 1, page 46.

The Participants

There were a total of 113 students in the cohort, with thirty being 'international' students. Fourteen students volunteered to take part in the inquiry and engaged in the first interviews with two withdrawing at end of first year for personal reasons. The remaining twelve participants engaged with all of the interviews until they graduated at the end of the third year. Table 2 (below) summarises the participants, highlighting their pseudonyms, home country and experience of physiotherapy before starting the course. All of the students chose a Western name as their pseudonym. I was not surprised at this choice, as all of the students from Hong Kong used a Western name at university. However, I was surprised that more male students did not volunteer to take part, despite my efforts to recruit a diverse range of students. According to data from the CSP (2021a), 40% of undergraduate physiotherapy students were male in 2019-20 and this is an increasing trend, which aligned with the cohort of international students, where almost half were male. Thus, with only one male student in the sample, female students are clearly over-represented. I reflected on why more male students had not volunteered and considered a number of possible reasons. It may have been that they saw engaging with the inquiry as adding to their workload, but that would not have explained why the female students volunteered and committed to the regular meetings. It may have been that the idea of reflecting on and discussing their progress with a female tutor, was something that appealed more to the female than male students. It is possible that the male student may have been more receptive to a male researcher. However, it might have been none of these reasons and simply due to chance. As gender was not the focus of this inquiry, I did not explore this further but it should be borne in mind when analysing the data.

Name	Home Country	Age (at start)	Post-School Education	Experience of Physiotherapy before BSc	Time to gain BSc
Grace	South Asia	18	-	Engaged in sport as child Experienced physiotherapy several times	3 years
Mary	Hong Kong	18	Foundation Course Health Sciences in UK (1 year)	Interested in sport through childhood Aged 16 – Observed physiotherapy	3 years
Aida	Hong Kong	18	-	Interested in science and sport in school Aged 17 - Observed physiotherapy	4 years
Gemma	Hong Kong	18	-	Interested in sport as child Aged 11 – physiotherapy for sports injury	3 years
Ayesha	Hong Kong	18	-	Parents nurses – insight to healthcare Aged 17 - observation of physiotherapy	3 years
Kim	Hong Kong	18	-	Experienced physiotherapy as child Aged 16 – observed physiotherapy	3 years
Diane	Europe	19	-	Experienced physiotherapy as child Aged 17 - work experience in physiotherapy	3 years
Nikki	Hong Kong	19	Foundation Course Health Sciences in UK (1 year)	Aged 16 – Observed physiotherapy	4 years
Natalie	Hong Kong	19	Foundation Course Health Sciences in UK (1 year)	Age 17 – work experience in physiotherapy	3 years
Rosie	Europe	21	BSc Sports Coaching in home country (4 years)	Active in sport since childhood Observed physiotherapy Work experience in physiotherapy	3 years
Willow	Hong Kong	21	Diploma in Rehab Studies in Hong Kong (2 years)	Interested in sport from young age Aged 13 had physiotherapy for sports injury Diploma placements in physiotherapy	3 years
Peter	Hong Kong	21	Diploma in Rehab Studies in Hong Kong (2 years)	Diploma placements in physiotherapy	3 years

Table 2 – Overview of Participants

Emerging Ethical Issues

As mentioned on page 40, in planning the inquiry, I tried to consider all ethical implications and make certain that I had plans in place to ensure the wellbeing and safety of all participants. However, as I reflected on interviews with the participants, I became aware of changes in our relationships which required consideration, in what Guillemin and Gillam (2004: 263) term "ethics in practice" or "the everyday ethical issues that arise in the doing of research".

Because I was asking the students to share their personal stories, it was important to develop a trusting relationship, which would take time to develop. I considered myself a trustworthy professional from the same professional discipline as the students, which could be seen as reassuring to the students and beneficial to the trust relationship. In addition, I recognised that as an older woman, my appearance would also influence the way the participants' viewed me, possibly presenting me as more trustworthy and supportive. While these factors did not guarantee that the students would be comfortable talking to me about their feelings and potentially, discussing some challenging experiences, it did turn out to be the case and I was surprised at how much they seemed to enjoy meeting with me and discussing their experiences. Not only did most of them attend all of the scheduled meetings but often they would email me in between, with their reflections or just for an informal chat about our wellbeing. In addition, I noticed that over time, the interviews, became more 'student-led', in that students would arrive at our meeting, keen to tell me about particular experiences which they viewed as important, without any prompting from me. I started to recognise that our relationships were moving from inquirer-participant to something more personal and valued. As I learned more about each of the participants, their backgrounds, the challenges they encountered and how they dealt with things, I felt a stronger understanding and responsibility towards them. As a mother of children who were of similar ages to the participants and as a teacher who was keen to provide students with a high quality learning experience, my biases influenced my communication with the participants and my interpretation of their behaviour in and out of the research situation. For example, in recognising their struggles and hard work, I found it difficult to maintain my role of

inquirer and resist my instinct to be more nurturing and supportive. I could also sense the students' increasing trust in me as they shared not only personal perspectives about their experiences but also asked my advice about professional matters such as future plans or job applications. I sensed they were starting to view me as a mentor or guide (rather than simply inquirer) as well as my being drawn to view each of them in a more affectionate, supportive manner. This kind of change in relationship has been documented in the literature around ethical research, for example Reid et al. (2018) emphasised the need for researcher reflexivity as a way of ensuring conscious awareness of such changes in relationships and empathetically reinforcing the purpose of the meetings and roles of individuals involved, in order to maintain the clarity of boundaries and roles. Haahr, Norlyk and Hall (2014) explored these types of ethical dilemmas in healthcare research and argued that reflective practice should guide researchers responses to unexpected ethical dilemmas, and should be guided by wisdom and an understanding of the situation:

> "Ethical actions are relational and guided by a wish to do what is right and ethical wisdom, understood as the internal moral voice, and bioethical principles, understood as the external voice, must be integrated. Thus, the bioethical principles provide a sense of direction, but the principles should always be accompanied by an inner moral understanding of the specific situation."

(Haahr, Norlyk and Hall 2014: 11)

Thus my ethical practice and reflexivity during the inquiry lead me to reinforce the purpose of our meetings and our roles on a regular basis. If I felt that a student's comments or queries shifted, requiring me to respond in a different role (physiotherapy mentor, tutor, friend), I was careful to empathetically advise the student of who might help them with a particular query (such as a different tutor) and reinforce the purpose of our meetings.

It was also important to consider how I would manage the ending of the inquiry. To prevent our relationships from being suddenly severed, in the final meeting we shared professional emails, so that each student had the opportunity to contact me

if they felt the need. I also formally thanked each of them as a way to indicate the end of the inquiry process.

The Covid Pandemic

In February 2020, the Covid pandemic emerged, at a point where the students were five months into their first year. During March, they returned to their home countries and engaged with the remaining four weeks of the academic year, online. Students returned to the UK in September and started their second year with a new approach to learning. Face to face classes reduced to just six hours per week, which was significantly less than previously and comprised only those learning activities which could not be delivered online (such as practical skills workshops). Students were allocated to 'learning bubbles' of approximately five students, usually arranged according to who students lived with. During face to face classes, students sat in their learning bubbles, only interacted with those students, and then practised techniques at home with that same group. All other learning was delivered online through a wide range of interactive methods.

Students continued to engage with practice placements but because of the changes to health care practice during that time, some placements were cancelled, meaning that students sometimes had to wait to engage with placements during holiday periods. Others engaged with placements differently, for example by providing telephone advice to patients rather than face to face consultations. I continued to meet with the students online during this time, including while they were in their home country.

I recognised that the students were having a considerably different experience to students who had completed their course before the pandemic and I anticipated that students would perceive a huge impact on their experiences of becoming physiotherapist. Certainly, we had many conversations about the impact of the pandemic but surprisingly, often the impact was not viewed as negative. Many students enjoyed the opportunity to return home for a long break during the summer and easily switched to online learning for the final part of the first year. All students kept contact with their friends from university. Some continued studying,

while others found jobs and others took advantage of the rest period. On returning to the UK, many students commented on the benefits on the increased online resources but they all felt disappointment at the loss of face to face classes. Kim captured the general feeling about the new approach to learning:

> "I think the online learning gives us more time to revise - but we can't do practical things, which is quite bad - but we still like it – I am still able to chat with my classmates and do some group discussion and things, which is nice"

In addition, many of the students valued being part of a small learning bubble and found it much more comfortable interacting with a group of friends, rather than the larger seminar group. In general, students missed experiencing face to face teaching and many complained about the negative impact of having placements cancelled or rescheduled at the last minute, but surprisingly, as I worked with the data and explored the many stories which emerged from our interactions, the pandemic did not feature as an important topic in students' stories of becoming physiotherapist.

Having provided some context to the inquiry, with a description of the 'international' students, the physiotherapy learning contexts, and early findings, I will now return to my struggle with methods.

An Impasse!

My well organised plan worked well for the first year, as I got to know the students, continued generating data and continuing to explore the literature. In terms of 'data generation', I felt that things were progressing well, in that students seemed to value our meetings and seemed comfortable sharing stories about their learning experiences. However, as I started to try to analyse the data, I ran into difficulties. I could not find a way to address my aims and make meaningful conclusions from such a diverse set of stories. All of the narratives were interesting, revealing fascinating insights about becoming physiotherapist for each student. I was able to analyse and interpret why individual students made certain decisions or why things turned out as they did but I could not conceive of how I could present the 12 very different and very detailed narratives in a meaningful way. Because each stage of each student's story seemed to impact on the next stage, if I tried to summarise each narrative it would lose its overall impact and meaning. Similarly, if I presented common themes across the different narratives, I would lose some of the particularly interesting nuances within the different stories. I felt like my analysis plan was not working; it was too constraining. I came to feel as though the three dimensions (time, place and personal-social) overlapped so much that it felt inappropriate to allocate different aspects of the stories to different spaces. I needed a more open approach.   I looked for other ideas, other scholars who worked with narrative data but felt like I was at a dead end and could not move on. The following reflection captures the tensions I felt as I started my second year of data collection.

Reflection on Tensions

As I embarked on my research journey, my intention was to embrace qualitative inquiry, reflect on my decision making, remain conscious of my actions and be open and attentive in conversations with participants. However, looking back, I recognise that I was unconsciously dominated by my positivistic background, from many years of engaging with medical-related literature and research in my day to day practice. I gained great comfort in planning my research, imposing structure, and looking for patterns in the literature and in the participants' stories. However, while I felt like I was making progress with planning and organising, I could not see how I was going to make meaning from the students' stories. I had a nagging feeling that something was not right; I did not feel authentic in my research approach. I was well aware of the 'imposter syndrome' experienced by many PhD students and I recognised it in myself, as I strived to act in the way (I assumed that) my mentors would act, while at the same time, not fully committing to those actions. I also recognised that modelling behaviour is part of social learning and I was simply modelling the behaviours of my mentors, trusting that in time, it would become my own habit. Thus, I accepted the feelings of discomfort as I struggled with the methodology, believing it was part of my learning process.

Alongside the challenge of developing my methodology, I floundered in my efforts to develop a theoretical framework. I read about Dewey, Vygotsky and Bourdieu, not because I felt an affinity for them, but because I felt the pressure to find a theoretical basis for my work and I knew that other educational researchers used these philosophers' ideas to frame their work. With no rule book to follow, I chose the names I was familiar with. Exploring philosophy became addictive and I was inspired by every theory I discovered, perceiving links to my research with every abstract theory I read about. My supervisors encouraged me to continue and although they were only ever positive, I felt they were more impressed with my enthusiasm and hard work than with what I was actually producing.

And so I continued collecting data and reading and worrying and designing elaborate tables and detailed charts. I battled with Clandinin and Connelly's three dimensional narrative inquiry space, I worked with Labov's structural analysis and for a short time, took comfort in the way I could put my data into a tables and look for patterns. Of course I found patterns, but I felt that I was simply forcing structure onto the data and the pattern of the template I created was reflected back. I couldn't get to the meaning. I turned to Riessman (2008) and searched for themes within the data. I found lots, but it didn't seem right to spend hours of time listening to detailed, individual stories, only to reduce them to categories...

It was at this point that everything changed...

An Unexpected Catalyst!!

At about this time, one of my supervisors shared with me a paper relating to students' transition to higher education (Taylor and Harris-Evans 2018), which he thought I might find interesting. As I skimmed the paper, which reconceptualised the process of student transition in a novel manner (based on the ideas of the twentieth century poststructuralist philosophers, Deleuze and Guattari), I was quickly drawn in. The authors highlighted the wide ranging differences they noticed in the transition experiences of different students and used Deleuze and Guattari's concept of rhizome (Deleuze and Guattari 1987) to explain the non-linear nature and heterogeneity of the way different students made the transition to higher education. This resonated strongly with me, as the authors seemed to capture what I was finding with the 'international' students becoming physiotherapist. The paper also referred to MacLure (2010) with her radical ideas around data analysis as she discussed data fragments glimmering as if demanding attention from the researcher. The ideas in this paper were different to anything I had come across before and almost seemed a little deviant, suggestive of an approach to inquiry which was outside of the normal rules of structure and system. I could not contain my delight…

… and so I returned to the literature to explore Deleuze and Guattari's ideas further.

Rejecting Structure – 'Becoming Post Qualitative'

From this point, I moved away from the 'data' and my worries about narrative analysis and spent time with my thoughts as I read about the philosophy of Deleuze and Guattari. As poststructuralists, they rejected the grand narratives and generalisations used in science and religion, and challenged traditional structures and hierarchies (Usher and Edwards 1994). Rather than capturing static essences or being, they viewed philosophy as the creation of new concepts or 'becoming' (Bahnish 2003). I found their texts difficult to follow and almost impossible to digest initially and was drawn to other poststructuralist scholars and those who have based their work around such theories (such as DeLanda 2016; Kuby 2017; Buchanan 2020; Gravett 2021). Immersed in my reading, I came across the work of St

Pierre (2008; 2011; 2018; 2019) whose critique of traditional, qualitative methodologies seemed to speak to the situation in which I found myself:

> "Conventional humanist qualitative methodology provides a handy pre-existing research process to follow, a container with well identified categories into which researchers are expected to slot all aspects of their research projects so they are recognisable, clear and accessible"

(St Pierre 2018: 603)

It was exactly this pre-existing process that I had been following, initially with a feeling of satisfaction at how well I was adhering to the methods. It was only at the point where I felt drawn to assigning themes and categories to the data, that an uncomfortable feeling made me hesitate. Interestingly, I found that my turn to theory at this point was not uncommon. St Pierre (2018) referred to her own work and those of others when she explained how often theory comes too late in the process of inquiry. Rather than let theory guide the inquiry, we let process guide us, so that when we come to analyse the data using theory, we realise we should have done things differently. When she introduced the idea of post qualitative inquiry, St Pierre (2011) stressed that thorough, in depth reading of theoretical and philosophical literature is essential to prepare for embarking on inquiry:

> "If we don't read the theoretical and philosophical literature, we have nothing much to think with during analysis except normalised discourses that seldom explain the way things are"

(St Pierre 2011: 614)

The important point she makes here is that by defaulting to pre-existing ideas, processes, discourses, we will not discover anything new, we will not move forward with our thinking, our inquiries, our becomings. Every new area of inquiry is a journey of discovery into something yet unknown. It thus seems logical that if we do not know what we are going to find, we cannot plan our route before we start; instead, the direction and methods should come to light as we discover new findings through our inquiry. St Pierre's ideas triggered a movement towards rejecting traditional methods entirely, for example Nordstrom (2018) discusses antimethodology, presenting it as a creative approach from which "research

conventions" (Nordstrom 2018: 215) emerge, conventions which are unique to that milieu and cannot be applied to other research. She refers to a related quote from Deleuze (1991) which highlights the philosophy underpinning this change in thought (my italics):

> "Philosophy must constitute itself as the theory of what we are *doing*, not as a theory of what there *is*. What we *do* has its principles; and *being* can only be grasped as the object of a synthetic relation with the very principles of what we *do*."

> (Deleuze 1991: 133)

Here Deleuze emphasises the dynamism of his philosophy: "doing" implies movement, change, becoming; which is at odds with the idea of standardised, prescriptive (pre-planned) approaches to inquiry. Thus post qualitative inquiry embraces this dynamism, recognising that different milieu require different approaches, theories, methods which emerge from the *doing* of the inquiry, to analyse and understand. These insights gave me confidence to continue working with the data, continuing with my reading and a reassuring sense that the answers would emerge from this labour.

Jackson and Mazzei (2012) presented an approach to analysing data which aligned with these ideas, arguing that traditional qualitative approaches treat data in a simplistic way, for example by reducing complex data into chunks or themes, or interpreting participants' 'voices' outside of the context of their complex social situation. They also argue against the traditional humanist approaches which aim to make sense of something that will never be fully known (as when analysing the transcript from an interview; the voice will have revealed only part of the story). Instead they take a post-humanist approach which takes the emphasis away from the usual focus on 'voice' or 'meaning-making' and introduce a novel way to approach working with data, where theory is central, and which aims to:

> "… challenge qualitative researchers to use theory to think *with* their data (or use data to think *with* theory) in order to accomplish a reading of data that is both *within and against interpretivism*"

> (Jackson and Mazzei 2012: vii)

Jackson and Mazzei term their approach 'thinking with theory' and in their book of the same name, present examples of how this might be used with a particular data set, using a range

of different theories. Whilst they demonstrate how intertwining theory, with data and the inquirer's perspectives can reveal new and creative insights, I did not find the process easy and it required me to dwell in many days of ongoing reading, thinking, making and unmaking my ideas. As I started to understand one theory, so I would realise I had misinterpreted a previous idea but over time, I began to feel with the theory. I could sense a 'new becoming' in the way I viewed not only the students' stories but the way I viewed my education practice, my social situations. Energised by this new perspective, I saw the potential to view the experiences of 'international' physiotherapy students differently, and open up novel ways of viewing the process, with potential pedagogical implications. Thus, the aims of my inquiry changed in focus. While the ultimate aim of the inquiry remained to be informing the development of an inclusive and accessible physiotherapy curriculum, the central focus of the inquiry (individual students' perspectives) changed. The post humanist lens resulted in a decentering of the individual students and a shift of focus to the connections they made with others. Thus my original aims changed to:

> *An exploration of the relationality within the various milieu with which 'international' physiotherapy students engage, and the immanent capacities which emerge from these interactions.*

At this point, with no path to follow, I continued to meet with the students as they shared their stories and…

> continued to read and…

> > continued to think about the theories, the data and the ideas which emerged.

An Ontological Turn

I was delighted to have found a way out of my impasse but now faced new problems: I had two years of data in the form of transcribed conversations, reflections, notes; all relating to specific individuals. My new post humanist, theoretical framework was not focusing on the individual. Whose voice would I be listening to? How would I frame subjectivity in my research?

……….I turned back to the literature.

Words as Data

My data were in the form of words. Collections of words. How would I make sense of these words when I wasn't really sure what they represented? This tension was explored by poststructuralist philosophers in the late twentieth century, for example Derrida (1997) who used the term 'logocentric' in a negative manner to describe how traditional Western thought focused on words to express external reality. He argued that language tries to express something which is not linguistic and that words are only symbols through which meaning can only be alluded to. With reference to the historical texts he was trying to analyse, he argued that because written words symbolise spoken words, which symbolise thoughts, they are "a sign of a sign" (Derrida 1997: 281), being even further removed from the original meaning than spoken words. Thus he alluded to a hierarchy, with speech being superior to written text. He argued that logocentrism allows knowledge to be accessible only to the privileged few, who can establish power over those whose language is less sophisticated, for example scholars writing holy books which held all of the knowledge relating to a religion. Derrida developed an approach to the analysis of text, termed deconstruction, where he tried to unravel the complexity of text to get closer to the original meaning and break down the authority of privilege.

Fox (2016) argued that this oppression and silencing of the less privileged can also be seen in many of the disciplines, from medicine to economics. This notion rang alarm bells for me as I thought of the 'international' physiotherapy students trying make sense of their lectures and reading lists; not only would they face the challenge that all novices face as they learn

the new terminology associated with the new discipline, but they had the added challenge of understanding the definitions to these new words, in their second language, so stripping these students of power in relation to their native-speaking peers. The reliability of language in conveying accurate meaning was also questioned by Lyotard (1988), another poststructuralist philosopher, who studied the structure of language and recognised that it is impossible to fully express the essence of something through language. There always remains some aspect of meaning that language fails to express, which Lyotard termed the *differend*, indicating that we can never fully 'know' something. This point is particularly relevant when considering those who are trying to express their experiences in their second language (such as the physiotherapy students engaging with this inquiry), where limitations in their vocabulary would exaggerate the *differend* and so emphasise the mismatch between actual meaning and expressed meaning. These arguments call into question the value of spoken word or transcribed texts as data, if the purpose of the data is to explore meaning, but also the more challenging question of what would be the alternative?

Ellingson and Sotirin (2020) embrace the complexity and messiness of such data and argue that researchers should view data as an assemblage comprising the participants, the context and the researchers: such data are co-created and active.

> "Data are made not found, assembled rather than collected, and ever dynamic. Moreover, commitments to pragmatism, compassion, and joy infuse data engagement with an ethical underpinning"

> (Ellingson and Sotirin 2020: 14)

In arguing that data are assembled, Ellingson and Sotirin (2020) emphasise the importance of recognising the contribution of the inquirer and the context in which that transcribed data emerged, to what is considered 'data'. The ethical underpinning they refer to relates to viewing such data as active or vibrant and not a static piece of evidence which can be used to symbolise a specific meaning. This messiness was evident in many of the stories recounted by the students in this inquiry, which were often shared as a series of short statements, rather than sentences, frequently interrupted by thoughts and then returned to and continued in a different direction. Sometimes students would struggle to think of the words to explain the idea they were trying to express or added additional explanations to clarify a term they were looking for. Thus the verbatim transcripts were complex and

sometimes appeared confusing if read in isolation (without seeing the student's facial expressions, pauses, and emphases).

Thus in a process of co-creation, within this thesis rather than presenting direct quotes from specific conversations to illustrate points, the quotes I present have been 're-storied' for clarity and ease of reading. For example, I revisited stories in subsequent meetings with students, to clarify meanings, I removed repeated words, sounds and asides from the transcribed data (while aiming to retain the overall meaning), so the direct quotes presented in the forthcoming chapters should be viewed as co-creations in the context of the thesis. In addition, while it is appreciated that removing a segment of data from its flow, loses much of the cultural context and meaning, I have tried to maintain a sense of context through my explanations and narrative. Thus while I moved away from narrative inquiry as a method, I recognise that stories have remained, in the way I view the data; the concept of narrative has become entangled with my own becoming and that of the inquiry.

Whose Voice is Being Represented?

A second tension existed for me in relation to words, in the question of whose voice is represented in the stories I collected. To address this tension I had to rethink my ontology in order to frame the subjectivity of the data. Traditional humanist ontology places individual humans at the centre of all things, in possession of consciousness, independent identity and agency (Roelvink and Zolkos 2015). The work of St Pierre, Mazzei and Jackson (discussed earlier) are examples of a recent move away from the anthropocentric focus of humanist philosophy, which foregrounds human exceptionalism. Braidotti (2013) has been at the forefront of scholarship in this field and argues that post humanism can be viewed as a deconstructive move:

> "What it deconstructs is species supremacy, but it also inflicts a blow to any lingering notion of human nature as categorically distinct from the life of animals and non-humans. What comes to the fore instead is a nature-culture continuum in the very embodied structure of the extended self. This shift can be seen as a sort of

'anthropological exodus' from the dominant configurations of the human as king of creation."

(Braidotti 2013: 65)

This post humanist viewpoint does not ignore the importance of individual people in terms of their capacities to influence the world, but recognises the importance of everything else in terms of influence. The key principle is that all entities within our world are considered equal actors (whether human, non-human or even thoughts and ideas), which contrasts starkly with the importance given to the human mind in traditional Cartesian philosophy, as encapsulated in the quote "I think, therefore I am" (Descartes 1637: 28).

Deleuze and Guattari (1988) are other examples of thinkers whose flat, materialist ontology viewed human beings, animals and objects as equal actors. In their worldview, all entities are considered to be in process rather than being static: in a state of *becoming*. Because of this, entities have no permanent essence or identity. Instead, every entity (human, animal, object) possesses the capacity to affect (produce a response in another entity) or be affected (respond to a different entity). It is only through the relationship with another entity, that a body can express its capacity and produce an affect. This new capacity arising from the interaction between entities is termed by Deleuze and Guattari (1988) as *imminent* (in that it was somehow dormant within the entities, only emerging through their interactions), for example neither a paraplegic individual nor a wheelchair have the capacity to move about independently, but through their interactions, the immanent capacity of mobility emerges. In a similar way, Delanda (2006) argues that the ontological focus of research can move from "entities to relationality" (Delanda 2006: 4), in other words, from focusing specifically on what humans *are*, to how interactive relationships between humans and non-human entities *affect and are affected*. This is a much more fluid, expansive way of viewing the world, which is free of the limitations of the human-imposed structure, offers the potential for more creative thinking.

The ethical balance of this ontology is clear but how could this be used to frame the idea of subjectivity, voice and agency? DeLanda (2016) argues that the idea of agency is redundant in this ontology, instead being replaced with the notion of affect: the capacity to affect or be affected (Delanda 2016). Mazzei and Jackson (2017) consider the view that 'voice' belongs

to an individual person as simplistic. They reject the idea that 'voice' is the result of human agency and instead view agentic voice as a capacity that is distributed within an interacting group of entities. In any specific context, the different entities comprising an interacting group will act upon a particular person, causing a response which may result in the person speaking. The person's words are the summative consequence of the 'affects' of the multiple entities within the interacting group (or assemblage). In a different context, within a different group of entities producing different affects and responses, the words spoken by 'the voice' may be different.

> 'Voice as present, stable, authentic and self-reflective: such a voice is imbued with humanistic properties and thus attached to an individual (be that individual theorised as coherent and stable or fragmented and becoming)"

> (Mazzei and Jackson 2017: 1091)

Humanist research strives to recover and liberate such a voice, while Mazzei and Jackson (2017: x) view voice, not as a possession but as "a thing entangled with other things". Thus I realised that when examining voice as data, it must be considered in the context in which it was spoken. Rather than viewing voice as an expression of an individual's story, it must be viewed as an emergent capacity of the interactions of the entangled entities within a particular context. Without the context from which it arose, the voice would be misrepresented. Thus, the voices I present throughout this inquiry are immanent, emerging from the interactions between the various human and non-human actors within a particular context. So too is the voice which narrates this thesis, as Robinson and Kutner (2019) explain so clearly:

> "the 'I' is a production, not simply a producer. Such post human orientations work not to deny subjective experiences, or the experience of subjectivity, but rather to argue that they are produced by dispersed and dynamic not fixed and static, affective flows".

> (Robinson and Kutner 2019: 112)

While I acknowledge that I am an individual entity, 'my' voice emerges from the entanglement of many interacting threads weaving through the 'thinking with theory' process and subjectivity is dispersed across this network. Thus, as I worked with the data, I

approached them as a multiplicities, recognising that while I have turned to a new approach in this inquiry, I have *not* simply discarded my original plans and methods; indeed they form part of this multiplicity, comprising the many threads of 'me': becoming physiotherapist, becoming narrative inquirer, becoming post human. My approach to this inquiry could therefore be viewed as a post human representation of narrative inquiry, engaging with a post human perspective of the stories of becoming physiotherapist. Viewing narrative as a rhizome would address the challenge of presenting stories in a linear manner which I encountered earlier, and allow me to present them as a multiplicity of entangled subplots. Thus, the insights which emerged from this inquiry are presented as an entanglement of rhizomatic narratives through the forthcoming chapters.

Engaging with Data – Thinking with Theory

Drawing on the concept of 'thinking with theory' introduced by Jackson and Mazzei (2012), I immersed myself in the theories of Deleuze and Guattari and only after I started to think with Deleuze and Guattari, would I return to the data, to view it in a new light. Maclure (2010: 277) argued that "the value of theory lies in its power to get in the way: to offend and interrupt." Thus, the intertwining of Deleuze and Guattari's theories with the stories which emerged from the interactions between me and the 'international' students, sought to interrupt the current flow of knowledge about 'international' students' experiences of becoming physiotherapist, with the intention of producing something new.

I viewed the data as a dynamic network of many unfolding stories; a tangle of intertwined becomings (as opposed to 'beings', which emphasises sameness, stasis). MacLure (2010) emphasised how such data has an *affective* component, causing the researcher to become excited or filled with energy. She proposed an approach to analysing data which involves reading and re-reading data until certain data fragments seem to 'glow' or 'jump out' or produce an affect. Used in this way, MacLure (2010) refers to Spinoza's (1677) definition of 'affect' which he used to describe the capacity of every entity to influence (affect) and be influenced (affected) by other entities. Such affects are unconscious intensities which may draw us into action or restrain our actions, a notion which was developed further by Deleuze and Guattari (1983; 1987) and Massumi (1995) and is discussed in depth in Chapter

four, page 80. Used in the context of data analysis, 'affect' is experienced in the way certain data fragments capture the inquirer's attention (possibly experienced as a particular feeling or emotion), as MacLure implies with her description of "glowing data" which attract the inquirer, causing them to "burrow inside it" (MacLure 2010: 282). In other words she is sensitive to those interactions which generate *affects* and these *affects* direct her attention and analysis. Taylor and Harris-Evans (2018: 1258) used this approach in their research examining student transition to higher education and referred to these data fragments as "data hotspots" or "conceptual gathering points" which allow the inquirer to explore the multiplicity of connections in detail and open the door to insights and meanings. I too have used McClure's approach in a similar way in this inquiry, ever vigilant to *affects* as I interacted with the participants during conversations and again as I reread the transcripts of our conversations.

Thus, as I engaged with the content of the students' stories, I also re-listened to their choice of words and other vocalisations, I re-observed their facial expressions, bodily actions and noted changes in speed and emphasis. Importantly, I also re-attended to my own reactions to the stories, aware of my own responses and was conscious of the flows in intensities between us, allowing myself to be re-drawn to those stories which produced an *affect* in me. These particular *affective* fragments of data were the focus of my thinking and writing and through this process, I started to re-interpret these stories through the theoretical concepts I had been studying, for example in my early reading of Deleuze and Guattari, I explored the notion of flow (discussed in depth in Chapter four, page 72) and as I listened to students recounting their experiences of transition to university in the UK, so I recognised the notion of flow in the stories. I began to write initial ideas, then revisited the theory and then re-examined more data. I would perceive different interpretations as I returned to my writing, changing my earlier (narrative) interpretations. Thus, while my initial writing emerged chronologically, as time passed, ideas which seemed important initially, seemed to fall away, and be replaced with more profound insights. Further, the original chronology became messier as ideas and stories and theories became more entangled. Thus along with reading of the theories and the data and thinking with theory, writing was the essential part of the process, as highlighted by Gibbs, who views writing as a method of inquiry in its own right:

"Method refers not only to the process of research but also to the process of making sense of that research in and through a writing that does not come afterward as a 'writing up' of what has previously been discovered, but is actually continuous with it, and, in large part, produces it."

(Gibbs 2015: 222)

Thus, through a rigorous and ongoing process of reading, thinking, writing, reading, thinking, rewriting, emerged the product of this inquiry, a rhizome, from which five distinct shoots materialised as the following five chapters, (summarised in Figure 2, below).

Chapter 4: **Plugging into the University Machine**	• Introduction to the concepts of flow, desire, affect and assemblage, illustrated with examples from students' experiences of transition to university.
Chapter 5: **Deciphering Codes – Building Capacity**	• Capacity building is presented as a process of deciphering unfamiliar codes. Physiotherapy knowledge is presented as a multiplicity: the physiotherapy code, which students must decipher.
Chapter 6: **Enhancing Becoming through the Refrain**	• The refrain is presented as a tool, providing stability in uncertain times and as a catalyst to becoming. The physiotherapy imaginary is presented as a refrain.
Chapter 7: **Becoming Physiotherapist: Impact of Smooth & Striated Space**	• The influence of smooth and striated space on students' ability to affect and be affected, is explored in relation to university learning and professional practice.
Chapter 8: **From Organised Machines to Body without Organs**	• The impact of others' behaviour on an individual's ability to express capacity is explored.

Figure 2: Shoots of a Rhizome: Products of the Inquiry

Conclusion

I have presented the inquiry as a rhizome and as such, it has been difficult to define a specific starting point and end point, and to tease out its complex, entangled composition. In my attempt to define a beginning, I shared my initial planning around my well defined research question and detailed the methods I intended to use. As the inquiry progressed, there followed a period of frustration as I battled with a range of different methods in my attempts to analyse the data, and I eventually came to an impasse. My engagement with theory resulted in an ontological turn to post humanist thought, and the opening up of a new way of both thinking about the inquiry and working with the data. Thus, I continued reading Deleuze and Guattari, I continued meeting with the 'international' physiotherapy students, continued reading through stories they shared earlier and thinking and writing with theory. Through this process, a range of stories emerged, becoming more and more entangled, as the rhizome expanded. As I worked with the data, a number of distinct narratives came to light, which I view as shoots of the rhizome: immanent expressions of its capacity, unique to the particular milieu of this inquiry, and which I present in the following five chapters (summarised in Figure 2, above).

It is important to read these chapters chronologically, as I present different theoretical concepts through the chapters, using stories around the 'international' students' experiences to illustrate these ideas, gradually introducing more depth and complexity. At the same time, I use these theoretical concepts to explore, interpret and make inferences about the students' stories about becoming physiotherapist.

Chapter Four: Plugging into the University Machine

Introduction

The early conversations with students centred around their move to the UK, settling into university life and gaining familiarity with the newness of what they were experiencing. These stories resonated with my reading of Deleuze and Guattari's (1983) earlier work around the broad concepts of flow, affect, desire and multiplicity. As such, this chapter presents an interweaving of the students' stories of transition to university in a new country, with these theories.

Deleuze and Guattari (1987; 2009) argued against traditional ontologies which privileged identity, essence and being, instead favouring the notion of multiplicities and the idea of interacting bodies in flux, engaged in process and becoming other, becoming different. One of the terms they use to describe such a multiplicity is 'the machine':

> "A machine may be defined as a system of *interruptions* or *breaks*. These breaks should in no way be considered as a separation from reality; rather, they operate along lines that vary according to whatever aspect of them we are considering. Every machine, in the first place, is related to a continual material flow it cuts into…

> …The machine produces an interruption of the flow only insofar as it is connected to another machine that supposedly produces this flow. And doubtless this second machine in turn is really an interruption or break too. But it is such only in relationship to a third machine that ideally - that is to say, relatively – produces a continuous, infinite flux: for example, the anus-machine and the intestine-machine, the intestine-machine and the stomach-machine, the stomach-machine and the mouth-machine, the mouth-machine and the flow of milk of a herd of dairy cattle."

> (Deleuze and Guattari 1983: 36)

This description strongly emphasises flow and breaks in flow, movement, connection and the ubiquity of multiplicities. In this chapter, I present the university as a machine, which interrupts the flow of ideas, knowledge, finance, people. The university comprises many 'little machines': the admissions department, the library, the faculties, the coffee shop, each interrupting different flows: people, paperwork, knowledge. Each student is considered a separate machine, making connection or (in the words of Deleuze and Guattari 1987: 3), "plugging into" the university machine, forming part of a greater multiplicity. Firstly I

discuss the flows moving through the university machine and how students not only form part of those flows, but themselves, act as interruptions to flows. I then introduce the important concepts of desire and affect, which are illustrated in stories shared by the 'international' physiotherapy students. Finally I will discuss the concept which has been most important to this inquiry, this thesis, the students' becoming: that of assemblage (Deleuze and Guattari 1987), a functioning, productive multiplicity whose output far exceeds that of its individual parts (Delanda 2016). This concept will form a central part of further discussions around becoming physiotherapist in this and the forthcoming chapters.

Flow

The term flow was originally used by Deleuze and Guattari (1983) in their analysis of Marx' view of capitalism. Marx (1867) argued that capitalism only occurs in the presence of two elements: individual workers who are free to sell their capacity for labour and an independent system of capital which can be exchanged for labour. In their analysis, Deleuze and Guattari (1983) described these two elements as flows (referring to how these elements developed historically: from slave labour to a free workforce, and the possession of wealth by the few landowners to the independent capital dispersed through society), with capitalism arising at the intersection of these two flows. Viewing the social system as a series of interacting flows, draws us away from thinking about specific, individual entities such as people and their decision making, and creates a broader, more dynamic image of society. Trying to understand society by studying individual parts of society would involve isolating that part to explore its attributes at a particular point in time. While this can be useful and informative, it does not provide the whole story. Viewing the world as a network of interacting flows, captures the dynamic aspect of society, emphasising movements, the making and breaking of various connections and temporal aspects. This dynamic approach provides insights into the way different entities influence each other, connect with each other and where the forces driving society come from. Smith (2001) examined the basis of this socio-political theory of Deleuze and Guattari and highlighted how they developed the notion of flows in relation to economics but then expanded it into a broader concept, encompassing material flows such as transportation of oil and electricity, flows of

commodities such as food and goods, social flows such as immigration and, as they vividly describe in Anti-Oedipus (Deleuze and Guattari 1983), bodily flows such as the flow of water into the body and out of the body as urine, or the flow of milk from a mother's breast into the body of the suckling baby. In recent years, the notion of flow has been used as a novel way to examine many social phenomena, for example in healthcare, Fadyl et al. (2020) examined flows within a hospital waiting room (a machine within a machine) to produce novel insights into how best to design such waiting areas to enhance the patient experience. In 2017, Allan and Youdell (2017) examined the educational journeys of children with special educational needs, observing how a child's educational development is interrupted or redirected through interactions with the many educational systems. Both of these studies highlight the interesting relationship between flows and machines, as Deleuze and Guattari have explained:

> "Every machine functions as a break in the flow in relation to the machine to which it is connected, but at the same time is also a flow itself, or the production of a flow, in relation to the machine connected to it"

(Deleuze and Guattari 1983: 36-37)

Here, Deleuze and Guattari emphasise that once the connection with the machine is made, as well as altering flow, the machine becomes part of the flow and part of the driving force of the flow itself. Thus, in the context of this inquiry, the university machine interrupts the spatial flow of people from distant locations (as with the 'international' physiotherapy students) and interrupting the temporal flow of knowledge and ideas (as in students' understanding of healthcare, and the workings of the human body), while also becoming part of each of these flows and part of the energy driving the flows. Viewing the university machine within broader societal flows, connections with government machines, financial markets and international educational partners result in alterations in national or international flows of finance, people, ideas. Zooming in to the university itself, we see the 'little machines' comprising the university: for example, the coffee shop spatially interrupting the flow of students around the campus, at the same time forming part of students' temporal energy flow through the day. Flow was also evident in all of the students' stories as they reflected on their journeys from schooldays in their home countries to life as a university student in a different country. Of the twelve international students

engaging in this inquiry, nine were from Hong Kong with the majority of these students commenting on how competitive it was to gain a place to study physiotherapy in Hong Kong as the one university which offers a degree in physiotherapy demands very high entry grades. Thus, this *university machine* in Hong Kong breaks the flow of young people in that region of the world to *becoming physiotherapist* and diverts the flow elsewhere. Mary shared a vivid example of this as she touched on the various factors that resulted in her travelling to the UK to study physiotherapy:

> "To be honest, in Hong Kong the requirements to get into a physio course are really really high which is like the same level as being a doctor - so my academic results are not enough for me to study in Hong Kong, so I came the UK to try and find another road. We decided on UK because it is close to Hong Kong. Also it is only 3 year course and approved by the Hong Kong government - and I saw that the university ranking is going upwards, so I thought it would be good. The demand for physio is rising in these last 10 years because of the aging population - so people will think that – oh you are nearly a doctor, if you are a physio, so it's good"

Mary highlighted the impact of the *Hong Kong University machine* blocking her 'educational' flow, which was redirected to the *UK university machine* with its high ranking and its recognition from the Hong Kong government. We also see the influence of economic flows (relating to the cost of a shorter course in terms of time and finance). Like Mary, many of the students commented on the influence of broad societal flows, such as the aging population in Hong Kong driving up the demand for physiotherapy and opening up jobs in health care, which would tend to increase the flow of young people into the physiotherapy profession. Interweaving with these broad flows are others, for example, political tensions, climate change and economical forces. In addition, there are smaller flows: forces within families which intertwine with an individual student's own capacities and direct their path. Thus, for each of the students, there were many environmental influences (societal flows) from different directions, with different intensities, interweaving with more specific, personal flows, all contributing to the flow of the students to a physiotherapy course in the UK. For example, Gemma alluded to flows within her family as she talked about what drew her to a career in physiotherapy and the expectation of how she might change:

"So, in the first place I want to be a physio because I play basketball myself and I
twisted my ankle a few times on my right leg before - and then I really wanted to
learn more about it - and because my family also play basketball and I thought
maybe in the future, I can help them as well"

In this short statement, a tangle of flows are revealed. Gemma's family are basketball
players. In terms of temporal flow, Gemma may have inherited a capacity for sport from
her parents but also experienced shared family activities from early childhood, which may
have involved ball games and developing physical skills; reinforcing the flow of
sportsmanship through the family. She recalled how the connection of her *body machine*
with some entity in the environment (producing an injury), interfered with the normal flow
of her body as a machine, interrupting its capacity for movement at the ankle, for training,
for games. The connection of the *body machine* with the *physiotherapy machine* redirected
flow within the ankle, restoring normal movement and the joys of sport. This interaction
also seemed to trigger a flow of ideas in Gemma's mind; a vision of a time in the future
where she would be able to connect with her family as a functioning cog in the *family sport
machine*; an imaginary of 'becoming-physiotherapist'. This flow of ideas generating an
image of the future was something that many of the students described, and I will return to
this later on in the discussion around the refrain (Chapter six, page 130).

Temporal flows like those that were evident in Gemma's childhood, were also highlighted by
Ayesha as she explained how she was surrounded with people who were health
professionals during her childhood. She was conscious of the affect this had on her world
view:

"I actually see from inside the health care professions because people around me
were health professionals - and I had the idea that I wanted to go into a health
profession in secondary school, but I did not know which one. It wasn't because my
parents are nurses that I have to do health care – it is not like that. I do think that
their close friends and colleagues are all nurses or health professionals - they always
had gatherings and they always bring me – so it definitely had an influence on me. I
didn't know there were other professions in the world until I was 8 or 9. I always
thought people worked shifts and worked in hospitals. I never understood about
how the economy or financial crisis would affect people as it didn't affect my family"

Ayesha's early connection with healthcare culture affected her own values and behaviours so that a pathway to health-related career was a natural flow for her. The direction of this flow changed after she connected with the *hospital machine* in Hong Kong for her own physiotherapy treatment, and noticed the way different health professionals worked:

> "In Hong Kong generally they see the doctor as god (laughs) – probably the same here – and nurses are just helpers. The physio has to really analyse the whole situation and then apply different techniques to different patients. So within one hour the physio might be seeing one or two patients - so they see a lot of people during the day. It is also one of the things I liked too, because I really like to interact with people - to know their story. I also like the process of analysing the whole situation."

Aware of the hierarchies within healthcare, Ayesha seemed to connect with the way the physiotherapist worked: autonomously interacting with people and analysing situations in a holistic way; attracting her to that different role within healthcare, one she had not previously considered. Peter described a similar change in flow as he explained his experiences before joining the physiotherapy course. After secondary school he was unsure about his career choice but liked the idea of working with the elderly, so in a more gentle drift to becoming, he enrolled on a rehabilitation diploma in his home country. However, plugging into the *college machine* created a desire in Peter which changed both the direction and intensity of the flow of ideas around his career path:

> "Actually, I thought I wanted to do OT [occupational therapy] but I hated doing crafts and I don't like making braces or splints – I hate it. After I had a placement in a hospital and I saw a physiotherapist teaching the patient some stretches and exercises, I thought this was very interesting as you can get pain because you are stiff and then address the problem with stretching exercise. Yeah, it was so interesting." (smiles)

As Peter started talking about this experience, there was a notable change in the way he expressed himself, using his hands for emphasis and looking up, as if picturing in his mind, what happened. He expressed strong feelings around specific activities with which he engaged at college, indicating a change within him, some sort of drive or desire. This notion of desire as a force of production is central to Deleuze and Guattari's philosophy. They see

it as integral to the functioning of machines and the way in which machines disrupt flow and the following section will explore this in more detail.

Desire

Deleuze and Guattari (1983; 1987) refer to desire throughout their work, as an essential driving force behind flows, which produces change. Importantly, they use the term differently to the common use of the word and to the way it is used by traditional philosophers such as Plato, so rather than being a lack of something (for example a specific object, such as money) that is wanted by the individual (a specific subject), for Deleuze and Guattari, desire is seen as immanent, emerging from machines; a productive force, again emphasising movement, change and connection. As a post-human view of desire, it is a force that is dispersed across a multiplicity, which produces movement or change.

> "… everywhere there are break-flows, out of which desire wells up, thereby constituting its productivity and continually grafting the process of production onto the product"

(Deleuze and Guattari 1983: 36-37)

The quote calls to mind the idea of a dam interrupting the flow of water and storing potential energy. Deleuze and Guattari (1983) refer to this potential energy as *desire.* Thus, the product of the machine is desire which also fuels the process of production. So, in Peter's story, the positive emotions he expressed while talking about his observations of physiotherapy, indicated the way in which desire emerged from his connection with the physiotherapy clinic, the physiotherapist, the patient, driving a change in the direction of flow, in terms of his career. Like Peter, Aida's story was also scattered with emotional energy, indicating a change in flow within her while she was enrolled at secondary school:

> "I studied chemistry and biology in secondary school, so I wanted to do a university course that is related to the medical field, but I'm quite afraid of blood so nursing and doctor must not be my choice. I'm afraid of wounds too – bleeding! (smiles). Yes, my family members suggested that I do physio because it fulfils both criteria. Also I have a friend who is an athlete – he is preparing for the Olympics - he

participates in a sport called figure skating, in which it is very easy to be injured when they are jumping and spinning, and when I see him injured, I saw his physiotherapist came to help him. As he is my idol, I want be like those people too!"

At school, Aida's enjoyment of her science studies, opened up the possibility of a path to a career in the medical field. She smiled and winced as she expressed her dread of dealing with wounds and blood; demonstrating a physical reaction to the thought of the interactions required of a doctor or nurse, which blocked the flow of ideas towards such a career. At the same time there was a different flow at play which interrupted the direction of flow of her thoughts and ideas. As she remembered her friend, the figure skater, she laughed and became highly animated. There was something about him that was significant to her story; something about her connection with him that was important to the appeal of physiotherapy. She admired his skills in performing his sport and empathised with his disappointments when he was injured. Her own capacity may not have held the potential to become a figure skater, but her observation of the physiotherapist who interacted in such a positive way with the performer sparked Aida's feelings; this *therapy machine* acted as a "break-flow, out of which desire well(ed) up" (Deleuze and Guattari 1983: 36-37), a force which changed the flow of Aida's thoughts around her becoming.

Desire emerged from Diane's interaction with a physiotherapist when she was a young child. Her story was charged with emotion as she remembered the unpleasant experience:

> "I was really young and I had a lot of stomach problems - acid reflux and stomach ulcers at the time. So I had to do physiotherapy before I went to the rehabilitation place. I had to do some exercises but the experience wasn't so good. She was really mean to me. Instead of showing me how to practise the activities, she would just tell me and then shout at me when I didn't get what she was saying. I was a little girl… I was alone… I didn't understand what she wanted me to do"

The fear and confusion that Diane experienced as a child, were expressed again as she recounted the story years later, pausing to emphasise her helplessness as a vulnerable child trying to make sense of a frightening situation. As she reflected on what happened, Diane felt that this experience was actually a trigger which directed her towards a career in physiotherapy:

"I think it made me more interested [in physiotherapy] to prove I can be better than that - to prove that physiotherapy is about communication and working with patients closely, and not just sitting distantly from them and telling commands."

Diane had recognised what was missing in the interaction: closeness, communication connection. As a child, she did not know what was wrong with her, why she had to see a physiotherapist. In this context she did not know how to behave, and this was made worse by the expectation of the therapist that she should perform in a certain way. From the interaction of Diane-the-adult, with the memory of Diane-the-child, and the strict physiotherapist, emerged a *productive desire* which drove Diane's thoughts towards the potential of a career in physiotherapy.

Viewing each students' journey to becoming physiotherapist in this way turns one's gaze away from the student as a self-determining agent with the capacity for independent decision making. This change in perspective is often referred to by post humanist scholars, as decentering the individual (for example, St Pierre 2008; Jackson 2013; Kuby 2017). This does not mean that each individual is not recognised as being valuable, with unique capacities, but each student is viewed as being part of something more, in fact many-things more. Viewing each student as a machine, connecting to and forming part of many other machines (in this case, the family, the university, the hospital), we can view the broader influences, relationships and potential flows of energy.

At this point, a question springs to mind. If the world is made up of individual entities: students, tutors, classrooms, books, ideas, then how do all of these things combine into multiplicities. How does one entity fit with another and behave in a way that is beneficial to the machine being constructed. A clue to the answer to this appeared in many of the quotes from students, presented earlier:

Ayesha: "…I really like to interact with people…"

Aida: "…I'm afraid of wounds too – bleeding…"

Peter: "…but I hate doing crafts…"

Diane: "… she was really mean to me…"

Each of the students' descriptions of those situations in which they *interacted* with another were accompanied by an *emotion*, triggered by *sensations.* As individuals, we focus on what

we do; we foreground the affects we have on the world, our actions. However, all of our actions (and inactions) are accompanied by a stream of sensations, which are as integral to the performance of the activity as the activity itself, as Massumi (2021) highlighted in simplistic terms:

> "When I think of my body and ask what it does to earn that name, two things stand out. It moves. It feels. In fact, it does both at the same time. It moves as it feels, and it feels itself moving. Can we think of a body without this: an intrinsic connection between movement and sensation whereby each immediately summons the other?"

> (Massumi 2021: 1)

This point leads to another important concept which must be considered to fully appreciate how multiplicities come together and function: the notion of *affect*.

Affect

The term affect was introduced by Spinoza (1677) to describe the capacity of every entity to influence (affect) and be influenced (affected) by other entities. Spinoza's philosophy contrasted with the Cartesian dualism of the body and mind, in that he argued that the world is made up of one substance; substance being that which cannot be divided into smaller parts. The attributes of substance can be manifest in two ways (or modes): as thought (manifest in the mind) or as extension (manifest in space). Thought and extension are considered different attributes of the same material (not separate concepts of mind and body, as in Cartesian philosophy), so relating this back to Aida's story (described on page 78), where she shared her memory of observing her friend's physiotherapy treatment, she was experiencing *in thought*, the same substance that she experienced *in extension* at the time of the incident. According to Spinoza (1677), as these two modes of substance entangle with other modes of substance, affections emerge, for example, the entanglement of Aida's *thought* of blood (as experienced by nurses in their work) with the *extension* of her own bodily sensation, produced an affection. It is from the notion of such affections that Spinoza's very clear definition of *affect* comes:

"By affect I understand affections of the body by which the body's power of acting is increased or diminished, aided or restrained, and at the same time, the ideas of these affections"

This means that certain entanglements of substance produce an affection which may speed up or slow down the ability of a body to perform (as well as the thoughts relating to this performance). In Aida's case the interaction of the *thought* of blood with her own bodily *extension* produced an affect which *restrained* her actions towards becoming nurse. In contrast, the entanglement of the thought of her idolised friend with her own bodily extension, produced an affect which increased her action towards becoming physiotherapist.

Deleuze and Guattari (1983; 1987) went on to develop and popularise the concept of *affect* in their own work, describing affects as intensities which can flow between individuals (or non-human entities); intensities which emerge within the specific context. This view of affect as a dynamic, moving intensity, flowing within a specific context, strongly contrasts with the idea of emotions, which are very much subjective, emanating from an individual and aligning with the humanist viewpoint. Looking back at Aida's story, her animated display of emotion (subjectively experienced as joy, excitement, delight) as she talked of her friend, betrayed the strong affect that emerged from the interaction between Aida, her friend, memories, his injury (it's implications), the physiotherapist (the therapy). In that moment when Aida observed the physiotherapist helping her friend, there was a strong connection between the three of them which generated this intensity, illustrated by Aida's laughter, bodily movement and use of passionate language. This incident highlights how in certain circumstances, the entanglements between bodies produce intense affects which initiate powerful interactions with significant consequences, and such incidents were not uncommon among the students' reflections on their early experiences of physiotherapy.

Rosie explained that as a child she had a passion for sport, both as a performer and coach. The complex interactions that took place in these sporting activities generated an affect which reinforced her interactions with sport, increased her capacity in performance and the development of connections with young people, in her role as a coach. She told me how she dreamt of becoming a PE teacher and after leaving school, she enrolled on a Degree in

Sports Coaching. During a third-year placement in a physiotherapy clinic, her interest in physiotherapy was sparked. Like Peter (described page 77), plugging into the *clinic machine*, interrupted Rosie's flow towards a career in sport. She was inspired less by the impact of physiotherapy on the patient's sports performance than the wider influence on their life and relationships. The intensity of her emotions was evident as she reflected on her experiences with physiotherapists:

> "I liked how physios impact people, like within their own families. So like, my granny had a stroke years ago, and the physios were a really good help to her – and more recently my niece was diagnosed with a respiratory condition when she was four, so just seeing the benefits she gets from the physio - it's like having a really positive impact on people's lives and helping them get there. Like when I was in the private clinic, when I saw patients for the first time, and they were in pain, and they would come back in a couple of weeks, and seeing the improvement - that their exercises had helped…"

The joy Rosie expressed when sharing her experiences of physiotherapy related to her perceptions of the interactions between the physiotherapists and the patients. While these interactions seemed to focus on a specific physical problem (such as pain), the outcome of the interaction was much greater than simply ameliorating the original specific problem. Rosie noted changes in the patients' wider abilities and on the people around them. The affect generated by these interactions moved Rosie's flow of ideas in terms of her career, from sport to physiotherapy.

Affect theory has become a popular area of scholarship in recent time, for example, the work of Massumi (1995), Sedgewick (2003) and Hemmings (2005). Massumi (1995) argued that affects precede emotion and are unconscious feelings of intensities. This idea emphasises the important point that affects must be sensed by the body (for example through vision or touch) in order for them to produce a response in a body. However, to suggest that they precede emotion, might imply that the nature of affect lies within the subject, rather than being a product of the interaction between separate entities (dispersed subjectivity). The contributions of Seigworth and Gregg (2010) touched on this difficult distinction:

"Affect, at its most anthropomorphic, is the name we give to those forces—visceral forces beneath, alongside, or generally other than conscious knowing, vital forces insisting beyond emotion—that can serve to drive us toward movement, toward thought and extension, that can likewise suspend us (as if in neutral) across a barely registering accretion of force-relations, or that can even leave us overwhelmed by the world's apparent intractability emphasising the importance of considering the capacity of a body (or entity) to affect and be affected"

(Seigworth and Gregg (2010: 1)

This quote strongly places 'affect' in the unconscious realm, as a force which has been sensed but has not been *consciously* perceived and labelled. The use of Spinoza's terms "thought and extension" emphasise how affects can lead to conscious ideas, which may be expressed as 'labelled' emotions (afterwards) but their primary role is not for conscious expression but for production: production of movement (bringing us back to Deleuze and Guattari's central ideas of a dynamic world, in constant flux). Thus, affect theory has become an important foundation of the post-humanist movement, steering us away from the subjective view of emotions or feelings, but perhaps viewing emotions in a different way. Research which involves examining intensities and affects within an entanglement of bodies (such as this inquiry) will have the tricky problem of exploring communication between people that is sprinkled with terms such as "I hate it" (Peter), "I'm afraid" (Aida) and bodily actions such as smiles, laughter, frowns, grunts and arm waving – all expressions of emotion. It is important to recognise that such emotional expressions are simply the way underlying flows of intensities are consciously expressed, but they are also useful indicators of the affects produced by inter-body entanglements. MacLure (2010: 282) has used this concept in her approach to analysis of research data, describing how she searches for data fragments which "glow" or "glimmer", in other words she is sensitive to those interactions which generate affects and these affects direct her attention and analysis. I too used this approach, ever vigilant to affects as I interacted with the data, with theory and with my thoughts.

Affect as the expression of desire across a multiplicity is demonstrated in Willow's story describing the formation of a friendship with a group of 'home' students, during the first few months of the physiotherapy course.

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"I'm so surprised that they know so much in the beginning of the semester. They ask questions - whatever they want! I think they are so amazing – because in Hong Kong, we are too shy to ask questions and our teacher maybe judge our questions or think we are impolite. At the beginning I was so shy to talk with them and just listen to what they said - then I start to follow their English speed so I can also join in with them and chat with them. When we have some time where we do not have class, I will go with them and eat with them and also chat - and ask questions as well. Christmas is coming soon and we went shopping and they told me lots of different stories and told me some vocabulary that I did not know before and I thought it was so great for me. "

When referring to herself and her classmates from her schooldays in Hong Kong, she emphasised their "shyness," referring to her fear of being judged in a negative way by the teacher. These unpleasant emotions betray an underlying affect which restrained her actions in that context, preventing the Hong Kong school children expressing their ideas to their teacher (through verbal communication). In contrast, at university the 'home' students were able to connect with the tutor (communicate their ideas, which were attended to by the tutor) freely, resulting in a flow of intensity through the group in a *learning machine.* Unlike Willow, the 'home' students did not seem to experience fear, possibly because of a familiarity with this type of classroom behaviour. As Willow plugged into this *learning machine*, so emerged the potential energy of desire, expressed by Willow as "surprise" and "amazement", driving the flow and interactions between her and the group. Interaction initially involved Willow observing and listening to the group conversations (her actions possibly comprising expressions of her interest and joy, rather than verbal contributions to the discussions). Willow's curiosity and enthusiasm evidently produced an affect on the 'home' students, resulting in the positive interactions between them. Flow of desire through the group initially produced tentative chats, but as the intensity grew, so the connections developed, resulting in social outings, deeper conversations and blossoming friendships. Also evident is a change in capacity in terms of communication (from Willow's perspective) but likely across the group in terms of intercultural understanding.

One of the key features of the discussion so far has been viewing each student as part of a multiplicity. Each of the students' stories have referred to particular contexts and the connections they made with other people, situations, ideas, during their schooldays and early days at university. I have linked this to the concept of the machine (Deleuze and Guattari, 1983), emphasising how each student is part of many interweaving flows that are interrupted as they make connections with different machines. I will now introduce one of Deleuze and Guattari's most widely used concepts, *assemblage*, which was developed from the idea of the machine in their later book, A Thousand Plateaus (Deleuze and Guattari 1987) and has been interpreted in many different ways and applied to many different areas.

Assemblage

Considering their unorthodox writing style, it is not surprising that there are many different interpretations of Deleuze and Guattari's ideas, concepts and terminology, but an additional complication is that they wrote in French. To engage wider readers their work had to be translated by a scholar who was fluent in two languages with sufficient familiarity with their work to be able to interpret their philosophical discussions accurately and translate words which may not have had the precise meaning in another language, appropriately.

One such term is assemblage, which comes from the French word agencement. According to the Cambridge Dictionary (2022), assemblage means a collection of things, people or animals and also the process of joining these things together. The term is commonly used to represent a collection of things, neglecting the second, important part of the meaning which emphasises the process. For Deleuze and Guattari (1987), the process aspect is crucial to capture the active nature of assemblage, to avoid viewing it as a specific object with an identity, but rather seeing it as dynamic, constantly forming and reforming, adding and deleting as it becomes 'other'. This is a crucial point to emphasise. An assemblage cannot be pinned down with an identity as it is constantly changing as different streams of intensities flow through it and around it. An assemblage is not a static being, it is always becoming. Aida's description of learning at university highlights this dynamic, rhizomatic process, as she makes connections with a range of learning resources, forming, unforming, reforming different assemblages over time, becoming physiotherapist:

"In class, the information is mainly written on the PowerPoint and sometimes the information on the PowerPoint is not enough and I might not really understand what the PowerPoint is about, so I have to ask my classmates or friends or search online what it is, to make myself understand more about those things. When I search online I can find videos to watch and there are some reference books so I can get some more information about it. For example, on the PowerPoint they might only write 'balance exercise for neuro patients' in a very simple way, but practically I don't know what to do – I don't know what it actually means – so I have to search on the internet to find out what physios do for their patients – like that"

Aida's story reveals an assemblage which grows and changes over time, through which knowledge and new questions emerge. From an initial assemblage comprising Aida interacting with the presentation slide and her own thoughts around the topic, a trigger (a question emerging through the interaction) affects Aida, prompting her to disconnect from the slides and turn her attention to digital devices and other students in the class. She affects other students through her questions and affects her digital devices through her handling, and is subsequently affected by both, forming connections. The components of the assemblage change, comprising both human (Aida and her classmates) and non-human entities (laptops, phones, books). The 'learning assemblage' expands and contracts as the component parts affect each other in different ways (in Spinoza's terms, aiding or restraining actions).

These dynamic flows were evident in many of the 'international' students' stories as they experienced new situations. Mary's reflection about one of her professional practice placements captured this vibrance, as she recalled the way a group of students worked with each other, with their clinical educators and with patients:

"So, on my last placement our educator just sent us [physiotherapy students] up to see patients on our own and we would just pair up without any qualified staff. He worked with us for a few days before he sent us up on our own – treating patients with us, guiding our handling, giving us feedback. And he always makes sure that he won't give us things that are too complicated. We have to decide who will lead the session so we discussed before we go in - one of them is a masters student but the other one is year 2 so he is a bit less competitive, so usually it's me doing the lead

and giving support and sometimes the educator asked me to let him lead for some simpler cases and I will support and I feel like a bit like his educator when I'm helping him (smiles) so it's a really nice experience"

Mary's reflection captures the changing landscape of the physiotherapy assemblage:

Forming – unforming – reforming and…

Bodies affecting and being affected and…

Dynamic interactions, fuelled by a shared desire and…

The emergence of physiotherapy knowledge and skills, and…

Desire - further fuelling the productive assemblage.

As the various actors within the system are affected by the flows and intensities, different assemblages form and unform and the products of this dynamic system become visible. The students are able to perform new skills (*becoming physiotherapists*) as patients *become well* and clinical educators *become mentors*. Mary also alludes to a shared pleasure, indicative of the affects of the underlying flows within the productive assemblage, generating this emotion.

DeLanda (2016) has examined the concept of assemblage in depth and developed it further through his own work. He stresses that one of the key features of an assemblage is that it comprises a number of different component parts which remain independent (whether it is individual people, animals or objects such as phones, laptops, books) but while those individual components interact with the other components of the assemblage, they function together with a shared purpose. Deleuze and Parnet (2006) emphasise this point in their definition of assemblage:

"It is a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them, across ages, sexes and reigns – different natures. Thus, the assemblage's only unity is that of a co-functioning: it is a symbiosis, a 'sympathy'. It is never filiations, which are important, but alliances, alloys; these are not successions, lines of decent but contagions, epidemics, the wind"

(Deleuze and Parnet 2006: 69)

This description also emphasises the dynamic nature of the assemblage. Rather than developing in a predetermined pattern, as in *filiations, successions (*for example, in a family tree), instead it develops like a *contagion*, is driven by a force emerging from the *co-functioning* parts, in a particular milieu, or as described earlier, like a rhizome. An assemblage is not simply a collection of parts, such as a box of tools; the crucial feature of the assemblage is that the parts *interact* with each other in a way that results in the whole displaying properties of its own which are greater than what the individual parts could produce individually. As Delanda (2016) explains these emergent properties, he refers to chemical compounds, for example, both oxygen and hydrogen have the capacity to support combustion, but the compound H_2O has the opposite effect. The capacity to quench flames is an immanent property of the hydrogen and oxygen which only emerges from their interaction in the compound H_2O. However, while this is a vivid example of emergent properties, it must be stressed that unlike an assemblage, the units comprising a chemical compound do not retain their independence and cannot easily be separated. This can be illustrated in the most commonly used image to represent an assemblage: the "man-horse-bow assemblage" (Deleuze and Guattari 1987: 470). A man and a horse and a bow are separate distinct entities with different functions; while the "man-horse-bow assemblage" (Deleuze and Guattari 1987: 470) is a single interacting arrangement, functioning as a fierce weapon of war. The entities of the assemblage remain separate but form an alliance, working together in the assemblage with a common purpose. This was also evident in Mary's assemblages (described above), where the different students, the educator and patients remained separate entities but worked together with a shared purpose (treating patients), from which emerged a range of outputs from enhanced abilities, to increased physiotherapy knowledge and the associated sense of joy; none of which could not could have been produced in such richness and complexity by any of the individuals in in isolation. The productive element of the assemblage is central to its significance, and this was demonstrated at all stages of the 'international' students' becomings. In the early days at university the emergent property was often friendship or a sense of belonging, for example, Diane recalled one such instance, capturing the spark of desire which triggered the rapid territorialisation of a new friendship assemblage:

"I am not the most social person and it's hard for me to break the ice. At the beginning, while I meet most people from my group, I couldn't make a connection but then a new person joined our group. In SDP [Self-Directed Practice], I got talking with her and we helped each other to practise. I'm not sure why exactly, but we made a strong connection almost instantly. We found similar interests and both being international students we were in a similar situation, so we shared our experience of moving to the UK and getting acclimated with a new culture, city, etc."

Diane and her friend affected each other, which allowed interactions to be initiated and bonding, producing positive feelings (an intensity of desire). This acceleration of interaction seemed to happen quickly; before each of them would have had time to verbalise their shared experiences. There seemed to be a non-verbal recognition of this commonality which both girls perceived and responded to through sharing experiences, learning about each other, rapidly establishing the territory of the friendship assemblage. This evident solidarity between the two girls is an example of what Delanda (2016) describes as "an emergent property [of an assemblage] that provides a resource to its members" (Delanda, 2016: 21); the sense of belonging emerges from the interactions but also nourishes the friendship, binds the assemblage. This idea of desire as an emergent property that cements the assemblage was common in many of the stories students shared about their experiences at university (like Diane and earlier, Aida) and also those stories relating to professional practice placements. Deleuze and Guattari (1987) emphasise the post human view of this interaction, highlighting the driving force within the assemblage does not come from any of the component parts alone, but from the desire that emerges from the interaction of the parts:

"Assemblages are passional [sic.], they are compositions of desire. Desire has nothing to do with a natural or spontaneous determination; there is no desire but assembling, assembled, desire. The rationality, the efficiency, of an assemblage does not exist without the passions the assemblage brings into play, without the desires that constitute is as much as it constitutes them."

(Deleuze and Guattari 1987: 465)

As with the earlier discussions about machines, they refer to desire as a productive force, which emerges from the interactions of the components making up the assemblage. Desire

is an intensity which holds the assemblage together, which could not exist without the interaction of the parts; it is the product of the interactions, constantly changing and undulating in response to the changes in flows and forces enveloping, flowing through and emerging from the assemblage. This desire was evident in Rosie's recollection of a powerful learning experience when she connected with some students in the year below. Desire emerged in the form of belonging and empathy as well as professional physiotherapy knowledge. During her third year, Rosie learned that the new students from her home country, were approaching their assessment and had little time to practise. This affected Rosie, producing a strong empathetic response to seek out those students:

> "They are just starting second year and there's quite a few of them, so I went to one of their houses before they had their second-year vivas [practical assessments]. They wanted to run through things. This actually helped me a lot 'cause I still feel like I don't know so much, but actually when I was talking to them, I was like, teaching them and I was like - oh actually I do know a lot more than I thought! It was good. (Smiles) We were just kind of, going through treatment stuff and talking about things they will see in practice, and how to handle patients and things like that. They were like, how do you do this? (Smiles) And they were like – but that's not how we were taught - and I was like - but it doesn't really happen like that." (Smiles and makes intense eye contact with me)

Rosie's smiles and intense eye contact as she shared this story, triggered a strong emotional response in me, a strong connection and a palpable wave of shared knowing. In that moment, I too felt that empathy for the younger students, as they worried about the forthcoming assessment, shared the joy that emerged from the complex assemblage, but also felt a sense of belonging, a sense of pride, as well as an (almost) surreptitious shared knowing that real physiotherapy practice is somewhat different to how it is presented at university. During that moment of intense eye contact, we rapidly territorialised a momentary assemblage of 'becoming professional physiotherapist' from which emerged a strong, shared understanding of the enormous breadth of physiotherapy practice which only a person who had worked in that complex environment would understand. In that moment of unspoken connection, a wealth of physiotherapy knowledge emerged fleetingly

and once acknowledged, the assemblage rapidly unformed and we returned to our previous, comfortable, relaxed 'inquirer-participant' assemblage.

It is clear that in all of these examples the components of the assemblage, seemingly unconsciously, work together for a particular purpose but this begs the question: how do the component parts interact and connect or disconnect as an assemblage dismantles? The answer must lie in the simple point made by Massumi (2021: 1) in his description of the body: "It moves. It feels." It is thus, through bodily sensations that affects in the environment are perceived; whether it is hearing voices, seeing faces or feeling discomfort. All of these sensations will produce a response. In the case of the assemblage, each sensation and response work to bind the components together into a single functioning multiplicity. Thus each assemblage has a unique means of communication across each of its parts, a specific code and each assemblage has a specific territory, limiting its boundaries. These two important aspects of an assemblage: codes and territory have been discussed at length by Deleuze and Guattari (1983; 1987) and DeLanda (2016). The following section will examine these terms in detail in relation to the assemblage.

Codes and Territories: Interactions within the Assemblage

In a Thousand Plateaus, Deleuze and Guattari (1987) discuss the way animals mark out their own territory or homeland, but they also use the term territory in a less typical way: in relation to assemblage formation. They argue that for the formation of an assemblage, "the first concrete rule" (Deleuze and Guattari 1987: 586) is that the territory covered by the assemblage is determined. This does not necessarily mean the spatial layout of a territory but the rules and codes within that territory; how the parts will work together to achieve the mutual goal. Applying this notion to the man-horse-bow assemblage can be tricky if we use our traditional humanist view: we might be forgiven for imagining that the man and the horse and the bow, each have a preconceived understanding of the territory and deliberately work together for the shared goal of fighting the enemy. However, viewing the assemblage through a post humanist lens, we see a complex multiplicity of interweaving flows and intensities, within which, each of the entities (the bow, the horse and the man), are entangled. We see the territory as an emergent property of the assemblage, which

arises through the interactions of the component parts, in the moment (not pre-conceived), as each component is affected by the other and responds to that affect:

The context would be wartime, a life and death situation:

> *As the man moves in the saddle and adjusts the reigns, so his movement affects the horse, causing it to change direction;*
>
> *As the horse changes direction and gallops on, so the man senses this change and responds by gripping his knees to the horse;*
>
> *The horse senses this pressure and responds by slowing its pace;*
>
> *As the man's fingers pull the bowstring, the bow responds by building tension, which the man feels in his fingers;*
>
> *In response to this pressure, his fingers let go of the bowstring,*
>
> *Sensing the release in pressure in the string, the bow releases the arrow,*
>
> *And…, and…, and…*

The resulting interaction of the three entities in that moment, responding to the affects each one has on the other, produces a discrete unit: a weapon of war, moving at speed towards the enemy. It is through sensation-reaction-sensation-reaction – interaction, using a unique *code* of communication, that the parts are able to work together, carving out the limits of their *territory* and producing an outcome that is more that the individual parts would be able to produce. So, the interaction would continue as a distinctive code developed between the man and the horse (relating to bodily sensations and movements between the man, the horse, the bow), as the man-horse-bow assemblage was territorialised and new capacities emerged. Deleuze and Guattari emphasise how repetitive interaction establishes the code but importantly, the code is not fixed; it evolves:

> "Every milieu is coded, a code being defined by periodic repetition; but each code is in a perpetual state of transcoding or transduction"

> (Deleuze and Guattari 1987: 364)

This point emphasises one of the central principles of Deleuze and Guattari's philosophy: that of change, difference, flow. It is a reminder that the process of *territorialisation* does not begin from a point of stasis, instead territorialisation is part of a rhizomic flow, where

bodies move in and out of different assemblages over time. As a body is affected and makes connections in a new situation, so it will let go of old connections in a process of *deterritorialisation*:

> "The territoriality of the assemblage originates in a certain decoding of milieus and is just as necessarily extended by lines of deterritorialisation. The territory is just as inseparable from deterritorialisation as the code from decoding"

> (Deleuze and Guattari 1987: 587)

Thus, as the code of a new social situation is deciphered, bodies territorialise the emerging assemblage and establish a novel code, while simultaneously letting go of the codes or structures which defined the assemblage they are leaving (through the process of deterritorialisation).

Over the three years, students shared many stories about encountering new situations, new people and engaging with new experiences and while there were marked differences in the details of the stories, I recognised this ever-changing flow of territorialisation and deterritorialisation. All of the stories emphasised how each student (and every other entity which they encountered) were influenced by many dynamic and competing factors from the intensities that flowed around them, within them and through them. On entering a new situation, the physiotherapy students were faced with many structures and codes which they may or may not have noticed and which may or may not have affected them. Kim's reflection on the early days at university highlight some of these complexities:

> "I haven't been so far away from home before. And I'm younger than many of my classmates so I'm really nervous. Some of them have worked in a hospital and they know many things and I don't know any. (Laughs) I think the language barrier makes it difficult. And maybe I don't know the culture or what they [the 'home' students] like, so it's really hard to be close with them - and I am really worried about communicating with patients."

In this emotional reflection, Kim's anxiety was apparent as she referred to a range of differences she perceived between herself and the other students. These types of worries are widely reported as commonplace for 'international' students as they make the transition to studying in a foreign country (Bowl 2001; Tseng and Newton 2002; Suspitsyna 2013;

Wang and Greenwood 2015; Bittencourt et al. 2021), so it is not surprising that many of the students shared similar concerns. However, much of the literature in this area foregrounds the 'international' student as the focus of change (for example, Hullett and Witte 2001; Volet and Jones 2012; Schartner and Young 2016), implying that in order to engage with the new environment the 'international' student must change their behaviour to fit in with the new rules and customs (suggesting the other actors comprising the particular situation, do not change). Using a post humanist lens, this inquiry introduces a novel perspective on students' transition to university, recognising that change and adaptation occurs for all those involved. For Kim, it would not simply be a matter of her being affected by the environment around her and responding through changing her own behaviour; she would also be having affects on others. Rather than one body imposing change on the other, there is an interplay of affects and responses as various bodies interact. Rosie's reflection captures such interplay and how territorialisation is initiated:

> "Since starting at university I have made a strong connection with a few others in my class that are of similar age to me and have also done some form of previous study. I feel like I connected with these people best because of the similarities we share."

It seemed that on entering a new situation, familiar sensations or *codes* affected the newcomers in a way to accelerate interaction, for example noticing others' appearance (indicating age, gender, cultural background), or voice (giving clues about background) and body language or tone of voice (indicating openness to interaction). Mutual recognition made it easier to decipher the codes and structures in a particular situation, providing the foundations for dynamic interaction.

Conclusion

Through this chapter, I have presented the students as little machines, each of whom form part of many flows, and who may affect and be affected by any of the entities around (and within) them. These affects may produce an acceleration or deceleration of flow (relating to the student) and facilitate the making or breaking of connections between them and other entities. Thinking about each students' experience of becoming physiotherapist, it was evident that there was no clear starting point, and the direction, speed and structure of the

process was different for each of them. Rather than following a stepwise progression, becoming physiotherapist seems to be more unpredictable and dependent on each students' situation and individual capacities, aligning with Deleuze and Guattari's (1987) concept of the rhizome. This post humanist view offers a novel perspective on *becoming physiotherapist,* which decentres the individual student, foregrounds relationality and presents *becoming* as the product of many interweaving flows and relationships, rather than resulting from an individual student's agency.

This chapter has highlighted that the interactions between human and non-human entities are a dynamic, ubiquitous part of becoming, through the forming and unforming of a range of assemblages. For the territorialisation of such assemblages to occur, each entity must have the capacity to *affect* and *be affected*, and this can only happen if both entities are familiar with the code of communication. Through repeated interactions, the unique, shared code of an assemblage becomes established, the territory expands, and the assemblage becomes productive. What is particularly important here is the recognition that all of the components with in the assemblage have the capacity to affect (as well as be affected). This contrasts with much of the literature relating to international students which emphasises how they must adjust and adapt to a new environment. Instead, this inquiry foregrounds 'international' students' capacities and contributions to productive assemblages, such as the productive friendships and learning spaces described earlier.

The task of decoding new social situations is clearly one of the challenges faced by all new students, for example, all physiotherapy students would have to decipher codes relating to the human body and movement. However, those students who are from a different cultural background and whose native language is different to that of that spoken in the university, face additional challenges. The following chapter explores these challenges, firstly examining the impact of encountering unfamiliar codes and structures, but later highlighting surprising encounters with familiar codes where territorialisation accelerated rapidly.

Chapter Five: Deciphering Codes – Building Capacity to Affect and be Affected

Introduction

The previous chapter introduced the idea of flow, presenting individual students as part of wider social, economic and political flows. I also introduced the concept of the multiplicity (Deleuze and Guattari 1983; 1987), presenting the university as a machine and student capacity building as a product of their interactions within a range of dynamic assemblages. Throughout this inquiry, I present becoming physiotherapist, not as a winding path towards a discrete destination, but as a rhizome, expanding, elongating, changing shape in a relentless, process of forming and unforming connections with a range of different bodies, entities, assemblages. This dynamic process depends on each student's capacity to affect and to be affected within a particular situation and this capacity varies, depending on the student's previous experiences and also on the particular situation, determined by the codes and structures within a particular context.

In this chapter, I first discuss the codes with which students were unfamiliar: the new language code, the new cultural code and the new learning code, emphasising the time and effort required to decipher these codes. I then examine a code which remarkably, all of the students seemed to have both an affinity and familiarity: the code of physicality, and the impact this had on their becoming. Finally I present physiotherapy knowledge as a multiplicity, a complex code which each student must decipher, an immanent property of the assemblages with which each student interacts, and which presents differently depending on the components of each unique assemblage.

A New Language Code

One of the most significant codes referred to in the 'international' students' stories was predictably, language. Discussions around language were common at all stages of the course, relating to all aspects of student life, from experiences in university and professional practice placement to social situations. In the early days at university many students spoke openly about the challenge language posed to making new friends. Mary's reflection was typical:

> "I think the main cause of being not connected with the home students is just the language barrier. For example, from my experience, sometimes I couldn't catch up what the home students say so I couldn't join in the conversation, and I don't want to ask for too many repetitions as it is quite distracting and destroys the atmosphere of the conversation, so I would rather be a listener in the discussion."

Mary was very clear that her lack of interaction in conversations stemmed from being unable to understand what was being said. Thus, she could not be *affected* by what was being said and could not respond (affect others). Willow's recollections of the early days at university were a little different. She was drawn to the British students, despite finding it difficult to communicate verbally and she found herself sitting with them in class and socialising outside of class:

> "Sometimes we have lunch together. Although I sometimes might not understand what they are talking about, I can still ask them to tell me more about that. It can make me feel they are helping me a lot and we have a strong connection with each other. I sometimes may not understand what they are talking about so I cannot join their conversation, but I do not want to ask them what is that, as I think it might make them feel annoyed."

While both Mary and Willow were newcomers whose mother tongue was Cantonese, Willow was able to interact with the British students, using an alternate code, possibly comprising non-verbal gestures and behaviour. Willow clearly recognised a code within some of the 'home' students' behaviour, interpreting it as "they are helping me a lot" and was affected by this, responding by asking questions. Thus the students were able to territorialise the friendship assemblage and Willow experienced that joy of belonging which was elusive to Mary. Both Willow and Mary described how they could not quite join in with the conversations, tending to listen and not interrupt for fear of disrupting the flow. It was as though by observing behaviours of the others (the social code), that they recognised that to interrupt and ask questions for clarification would be breaking one of the rules of the 'friendship ensemble'. Instead, their response was to engage by staying close to the others, observing and listening: a response that complied with the apparent rules of the situation. God and Zhang (2019) described similar behaviours in their study exploring the way Chinese students interacted with local students in an Australian University, emphasising how

strongly language differences impacted students' ability to make friends. It is also evocative of the behaviour described by Lave and Wenger (1991), of newcomers to a social group, being characterised by limited social interaction at the edge of the group (which they termed legitimate peripheral participation). While this behaviour is similar to that described by Willow and Mary, Lave and Wenger (1991) explain the behaviour using a humanist ontology with an epistemology of social constructionism. In contrast, rather than focusing on the individual as a learner, a post humanist lens offers a novel perspective, by explaining the behaviour through relationality; the ability of each of the bodies within the social situation to affect and be affected. In order to connect (and initiate the territorialisation of an assemblage), all parties concerned would need to have some familiarity with the code of the milieu (in this case, involving spoken English and certain social codes) so that affects could be felt and responded to in a way that affected others.

In addition to its influence on friendship formation, students also referred to the challenge of language code in the classroom, as Natalie recalled:

> "There are different slangs – so maybe sometimes a teacher might use the slang and we don't know what they mean and we are like – what are you talking about? (laughs). And then they will explain to us – and then – ahhhhh (laughs) – the accents! Sometimes they don't understand our accent and maybe we will repeat one more time, again. At the beginning it was really hard because there are a lot of things to remember – like the anatomy – some of the things sound so similar, like the corocoid and coronoid (laughs) and it was "Oh I've messed it up" all the time – but I think it will be fine next term"

Natalie laughed as she recalled those difficulties in class, but emphasised that she viewed the problems as temporary, suggesting that while challenging, it was not particularly worrying. She clearly perceived the issue to lie with her own abilities, stating that it was she who had "messed up". However, viewing this classroom situation through a more holistic, post humanist lens, the notion of blame seems incongruous. The different components of the classroom (including Natalie and her tutor) were simply present and both were experiencing different affects and making responses. Natalie and the tutor were in the process of deciphering codes and establishing territory; there was no right or wrong in the situation, only intensities, affects, responses. It may have been that this particular tutor was

unaware of students within the classroom whose first language was not English; hence her response to Natalie's facial expressions may have been based on a perception that Natalie had not been listening or had not prepared for class, rather than not understanding the tutor's spoken English (demonstrating a mismatch in social codes).

In addition to the challenge of listening and speaking in English, some students highlighted the difficulties of reading and writing in English. For example, Aida explained how it was sometimes difficult to understand the way the learning resources were presented in class:

> "Sometimes I don't understand what the PowerPoint is about – I understand each word, but I don't understand the whole sentence – I don't know what the whole sentence means. Because I repeat the first year so I also have some friends that have moved onto the second year so they have a better understanding than me so they can teach me what it actually means, for example, with ACBT, there is a technique called huffing and I don't really understand the theory behind huffing – like the equal pressure point and that thing – I don't actually understand what the PowerPoint is talking about this, so I ask my friends"

Aida highlights one of the complexities of language; that often, the meaning of a sentence is not revealed in the individual words but between the words, in the overall ordering of the words. Thus, phrases relating to the new professional language of physiotherapy (which Aida describes) may include a social aspect relating to the 'doing' of physiotherapy (with which she is not yet familiar). DeLanda (2016) captures this complexity of language, describing the interaction of linguistic rules with semantics and social conventions:

> "A given language may itself be studied as an assemblage, exhibiting the characteristic part-to-whole relation: sounds or letters interact to form words, with irreducible semantic properties of their own, and words interact to form larger wholes, sentences with their own semantic and syntactic properties….
>
> … the expressive components of a given language include not only the meanings of its words and sentences but also other non-semantic sources of expressivity: tone, stress, rhythm, rhyme"

(DeLanda 2016: 51-52)

Relating this to Aida's reflection, while she was familiar with many of the English words, the ordering of those words into particular phrases associated with physiotherapy was something new. Even if she recognised the meaning of "ACBT" and "the equal pressure point", the relevance in physiotherapy performance is a different code. Thus, while it is easy to label the types of challenges that the 'international' students describe as 'language difficulties,' closer examination would suggest that this code is a multiplicity of interweaving flows of meaning. A tangible image of this dynamic and almost ephemeral feature of language was painted by Deleuze and Guattari (1987) as they explored the complexities of language in detail:

> "There is no language in itself, nor are there any linguistic universals, only a throng of dialects, patois, slangs and specialised language. There is no ideal speaker-listener, any more than there is a homogeneous linguistic community. …
>
> … Language stabilises around a parish, a bishopric, a capital. It forms a bulb. It evolves by subterranean stems and flows, along river valleys and train tracks; it spreads like a patch of oil."

<div align="right">(Deleuze and Guattari 1987: 6)</div>

So it was that Natalie swirled in the flow of slangs and accents and similarly sounding medical terms that she encountered in the classroom. So too, is it evident from Aida's story, that the language of physiotherapy flowed and evolved across the PowerPoint slides, among the student group, and back into the classroom, as the complex codes were deciphered.

While all of the 'international' students commented on the challenge of language in those first few months and how it impacted the formation of friendships and classroom learning, it did change over time, for example, at the end of her first year, Gemma reflected on the importance of practice to her familiarisation with the language code:

> "I'm quite thankful that in my group of friends, there are people from other nationalities – so we have to speak more English than the other Hong Kong people in our course - so I've spoken English every day, speaking with my friends. Sometimes I will still speak Cantonese with my fellow students who are also from Hong Kong but I have also spoken a lot of English during class because I am friends with other students as well, mostly about what we are learning because during class we talk

about what we have learned and also how we will do our homework and things like that – and how we will do in an exam. But we also talk about some social stuff, like shall we go for a drink after class and stuff like that"

For Gemma, it seemed that the friendship had developed from the interactions between Gemma and the other students, with the physiotherapy learning activities in class. Having the opportunity to practise speaking English was highly beneficial but not something she actively sought out; rather it was an immanent property of the friendship assemblage. This highlights how even though students might understand the benefits of practice, if the interweaving flows and intensities affecting them, do not direct them to a situation where practise is possible, they will not be able to engage with the repetition that is required for capacity building. This insight might also provide educators with opportunities to choreograph flows in the classroom which may influence student behaviour in a way that enhances practice.

As I interacted with students over the three years of the course, they always placed an emphasis on change, expressed as communication becoming easier, less stressful. Similar changes were described when the students reflected on cultural differences but interestingly, gaining familiarity with cultural codes occurred much more quickly.

A New Cultural Code

As well as language, cultural differences presented another set of codes which challenged interaction between students of different nationalities. Aida's reflection was typical:

"More than the language, it's because the culture is different, for example in our leisure time, I tend to see the Hong Kong news but for them ['home' students], they will see the local news and sometimes I will watch some drama which is in Hong Kong but they won't. Sometimes they will talk about people who we may not know because they are not famous in Hong Kong. So, I think the topics that we will talk about are around the course – so usually we talk in class but less afterwards.

Also Hong Kong students and local students do things differently for example, when we have a break they tend to go down and grab a cup of coffee but for Hong Kong

students, we may just watch Instagram on our phones which is very different. I think it is a different type of culture because in Hong Kong when we are having a break, we won't go out for coffee. Also, UK students like to discuss when they are learning but for Hong Kong students, we learn independently, maybe in study room or library, which is very quiet

It's not easy to adapt (smiles) - I think knowing other culture is good for me because I can understand more what other people are thinking and what they are doing - as the local students and Hong Kong students do things differently"

Aida was highlighting how the students from different backgrounds have different social and cultural experiences and develop knowledge about different things, and will therefore find it less easy to find subjects (or codes) which they recognise in each other. In addition to this, the 'international' students noticed how the 'home' students behaved differently, and the different behaviours signified different meanings. Aida was aware that she was not able to decipher the 'home' students' behaviours in the same way as she could with students from her own cultural background. Mary also noticed cultural differences, particularly in relation to humour and social communication among her friends:

"I think the local students are quite different. Sometimes I did not understand the jokes they told in class, it's actually not a big deal (laughs) I think they're just using some British idioms to describe something and the wordings are those that I'm not familiar with. But even in between each international students are differences – between different countries, it is really different, for example the Hong Kong students – the way we get together is like, to be mean to each other, but it's in a funny way. I don't dare to do things like that with the locals" (laughs).

Mary referred to the way the students from Hong Kong tease each other in fun. She was certain that she would not behave in this way with a 'home' student, implying her concern that a 'home' student might not understand the unspoken code and take the teasing literally, as an insult. This type of mismatch in the interpretation of behavioural codes has been reported in other research, for example Ammigan, Veerasamy and Cruz (2022) reported that some 'international' students perceived certain behaviours of the local students to be rude, particularly in the way they interacted with the tutors. Viewing these misunderstandings through a post humanist lens provides an explanation for the common

finding (Campbell and Lee 2008; Ammigan, Veerasamy and Cruz 2022) that 'international' students tend to form friendship groups with others from a similar cultural background. Without an understanding of the code of a particular milieu, an individual will not have the capacity to be affected by or affect others in a way that enhances interaction.

However, despite the initial challenge cultural codes provided to students' interaction with others from different backgrounds, in line with other research findings (such as Hotta and Ting-Toomey 2013 and God and Zhang 2019), students quickly learned to decipher the different meanings of cultural behaviours and interactions between the different students became easier. The passage of time allows for practise, and familiarisation with new structures and rules, so students built the capacity to affect others and be affected. For example at the end of the first year, Gemma explained how she was able to interact with the 'home' students more easily, with a shared understanding of behavioural 'norms':

> "I don't know if it is a Hong Kong student thing – that we are just a little bit more timid, but now I feel like it's OK to ask them ['home' students] to repeat it - even the local students do that as well because like, even when I'm talking Cantonese, sometimes we mixed up the words, so we will just ask, can you say that again, can you repeat that - so that's just normal. Like sometimes we're just not paying attention when someone's talking, and we definitely should ask that person to repeat that. So actually the talking helps us - we definitely need to do it more often."

This also emphasises the importance of students having opportunities to learn about each other during the early part of their course, so that they are able to observe each other's behaviours and responses, as well as their interests and life experiences (or decipher social codes). It is this shared familiarity that provides the means for individuals to affect each other and be affected, to initiate the interactions required for territorialisation of a friendship assemblage, from which arises the joy of a shared sense of belonging. However, it is important to recognise the additional effort needed by many 'international' students to engage with such activities; synthesising a range of strong affects (indicated by the different emotions many students expressed, including fear, excitement, shame), to produce a response in their second language, that produces an positive affect in the native speakers (a point which I will return to later, page 106).

A New Learning Code

All of the students commented on the challenge of becoming comfortable with a new way of learning at university and shared stories about their experiences in the classroom and how different it was from their previous study. The more interactive, 'student-led' approach to learning was something that all of the students commented on. Rosie captured the general feeling when she highlighted that "it can be a bit awkward" suggesting that students did not know how to behave. Again, this highlights the challenge of decoding a new social situation. Having grown up experiencing a particular learning approach and understanding the expectations of student and teacher, it is not surprising that 'international' students found this aspect of university life difficult, and it has certainly been reported in other research (for example, Volet and Jones 2012; Frambacha et al. 2014; Wang and Greenwood 2015; God and Zhang 2019). Of the many differences students noticed in the approach to learning, the one most commonly highlighted by the Hong Kong students was how their usual approach to learning was memorising information, in order to be able to reproduce it for exams or in response to questions from the teacher. Willow's reflection about this was typical (my italics):

> "Maybe in our culture it is different - like when we start studying at primary school, *we always answer questions rather than asking questions* and then we always focus on the PowerPoint or something and just *memorise* all the things but here we don't just focus on the PowerPoint, but also, we have to access the reading lists ourselves, so it is quite a different"

Willow encapsulated the difference in her comment: "…we always answer questions rather than asking questions…" implying that they were used to listening to the tutor and memorising so that they would be able to answer questions accurately. Being faced with a situation where the students are expected to ask the tutor questions was something very new. Willow went on to express her perceived difficulties with this new approach:

> "I find the problem-based-learning in pathophysiology challenging because there are lots of concepts that I need to understand and firstly I didn't know what is going on in the discussion part. I was confused as it is really new for me - the first time I just sit there and I can't speak anything and I have no ideas of what to say. But after a

> while I can understand what it is and I can give my opinions and some ideas about the topic"

Willow's recollection is not surprising, as similar challenges in adapting to a new approach to learning has been highlighted in other research. Wormley et al. (2019) explored American physical therapy students' experiences of engaging with a new interactive, student-led approach to learning: problem-based learning (PBL). They reported that many students initially found it unsettling, experiencing difficulties in finding information and sharing it with others. Prosser and Sze (2014) also noticed this when medical students first engaged with PBL. Neither of these studies involved international students, so it is plausible that with the different communication and cultural codes to decipher, how much more challenging this active learning approach would be for 'international' students. This was emphasised by Frambacha et al. (2014), who argued that the independent behaviour demanded by this type of interactive learning reflects typically Western values, such as individualism and a focus on verbal interaction, which may have had an additional impact on the students from Hong Kong.

Many of the learning codes were new to all students but for the international students, the complexity of the new learning environment provided additional challenges to their capacity to engage with learning activities. This will be explored in more detail in Chapter seven, pages 149-164), in an exploration of striated space. However, it must be emphasised here, that while students continued to comment on the frustration they felt with language codes throughout the three years of the course, it was remarkable how quickly the students became more comfortable and confident in engaging with the new way of learning.

Time and Labour to Decipher Codes

One of the most common points made by many of the 'international' students was how tired and overwhelmed they felt, particularly during the first year. This could be explained by the additional effort required to 'decode' the new rules and structures. Aida's reflection is typical and highlights some of the factors which contributed to the feeling of tiredness:

"I think it was very hard for me because I had to learn many new things every lecture and I had to revise before the seminar or the practical - we have to do things before the lesson and it is quite stressful. Although the teacher didn't tell you to do things, but you know you have to, because if you don't revise you won't understand what the teacher is talking about in the practical. And because this year is my first year to come to UK and I think there is a lot of daily activities that take a lot of time like washing clothes or tidying the room or cooking and washing. This already takes up a lot of time so there is less time to study and also relax – so it's hard"

The additional tiredness experienced by international students has been acknowledged by other research, for example God and Zhang (2019) found that many international students did not engage with local students because they found it so stressful and tiring. It is really important to acknowledge the wide range of new experiences all students must process as they start university, but the additional cognitive load international students experience through their constant vigilance to the new sensory experiences around them, is particularly important. Having an awareness of this would allow tutors, clinical educators, as well as the students to understand the behaviours of 'international' students more clearly and to respond in a more empathetic way. It might also explain why international students may need longer to complete learning activities and hit targets such as assessment grades, as was the case for many of the students, who had to repeat individual modules and for some, a full year. For example, Nikki repeated the second year of her course, after failing first time and reflected on the benefits of having additional time:

"Because I learned the stuff before, it is easier for me to absorb it. I understand the stuff more, so I can explain it and let others understand - because sometimes I just understand it but I cannot explain it all - but since it might be the second time I can explain it and let others understand it"

Having met with Nikki on many occasions, and observed her worried appearance as she expressed her anxiety about communicating with others, and dread of the interactive classroom activities, it was wonderful to observe her delight and pride as she shared this story. She was clearly able to recognise the *physiotherapy code*: "I understand this stuff more" and with additional time to observe, listen, interact, the capacity to affect and be affected by others had developed: "so I can explain it and let others understand." Through

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interactions with others, physiotherapy knowledge emerged, along with a sense of joy and pride (which she had not experienced before). Considering the raft of new experiences and unfamiliar codes and structures international students face, it is not surprising that additional time is needed to process the overwhelming sensations (and affects).

The standard three-year timeframe for completion of a degree is based on tradition, the long-accepted length of time it takes for a student to gain proficiency in the codes associated with a particular degree. This customary length of time is based on students native to the country where the degree is delivered, who are already familiarly with language and cultural codes. It seems undeniable that some students may need more time to meet the requirements of the degree and while this was the case for many of the 'international' students in this inquiry, it is essential to highlight that *every one of the students engaged successfully with their studies, performed successfully on practice placements and were awarded their degree.* Thus, while more time may have made their experience less exhausting, it was not essential to their academic success.

The Familiar Code of Physicality

While all of the students experienced difficulties in various aspects of their studies during the first year at university, it was extraordinary to note that without exception, every student expressed a strong passion for practical classes. These classes involved learning about the different bones and muscles in the body, how the body moves and the basic, practical physiotherapy techniques. As students discussed these classes, desire emerged as they reflected on their engagement. Grace's comments illustrate this as she described her learning during the first year of the course:

> "I really love it because I think I learn better when it is hands-on and when you're seeing something – visually seeing something or doing something. I've really enjoyed the anatomy that we did, and also the module that we are doing now – how to assess people. It's really exciting to learn about how different people react differently to the same situation. Yes, and it is proper physio (laughs) – yes and you can really relate the things together, so it is really nice. One thing that I have been really facing some problems with is the research module, especially with the

referencing bit because that is very new to me – I have never done any sort of referencing"

Grace's smiles and emphasis in her speech signalled the positive feelings of enjoyment experienced in the anatomy classes. During these classes, students learn how to examine each other's bodies, taking note of anatomical structures such as muscles and joints, practise how to locate and handle different anatomical structures and analyse how the different structures move. Students describe this as 'hands on' learning. It is evident from Grace's description of the learning that these classes had a strong affect on her, driving the interaction between her, the tutor, the students with whom she was working and the simulation resources, as they territorialised a highly productive assemblage. Grace acknowledged how she found this approach to learning *easy*, implying she felt it required little effort or energy from her. This perception of ease indicates a shift in the location of effort from her as an individual, to the assemblage: the drive (or desire) emerged from the interaction of the bodies within the assemblage. This contrasted with her impression of learning on her research module. She mentioned that it was new to her, she had had limited previous experience of research, so at that point, was unable to decipher the code relating to this area of physiotherapy knowledge. Thus, engaging with these learning resources felt more uncomfortable and troublesome.

Not only did students enjoy the activities, but they interacted with the other students much more freely in those classes and felt that they learned more (a point which will be explored in more detail in Chapter seven, page 145-146, in discussions around smooth space). Kim's reflection illustrated this as she emphasised the importance of interacting with other students and the way that knowledge emerges from the group interactions:

> "The practical lessons were the best classes - I don't like the teachers talking and we keep listening, like it was back in secondary school. I like practical lessons most. Sometimes I don't realise what I don't know - so maybe I revise it and I thought I understand everything but when I do practical, I realise that I don't! During practical lesson, maybe other students ask something that I don't know that I need to know that stuff - so I think it is really important to work with other students"

Initially I was astonished at the way in which every one of the students gushed with joy as they talked about practical classes, stressing that these classes were not only easy to

understand, but were where they felt they were really learning about physiotherapy. However, thinking back to my early conversations with all of them, it was not so surprising. Many of the physiotherapy students had engaged with sport and exercise through their childhood, many talked about their love of sport and suggested that it was the physical aspect of physiotherapy that sparked an interest in physiotherapy as a career. It may be that this previous experience of physicality during their childhood, introduced them to the 'codes' associated with anatomy and movement. Thus, when they attended their first anatomy class, decoding the situation was easy for them. They could relate to what the teacher was presenting, they understood what they needed to do in terms of movement. As they engaged with the learning material, they were able to interact with their own movement imaginaries in thought (memories of physical experiences, movements, exercises), adding another dimension to the evolving learning assemblage. What is particularly important here is that despite the many comments from all of the students relating to the challenge of English language, there seemed to be a shared understanding in these practical classes across all of the students, an ease to the learning activities. It may be that the shared understanding *of the code of physicality* allowed the students to interact in a way that they could not in other classes where their usual form of communication presented a barrier. It was interesting that as Ayesha reflected on how she developed her English language skills, she recognised the importance of the practical classes to building this capacity:

> "I didn't really do anything to improve my communication skills - but what I did was just try to be more co-ordinated in class, like in that kind of scenario when we practice: one of us will first be a model and another will be a physio. That sort of role-play situation, so like practise things – like imagining we are doing it for real. We mix up a lot because our group is quite small, so we are very close to each other. We don't really have any like rival things – nobody has any issues with each other – so we practice a lot and switch partners a lot"

Again, there is a sense of ease and enjoyment which was specific to this particular class and this feeling was a common finding across all of the students. It was a place where there was a sense of freedom and confidence among *all* of the students, to interact (cultural background and native language seemed no longer important). This contrasted starkly with

students' experiences in other classes and in social situations. The impact of the different language and cultural codes to the 'international' students' experiences during the first few months of university cannot be underestimated and the stories they shared about settling into university and adapting to the new style of learning emphasised the struggle with decoding the new situations, but in practical classes there seemed to be a *physicality code* with which all students had a familiarity, and it formed the foundation of their interactions.

With this in mind, it is interesting to consider how the students might experience the codes they encountered in the professional practice context, where they would be working alongside qualified physiotherapists, interacting with patients who present with physical problems. It is reasonable to infer that in the practice context, there would be an emphasis on the physicality code, so students might find practice placements easier than some of the university classes. Remarkably, this turned out to be the case.

Recognising the Physiotherapy Code

Aida's reflection on her first professional practice placement captures the initial anxiety relating to performing the many new (but not totally unfamiliar) tasks including, interacting with materials on the ward and with patients with complex needs:

> "I was very anxious, and I don't know how to handle them [patients] because when I was in Uni, when we practised handling, they are normal people, the feeling is very different to a neuro patient and there are many things that we haven't considered in Uni that happens on the placement, so I think I'm a bit overwhelmed. Because the patients can't support themselves well, and they will gain a lot of support from the therapist so it's sometimes quite heavy. You have to be very careful because they have very high risk of falls – but in normal people you would not expect them to have such conditions - so I felt that I had a large responsibility for the patients. At the start I don't know what I should do because everything is very new, and I'm not very familiar with all the things - but in the next few weeks it became clear - I start to know which direction I should go and what I should look for."

The surprising speed with which the Aida and other students reported settling into their practice placements may have been in part, due to being separated from their usual surroundings and the affects produced by familiar entities (such as friends, phone, laptop), so they were more vigilant to affects in the new environment. In addition, the ease with which students settled into placement suggested that they were entering this new social context with a familiarity with the rules and structures of physiotherapy practice. This is likely to be the case as many of the learning activities they engaged with in university would refer to practice activities, physiotherapy skills or examples of patients and their treatments. Through the territorialisation of productive assemblages during the first year at university, capacity in understanding and expressing the *physiotherapy code* emerged. Thus, novel situations on practice placement did not seem totally unfamiliar. Students had the capacity to be affected and to affect others, within these situations, for example approaching a patient in pain, or a carer needing help to position her child in a wheelchair. In the following section, elements of the physiotherapy code will be explored to gain a clearer insight into how university study prepared students for the seemingly smooth transition into professional practice.

Communication using the Physiotherapy Code

As the first year at university progressed, the challenges lessened as students became familiar with the codes associated with the new context. However, when they embarked on professional practice placement in the second year, much more complex and nuanced communication challenges emerged. Even Rosie, whose first language was English, found communication on her first placement quite challenging and her reflection captures many of these complexities:

> "Definitely communication skills was something I needed to work on – I remember my educator saying that I have a broad accent (laughs) and I talk quite quickly. I did get better as the weeks went on, but I think initially patients found it quite hard to understand me. Initially I was quite nervous talking to people that I don't really know, 'cos I'm quite quiet anyway, so at first I observed how my educator was going about it.

Another thing my educator was saying to me – if I needed to talk to the nurses, I would kind of, just tend to stand back and wait until they have finished doing something. She thought it was more about me just being quiet, but it was more about me trying not to interrupt, just kind of, be polite - things like that. She was like, be more confident and just go and talk, 'cos nurses are always going to be busy!

Also my educator said, I didn't really tell her about the different conditions I had learned about – I was kind of, waiting on her to ask me 'cos I knew she was so busy and stuff, so I just felt like I was being in the way if I was just always telling her things."

As Rosie embarked on her first clinical placement, she had to negotiate a communication terrain, scattered with different codes which she deciphered through interacting with others:

recognising that her spoken words might not affect others in the way she expected (because of her speed of talking and her accent), and…

recognising that as a therapist, it was part of her role to initiate conversations, when her natural tendency would be to wait for others to start talking, and…

recognising that to allow her educator to assess her development, she needed to demonstrate her knowledge and understanding, and…

recognising that her 'polite behaviour' might be interpreted differently by others in the professional context.

The process of refining an effective method of communication was a challenge for Rosie, whose native language was English. How much more complicated it would be for those students whose native language was not English. Each of the students shared very different stories about the type of communication challenges they encountered, which they overcame in different ways. It was striking that despite the challenges, the flow of *becoming physiotherapist* continued. Through each student's temporal and spatial flow through life, they had developed different capacities, including the capacity to recognise and respond to the affects they experienced during practice placement. As a unique entity,

each student was affected differently and responded differently, but the impact of their interactions with the network around them in each unique situation, drove their becomings. Below are a series of vignettes, each one illustrating these becomings, highlighting the ways the physiotherapy code emerged from the unique interactions, deciphering cultural, language and physical codes:

Learning to communicate through hands

"One of my patients could not speak, so we need to do lots of body language and ask him to do thumbs up and thumbs down and shake their head. I also learned lots of different handling techniques because - like when doing squatting with the patient, I used my hands to guide them – or when a stroke patients could not do the heel strike when they are walking, I put my hand on the quadriceps and the calf in order to help him step – something like that - and it make me understand how to approach the patient more deeply – and also gave the patient an idea what they need to do."

(Willow)

Deciphering codes; lacking capacity to respond to affect

"Sometimes even though I was able to listen to them, I did not know how to respond – so I did not know how to comfort them - like when they said they are in pain or maybe they said they want to die or something like that. I really don't know how to comfort them or how to make them feel better. My educator told me to like, pick up on the cues that they give us – like when they are in pain or upset - maybe their facial expression changes or sometimes the patients will just tell us that they are painful - then we should stop and give them some time to rest – or talk about it."

(Kim)

Emergence of unique communication skills from assemblage

"The first time I had the phone conversation with a patient, I was so scared because I didn't understand what they were saying. But it improved through the placement – absolutely, because after going back home I would do some English dictation, just listening to the BBC. I have found my own way to communicate with the patients, so after a while, if I didn't understand what the patient said, I would pick some important words from the consultation and I would say: I want to recap what you say… and so is it correct? And, so do you have this? Or this? Do you mean A or B or C or none of them? So, it clarifies it for them."

(Peter)

The ease of deciphering cultural codes

"I think one of the things with us Asians, is that we don't usually give praise to people a lot, even if they have done extraordinary. We will say like, 'oh yeah, you have done well' and also we have a stereotype of foreigners or people in western country - even if you have done really bad, they will still be like, 'oh no that's fine - that's actually not bad – you've done well.' So that's why in the back of my head, even though I know that they mean it, we would still be a little bit sceptical of that - that cultural thing! With patients I do say that they are doing well, because I know in this culture - they like this and they will be praised and will be more motivated. People always like to be encouraged."

(Ayesha)

This collection of vignettes beautifully demonstrate the complexity of the physiotherapy code and how different knowledge emerges as a product of student-patient assemblage in

each unique situation. A different student in the same situation would have affected the bodies within the context differently and have been affected differently, resulting in a different outcome.

The idea of students having different capacities in terms being able to affect or be affected was highlighted strongly in conversations I had with students towards the end of the course, where many of them confessed to not engaging with certain learning activities in the early part of the course. With the benefit of hindsight, many students were able to identify activities that would have been beneficial to engage with in the early days to enhance their understanding of the physiotherapy code but at the time, these activities were unnoticed or overlooked. Mary reflected on her activities in the first year and expressed some regrets:

> "If I could go back to year 1, I would try to make more effort at that time. Because I think that last year I didn't make as much effort as this year - and if I did that, I think I would be more confident at picking up things this year. I mean, I did put in some effort - but not that hard because I got new friends last year and we would meet up every weekend and I didn't spend much time studying - and I didn't make a timetable for myself - and this year I think I used the time more effectively. Last year I used to hang out with my friends and then take a rest and I just left a little bit of time for my studies" (laughs)

Mary spoke as though she had a choice, as though she consciously decided not to engage with certain learning activities and go out with her friends instead. A post humanist interpretation of this situation would view Mary's behaviour as simply a response to the affects of the flows around her (and not a conscious decision), her responses to the various affects she experienced were based on her capacity as an individual (at that time), and the product of the assemblages she territorialised, at the time. Without an understanding of the physiotherapy code (which she demonstrated at the end of the course), she did not have the capacity to be affected by those learning activities in the way she would as a third-year student.

Nikki expressed similar regrets at the end of her course, in a much more emotional way, indicating the underlying affects as she interacted with those memories:

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"I would advise the first years and second years that they have to be more active in practical sessions and SDP [Self-Directed Practice]. I never realised how important it is until now (smiles), so I think practical sessions, especially, because of all the handling stuff – you've got to know how to do it! (Laughs) At the beginning I thought it wasn't that important– and I thought we could just read it from the book and memorise everything and that will be fine. (laughs) But that's not the thing 'cos sometimes your brain can't remember but your hands remember – I get that now"

It almost seemed that Nikki was exasperated with her 'first year self', as she looked back in disbelief at her behaviour. She revealed a particular insight, that physiotherapy knowledge is more than 'knowing', it involves 'doing'. As a third year student, she appreciated the value of practical classes, recognising the importance of the sensory aspect of practical skills, as she highlighted "sometimes your brain can't remember but your hands remember." Nikki's humanist thinking tended to attribute blame and responsibility, and generate feelings of shame and regret, suggesting that she had a choice in behaving differently at that time. It also calls to mind the common behaviour of elders or teachers, giving advice and trying to direct the behaviours of others. A post humanist view of education would recognise that the way a person behaves in any situation depends on their capacity to affect and to be affected in that situation. Rather than advising and directing, the role of the tutor might be more productive in choreographing more flexible activities within learning spaces, where students with differing capacities might engage with productive interactions. This idea will be revisited later in Chapter seven, page 151-155, in a discussion around learning spaces).

Physiotherapy Knowledge – A Multiplicity

As students reflected on becoming physiotherapist, it became clear that the process of deciphering physiotherapy codes formed part of the expansion of physiotherapy knowledge and they talked about this process throughout the three years. Their stories painted physiotherapy knowledge as highly complex, comprising theories from many disciplines, including medicine, psychology, sociology and many skills, ranging from observation and assessment to communication and handling. It was remarkable to hear in the students'

stories, how quickly they recognised the complexity of this knowledge, comprising many different, intertwined elements. For example, as Diane reflected on her learning during the first year, I was amazed how she freely linked together the content of the different modules with which she had engaged:

> "I learned how many different branches there are in physiotherapy – it's not just exercise or massage. There are so many different ways of helping people and also that physios look at the psychology of people to do their holistic way of treating people. It was interesting to learn that we actually look at how people are doing with their emotions and take their feelings into account and that sort of thing. Also, we need to adapt the knowledge that we have learned from other modules to different modules - so what we learned in Anatomy, to adapt to Movement Analysis, to try and bring all the modules together, so find connections in each. I'm slowly learning that. I think the first semester was kind of all over the place, but I think the second semester it kind of, fell into place and all the information started to make sense and I found ways to connect each module to each other." (Laughs)

Diane was emphasising that as she progressed through the first year, she started to notice the connections, recognising the links between information from different modules and experiences. It was not something that she recalled being taught or having to learn explicitly. It was almost as though there was a process of discovery, as Diane gained familiarity with one code, so a more complex code (which previously, she would not have recognised) could have an affect and produce a response. For Aida, it did not happen so easily, as she explained:

> "I think the hardest part is linking the knowledge learned in class into practical – using it practically. For example, like we learn about the pathology, like stroke and something. In practical class we have to think about the clinical features and how it might affect the patient's living. We have to think about some special questions to ask them and also some specific tests to do on them – so I think this might be the hardest part – linking different modules stuff together"

It might have been that Diane's capacity to decipher the various codes was stronger than Aida's at that point (because of previous life experiences). For Diane, understanding

seemed to emerge from the easy territorialisation of the classroom assemblage, while for Aida the process was slower, more difficult, again illustrating the different pace of each students becoming.

By the end of the first year, all of the students demonstrated an understanding of the diversity of physiotherapy knowledge but after engaging in professional practice, an even more complex and unique understanding emerged, comprising elements from a broad range of different sources and presenting in a different way, depending on the context. Grace's reflection captures this, clearly presenting physiotherapy knowledge as a multiplicity:

> "I think it is very important to find out about the patient's social situation because once you know the situation a person is in, it also deeply affects how you treat the person – so the environment the person lives in, his family and whether they support him or not. I think it is very essential to understand how to treat a person because everyone is different from each other and the way you deal with everyone is different, so I guess it is really important."

Grace recognised that in assessing the patient, she needed to look at their physical abilities (relating to anatomy, strength, movement) but also explore the patient's home environment and social situation. She clearly grasped the important point that all patients are different, requiring the therapist to interact with different sources of knowledge in order to engage with them. Looking at such a situation through a post-humanist lens, knowledge is viewed as an immanent property of the productive patient-therapist assemblage. It is only through the unique interactions in that moment that a particular *version* of professional knowledge emerges.

Viewing physiotherapy knowledge as immanent, as a complex, dynamic property which emerges from a particular assemblage, and presents differently depending on the context and components of the assemblage, aligns with Deleuze and Guattari's (1983; 1987) concept of a multiplicity. Traditional Greek philosophers searched for the 'one thing' which unites everything in reality (Ge 2016), but Deleuze and Guattari (1987; 2009) opposed this, instead proposing the idea of multiplicity (for example, the machine, the assemblage, flows and intensities):

"It is only the category of multiplicity, used as a substantive and going beyond both the One and the many, beyond the predicative relation of the One and the many that can account for desiring-production: desiring-production is pure multiplicity, that is to say, an affirmation that is irreducible to any sort of unity."

(Deleuze and Guattari 1983: 42)

What is essential to understand about Deleuze and Guattari's work is their opposition to the idea of ascribing bodies with a specific identity and essence, arguing that everything is continually changing, growing shrinking, connecting, disconnecting. Thus physiotherapy knowledge cannot be pinned down to a specific definition and specific content. Like the profession, knowledge is always changing, developing, responding to the environment (WCPT 2019a). Thus not only do individual students express different capacities (relating to physiotherapy) at different times, progress through their course at different rates, but will experience physiotherapy knowledge differently, depending on their experience. Thus this rhizomatic view of knowledge and knowledge development argues strongly against the current trend for standardised approaches to teaching and learning with targets for attainment.

Conclusion

During the first year at university, students experienced challenges in deciphering a range of unfamiliar codes which presented challenges to students' ability to form friendships and engage with learning activities both in and out of the classroom. However, all students were able to quickly decipher a wide range of cultural codes which they encountered in the classroom, socially and on practice placement. The codes around communication were complex, and presented challenges in different ways throughout the three years and in each case, different students found different ways to decipher these codes so that they were able to interact effectively.   It is important to recognise the complexity of language code for 'international' physiotherapy students and Aida captured this in one of her reflections:

"Communication is a very, very big part because it is where you can get the information from the patient and find out what their preferences are and decide the

most suitable treatment for them and best approach - and also you can get feedback from the patient - how is your treatment and how it should be adjusted – I think it is very important for these to happen. I think communication plays a very important role in physio and also with good communication, the patient is more willing to have faith in you and have faith in the treatment"

Aida emphasised how it is through communication (in its broadest sense) that we affect each other and can be affected and initiate interactions from which friendship, physiotherapy knowledge or healing may emerge. One of the key themes of this chapter is change and how quickly students gained familiarity with the culturally different behaviours of other students, tutors and patients, building the capacity to be affected by them (and respond in a way that affects others). The rate of change was unique to each student and dependent on their past experiences and on the contexts they encountered as students but in all cases contributing to their capacity to communicate with others. Finally, this chapter has also highlighted how it is through communication (in its broadest sense) in different contexts, that physiotherapy knowledge emerges in the form of a complex multiplicity, comprising a diverse range of entangled elements, which present differently in different situations. While this chapter has discussed the way in which 'international' students' becomings are impacted by a lack of familiarity with the codes of a particular learning context, the following chapter will discuss ways in which becomings can be enhanced through actions which emerge from capacities within the students themselves, using another of Deleuze and Guattari's concepts, the refrain (Deleuze and Guattari 1987).

Chapter Six: Enhancing Becoming through the Refrain

"When I'm afraid I tend to stay with something I'm familiar

with, so now I'm more confident, I can try some new

challenges - I have more chance to group with other people

and express my opinions so I have become more involved

and less lonely."

(Aida)

Introduction

The previous chapters highlighted the many challenges 'international' students faced as they arrived in a new country, some of them leaving families for the first time, communicating in their second language and having to engage with a new way of learning. It was an unsettling time, with many students expressing feelings of stress, fear or even loneliness. However, it was remarkable how quickly students seemed to decipher the new social and cultural codes, so that while language remained challenging for some time, they were able to engage with study and form friendships. Aida's reflection on her experience of engaging in classroom activities during the first year at university sheds some light on how she adjusted to the new environment:

> "Sometimes the tutors mix us up but most of the time I am with the Hong Kong students so there is less chance to speak with home students. We [international students] don't usually speak in class - when we are speaking, we usually ask something that we don't understand, to each other – so we will use our mother tongue. I'm not very outgoing, and maybe when I speak in my mother tongue, I would be more confident but in English I have less confidence to speak - and also I have to think how to present my ideas so I have many hesitations and can't speak very fluently. So it is hard to be talkative when you are not fluent"

Aida acknowledges that she spent most of her time in class with other Hong Kong students and if they did not understand something, they discussed it among themselves using their mother tongue, rather than asking the tutor or British students. It was through this shared communication code that successful interactions occurred, allowing territorialisation of

assemblages, from which emerged, not only enhanced knowledge around the topic, but friendship and a sense of belonging. On entering this unsettling situation where students were grappling with a new approach to learning, with new materials and ideas in the classroom and trying to understand the learning activities in their second language, it is not surprising that connecting back with the familiar (in this case, the familiarity of their mother tongue) provided a sense of stability. This idea of finding comfort in the familiar is evocative of Deleuze and Guattari's (1987), concept of the refrain, a complex notion which refers to the way that previously occupied territories can be extracted from one context and placed in another to provide stability in uncertain times. I present a novel use of this concept and argue that in this context, the rhythm and sound of the students' mother tongue is a refrain, providing the students with comfort and stability in an unfamiliar physiotherapy classroom.

In this chapter I explore the notion of the refrain, outlining the three different forms described by Deleuze and Guattari (1987): as a comfort in unsettling times, as a circle to define a territory and thirdly the open ended refrain which acts as a catalyst to becoming. In this final section I argue that the physiotherapy imaginary described by many of the students, functions as such an open ended refrain, accelerating students' becoming. I also introduce a new term: the closed imaginary, which may act to limit students' becoming physiotherapist.

The Refrain: Providing Stability in Uncertain Times

Deleuze and Guattari (1987) devote a chapter in A Thousand Plateaus to the refrain. They argue that in the presence of chaos, a refrain provides some stability, as alluded to in this relatable story:

> "A child in the dark, gripped with fear, comforts himself by singing under his breath. He walks and halts to his song. Lost, he takes shelter, or orients himself with his little song as best he can. The song is like a rough sketch of calming and stabilising, calm and stable, centre in the heart of chaos. Perhaps the child skips as he sings, hastens or slows his pace. But the song itself is already a skip: it jumps from chaos to beginnings of order in chaos…"   (Deleuze and Guattari 1987: 362)

The little song (a refrain) is well known to the child and through engaging with it, he territorialises an assemblage comprising the song and all those thoughts associated with the song: perhaps thoughts of his mother or siblings, perhaps the nursery where they played and sang the song. Thus, in the terrifying darkness, the song provides him with comfort, stability, structure. As a focal point of reference in the presence of chaos, Deleuze and Guattari (1987) define the first of three different aspects of the refrain. In his interview with Claire Parnet (Deleuze and Parnet 2011), Deleuze reflected on this aspect of the refrain, recounting how *he* may sing the same song while going about everyday household tasks, and again while away from home in the dark and also to give him courage when in pain. Through this example he highlighted how the refrain is repetitive, rhythmical and moveable. It is an integral part of the stable, comfortable home territory, but Deleuze is able to bring this little segment with him as he faces the uncertainty of the outside world in the dark, or the pain of an unknown disease; and through engaging with the refrain, comfort and stability is introduced to a chaotic situation.

I noticed something similar in the stories of the students from Hong Kong as we talked about the challenge of settling into university in a new country, surrounded by people speaking a different language. Ayesha was surprised and delighted when she heard her mother tongue spoken widely around the campus and in the city:

> "I was like - OK this is weird - I don't have the feeling that I'm a long way from home because I hear the language everywhere. If you go into the city centre there are like, at least 20 Chinese restaurants and you have a Chinese supermarket, so for me, for the first month I was like - this is not what I think of western culture – I thought being in a foreign country I wouldn't understand any of the language – it doesn't feel so foreign or western as I imagined."

The sound and feel of one's mother tongue is comforting and hearing it as Ayesha walked about in a foreign city, connected her to her home, making the city feel less foreign. In a similar way, students explained how they slipped from English to Cantonese freely, especially during classroom discussions, for example, Aida explained:

> "We talk about things in class in a mix of two languages - for the more professional terms we will still use English but for some linking words we will speak Cantonese."

This was very common among the students. It was interesting to me, as they all spoke English well and by the third year had successfully completed many weeks working in professional practice, communicating successfully in English with hospital staff and patients. However, even after all this time, when groups of students were together, they used this hybrid language in their informal professional and social conversations, as though somehow the refrain had become incorporated into their friendship assemblage. Interestingly, this practice of switching between English and mother tongue was not specific to the 'international' physiotherapy students. It has been widely discussed in relation to the behaviours of 'international' students engaging with a range of disciplines, and is defined as translanguaging (for example, Wei 2018 and Liu, Deng and Wimpenny 2022). However, it has not been interpreted in this way in previous research. Viewing this practice as a refrain suggests that it may be valuable to 'international' students for supporting mental health during the early days in university, and should not be discouraged (which I explore further in Chapter eight, pages 175-177 in a discussion around mixed nationality student groups).

Perhaps in the early days, the sound, feel and rhythm of their mother tongue provided the 'international' students with comfort (a function of the first aspect of the refrain) but it also marked out a territory, their unique friendship group, a feature that Deleuze and Guattari (1987) ascribe to a second aspect of the refrain. In this aspect, the refrain is able to "draw a circle around that fragile and uncertain centre, to organise a limited space" (Deleuze and Guattari 1987: 362). In other words, the sound, feel and rhythm of the students' mother tongue marked a territory in that group, isolating those students from the uncertain, outside world. However, the refrain is fragile and Deleuze and Guattari (1987) stress that if broken, chaos would return so that neither the refrain nor the territory it created, would remain. This might happen in the classroom when a tutor splits the students into mixed nationality groups, and might explain why the students disliked this so much (as I discuss in detail in Chapter eight, page 175).

Many of Deleuze and Guattari's discussions around the refrain centre on familiar sounds and music, possibly because of their striking rhythm and repetition. The emphasis on repetition begs the question of how the refrain contributes to becoming, to change. Jackson (2016) addresses this by making explicit the difference between repetition and rhythm. While repetition suggests the same thing recurring over and over, rhythm is the 'in

between space' where difference is generated. It is the rhythm that is becoming, that allows interactions between contexts. The repetition is recognised (providing comfort and stability) but the rhythm moves on, introduces difference. Rhythm and repetition are also evident in ritualistic behaviours such as the expressive courtship dances of animals or the games children play, which Deleuze and Guattari (1987) also refer to as refrains. It is easy to appreciate the rhythm of music and song, interspersed with repetition of musical or lyrical phrases, but the rhythm of ritualistic behaviours are less obvious. It is familiarity that produces the affect and the predictability that gives the rhythm and I noticed this in Diane's story as she reflected on her feelings of homesickness during the early days at university:

> "I have a lot of video chats with my Mum - we have this tradition that every day at 6, we would watch the same TV show – it's a quiz show in my country – so we watch that together, just answering the questions together. Now every day I would rush home to not miss it. And sometimes my dad, even would be like - OK, how was your day? It just keeps you feeling very uplifted that you have your own team behind you that is supporting you throughout the whole experience - it's just a good feeling really."

Diane's joy at connecting with her family was palpable, and I could clearly picture them returning to their bubble each evening to engage in the daily quiz. This refrain provided comfort and also provided a safe territory for Diane, which she could rely on, no matter what happened during the rest of the day. There was a predictable rhythm to walking home from classes, calling her mother, listening to the quiz and sharing ideas (along with the comfort of interacting in her native language).

I noticed the use of a refrain in several of the 'international' students' stories at different stages of the course. For example, Rosie talked about a particularly difficult practice placement, where she was working with children on an acute paediatric ward:

> "Working with the younger patients quite difficult as some of them were quite poorly, so it was kind of emotionally testing. But then in week three, it was really interesting as I was seeing a patient with the same respiratory condition as my little niece. I was seeing this little girl twice a day, and she was actually the same age as my niece. (Smiles) It was like a standard two-week course of antibiotics so she wasn't very poorly, but I kind of, felt I was able to communicate better with her (smiles)

> because she had the same interests as my niece, so I was able to know what kind of things children like to talk about, and playing and stuff. (Laughs) So it was really good."

In the midst of this emotionally challenging placement, Rosie recalled the memory of playing with her niece as a refrain, to help enhance her interaction with the sick child on the ward; calling to mind the rhythm of the games and chatter she had with her niece, and implanting it into this new context.

In uncertain times, we can view the refrain as a link to that with which we are familiar: a comfort, or we can view it as a territory, a safe bubble where we are isolated from the chaos outside, but the third aspect of the refrain relates to when the bubble bursts, and opens up to a different direction, or into the future. Here the refrain improvises, moving into new territories (Deleuze and Guattari 1987). Santibanez (2022) recounted the comforting ritual of cuddling a teddy bear in bed as a child. Then he recalled falling in love at high school, and because he and his girlfriend were forbidden to sleep together, they exchanged soft toys to sleep with, symbolising that they were sleeping with each other. That ritual of cuddling a soft toy in bed "brought a feeling of dependency, wanting contact, and the security of a loving other" (Santibanez 2022: 4), a similar ritual to when he cuddled his teddy bear as a child, but in this new context as a young adult, emerged new thoughts and dreams of the future with his sweetheart. The teddy bear represented this third type of open ended refrain, moving Santibanez's imagination to a new place in the future.

Jackson (2016) explored all aspects of the refrain in a study of the athletic motor skill, the backflip, within a cheerleading dance routine. As part of the dance, the backflip stood out as both part of the dance but also separate: part of the territory and rhythm of the dance but also a dangerous, breath-taking segment for the audience. Jackson (2016) scans smoothly across the complexity of the dance, viewing the backflip as a dramatic fragment of the dance, then to the girl who performs the backflip. She highlights how the backflip, while an integral part of the dance on that day, did not originate there, but years before as the girl practised the move on a trampoline, practised in her garden or in the gym; it was "an ontological signature" (Jackson 2016: 189) for the backflip girl. While it was the girl who performed the backflip in the dance, it was the backflip that created her as the outstanding back-flipper. This also highlights the fragility of the refrain: it can be broken easily and result

in chaos, for example, if the backflip girl was distracted as she approached the move, or if Deleuze forgot the words of his soothing musical refrain in his time of agony. Jackson's (2016) example of a refrain emphasises its movability and its role as a catalyst for territorialisation and improvisation. Deleuze and Guattari (1987) emphasise this point, explaining that as a catalyst, the refrain "not only increases the speed of exchanges and reactions in that which surrounds it, but also to assure indirect interactions of elements devoid of so-called natural affinity" (Deleuze and Guattari 1987: 405). In the cheerleaders' dance, the rhythm draws together the dancers and the audience, and as a catalyst, the backflip grips those already engaged and *also* draws in others, awakened by the anticipation of danger or a fleeting glimpse of the back-flipper's trunks!

Returning to the 'international' students becoming, I argue that the idea of the refrain as a catalyst to becoming, could explain the ease with which the students' engaged with practical classes (as described in Chapter five, pages 108-111), which I referred to as the familiar code of physicality (Chapter five, page 111). The majority of the students shared stories of sporting activities in their childhood and all of them shared experiences of observing physiotherapy before university. It might be that in the practical class as they engaged with exercise or handling each other's limbs, they called to mind vivid memories of physical experiences from their pre-university experiences in sport, as a refrain and engaging with this open ended refrain thus accelerated their becoming

In a similar way, when students face clinical scenarios on professional practice placement, they are able to draw on the well-practised motor skills learned at university as a refrain, which I argue, explains the apparent ease with which students made the transition to professional practice placements (as discussed in Chapter five, pages 111-112). In the unfamiliar environment of a new practice placement, engaging with the first type of refrain brings stability and comfort to a student, for example using the well-practised, rhythmical methods for helping a patient to stand up from a chair or get out of bed. In addition when faced with new experiences, engaging with the open ended refrain accelerates the development of new skills. Viewing physiotherapy practical skills in this novel way has two important implications for physiotherapy education. Firstly, it highlights the value of previous experience of physicality to the development of physiotherapy practical skills (suggesting that this might be a useful criterion to include in the selection process for

admission to the course). Secondly, it highlights the value of students spending time practising key motors skills in their pre-placement time in university (a point that was recognised by the 'international' students themselves, as Nikki explained, page 116)

The Refrain as a Catalyst to Becoming Physiotherapist

An appreciation of the different aspects of the refrain and its function as a catalyst to territorialisation, struck a chord with me, and in particular Deleuze and Guattari's (1987) reference to a particular behavioural example of the refrain: "the professional refrain that territorialises trades and occupations" (Deleuze and Guattari 1987: 380). It provided me with a framework to understand Willow's story. Her narratives had perplexed me for a long time, as they were so strikingly different to the other 'international' students' stories, particularly in the way she interacted with the 'home' students. From the very beginning, Willow sat with the 'home' students in class, and quickly developed a strong friendship with that group of students. Not only was Willow different in her behaviour but also in her thinking. During our first conversation, Willow talked about how she recognised that an important part of her learning would be to develop her communication skills in preparation for her clinical placements. She seemed to have an image of how things might be in the future; a vision of herself as a practising physiotherapist. I was astonished at Willow's insight into what her clinical placement would involve and that she was thinking about it more than a year before she would actually experience it. This was something that the other students did not seem to recognise and articulate until much later in the course.

This idea of an imaginary is widely acknowledged in sociology and has been defined as:

> "the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations."

(Taylor 2004: 23)

I will use this term to describe the image in thought that Willow (and other physiotherapy students) described, of their future selves engaging in physiotherapy practice and in the following section I argue that it provides an example of the third type of refrain.

The Physiotherapy Imaginary – A Refrain

Over the three year period during which I met regularly with the 12 'international' physiotherapy students, I noticed that they all referred to imaginaries of themselves as a practising physiotherapist at different stages, usually only after the first professional practice placement, in the second year of the course. Willow was different. Right from our first meeting, she alluded to a vision, a mental imaginary of the physiotherapist she hoped to become and was very aware of how she needed to develop herself to actualise that image. Our early conversations provided insights into how that imaginary had developed:

> "When I was young, I loved doing exercise and I learned what I want to be. I think being a physiotherapist is my dream, so I have more passion for learning and to do more research on what I want to know. I would like to understand more deeply why we have pain and how we can relieve the pain - and what are the mechanisms. But I would also like to understand more about the UK culture and to improve my communication skills because when I have the clinical placement, I have to speak in English and not in Cantonese so I think it is good for me to speak more English and then understand what topic my classmates like to talk about, so that I can have more confidence to speak in the clinical placement.
>
> I think it is also good to separate from them ['international' students] because I want to listen more and speak more English rather than speaking Cantonese because when we go into placement we cannot speak in Cantonese and I think if I just go with the international students, I couldn't improve my English and then it may affect my placement."

As she spoke to me about this "dream" of becoming a physiotherapist, her eyes lifted, and she smiled blissfully. I could almost perceive her vision, as she recounted her memory with a real hunger. I found her passion captivating and felt it physically affect me, drawing in my

attention to her story. It was almost as if the interaction between Willow and this imaginary produced a desiring machine, driving her becoming physiotherapist; as though it was a real entity: the manifestation in thought of the physiotherapist Willow was becoming. I had not felt such passion in conversations with the other students at this early stage, which may have been because our connections were not sufficiently strong for such sensitive feelings to emerge. Alternatively it could have been the *catalytic function* of the refrain, drawing me in and binding me to Willow and her story, in that moment.

As I listened to more of her story, I learned of the rich experiences relating to physiotherapy, with which she had engaged before coming to the UK and I started to understand the source of the refrain:

> "I'm so interested in doing exercise and sports and luckily I always need to do physiotherapy to help me, especially with knee pain. Then I studied a course in rehabilitation studies in Hong Kong and I find out that I am interested in physiotherapy, by doing some treatment like TENS and ultrasound. Then after I understand that UK physiotherapy is different to Hong Kong and UK is mainly focused on manual therapy, and I thought manual therapy is so interesting. I think it is so amazing to palpate patients, like the knee joint or for joint pain…

> …I did a placement in a physiotherapy clinic and I gained lots of experience there and I met lots of different diseases like frozen shoulder and I helped my physiotherapist to assist the patients. I was so happy when I saw their improvement, especially doing the therapy, doing palpation and things like that. Then I provide some treatment - not only manual therapy but something like acupuncture and it made me feel that is so amazing how therapy can help the patient. I can see his improvement has greatly helped him a lot and I find it such a surprise (*smiles and looks directly at me*). I want to learn more manual therapy because I think it is a speciality and hard to learn."

The many flows weaving through Willow's becoming are clear from her narrative: the engagement with sport and exercise from a young age, her delight with helping patients in their recovery process, her passion for manual therapy, and its links with the UK. All of these flows conspired to draw Willow to the physiotherapy course in the UK. Her story also

highlights multiple interactions between her and the different elements which affected her (sport, exercise, physical injuries, physiotherapy, physiotherapists, patients) and hints about affects, responses, assemblage formation, desire. As she recalled her knee injury as a schoolgirl, she seemed to view pain in a positive light as it was the pain which triggered the "need" for physiotherapy. Desire was evident in the way Willow emphasised the key words, "sport - exercise – luckily – pain – need – physiotherapy" and the urgency of her story telling clearly demonstrated *desire* emerging from the interactions between the different unfolding and entangled stories, an immanent property of the interactions, which drove the direction of her becoming.

Willow seems to view the *dysfunction of the patient* separately to him as a person: "I can see his improvement has greatly helped him a lot and I then find it such a surprise", suggesting that 'becoming well' was a line of flight away from 'becoming disabled'. This description evokes the image of a dynamic productive assemblage, comprising Willow, the medical equipment, the individual patient and the patient's pain and dysfunction, whose output comprised the patient becoming well and Willow becoming physiotherapist.

Willow also talked joyfully about the physiotherapists she had observed during her clinical placements while at college in Hong Kong, and had a vivid impression of the skills and attributes she observed during the therapy interactions:

> "They are so kind and patient and also talkative - they talk to the patient all the time. I loved to talk to the patients and not only ask them when the pain started and how they did it, but I also chat with them about nice experiences, such as travelling, and I found that I enjoyed talking to the patients. I think you have to be careful and responsible because you have to respond to everything, not only what you think, but also what you say, as the patients will memorise what you say. And being careful is also important because when you treat the patient, they may feel pain and maybe they do not want to tell you to stop, but say it's OK - but their face is getting wet and then I have to be careful"

I was astonished at Willow's detailed insight into the essential elements of the therapy interaction, at such an early stage in her physiotherapy degree. She recognised that the communication between therapist and patient was more than simply the therapist inquiring

about the presenting problem; instead, the consultation involved a complex interaction involving verbal and physical behaviours and detailed sensory perception. Rather than viewing the interaction as between two people (therapist and patient), Willow's description presented the patient as a multiplicity (using the pronoun "they" and "them") and presenting 'the patient with problem' as just one aspect of the multiplicity. She highlighted "kindness, patience and talkativity" as emergent properties of this interaction and recognised those properties in her own interactions with patients. Willow also demonstrated empathy in the interaction with the patient, as she the noticed the mismatch between the patient's verbal communication and bodily communication. By interacting with her own memories of being in pain, she was able to recognise the bodily communication as the expression of the person's pain in that moment in time.

This detailed and complex description by Willow suggested that through those many experiences, a strong internal physiotherapy imaginary had developed which was, in Spinoza's terms, the manifestation of substance, in thought (Spinoza 1677) a territory in its own right, which might be portable; transportable into the chaos of university in a different country, where she knew nobody. This imaginary might be the refrain that steadied Willow and drove her towards becoming physiotherapist, at a significantly faster rate that her peers.

The interactions between Willow and this physiotherapy imaginary had a strong affect on her physically, as demonstrated in the pleasure she expressed in the stories. It was fascinating to see her excitement peak when she talked about manual therapy, a form of physiotherapy in which there is a strong physical interaction between the therapist and patient, with the therapist sensing reactions in the patient's body through their hands and responding physically, for example with pressure or movement. Willow was aware that this approach to physiotherapy is more common in the UK than Hong Kong. Her description of this approach triggered delight in myself as I observed her raise her eyes and smile as she imagined engaging with this practice: "it's so amazing to palpate patients, like the knee joint or for joint pain…"

With an insight into Willow's previous experiences and her engagement with the physiotherapy imaginary as a refrain, her behaviour during the early days of university seemed perfectly natural. While the 'home' students' fun-filled conversations in English

seemed confusing or intimidating to many 'international' students (producing an affect in them which restrained their action), the affect on Willow, produced a different response; through her engagement with the refrain, she was attracted to them, recognising behaviours and quickly deciphering social codes. Her initial interactions were not easy: but the powerful desire resulting from these interactions, strengthened the connections over time, so that not only did Willow perceive a change in her own capacity for communicating in her second language, but an additional output emerged from these interactions: friendships. Willow acknowledged this as a wonderful but surprising side effect, as she reflected on *becoming friend* during the first year of her degree:

> "Firstly, I was a little bit homesick, but not anymore because I get lots of friends here and they are so nice and helpful to me, and they encourage me to speak English all the time. And if somebody asks a question, they look at me and then try to let me answer first.
>
> I was so surprised that they invited me to join them and let me join with their activities. One day we went to the Museum and I learned more about UK culture and about how they think. I learned that UK people love drinking. I'm not, but I quite enjoy going in the pub! (Laughs) I think we are getting closer and closer to each other and I can understand more about the things they love, such as one of the friends likes making cakes. He said he would like to make a cake for me - for us to try it – he asked what is my favourite cake and they still remember it! I would like to make some seafood or fish for them, for them to try it."

Willow's narrative clearly demonstrates the to-ing and fro-ing of the blossoming friendship group interactions, as all of the students learned about each other. The 'home' students seemed to recognise that Willow wished to practise speaking in English and subtly provided opportunities for this in class. There was a deepening understanding across the group as they learned more about each, so adapted their responses to please each other (for example through cooking and eating together). The evolution of the friendship assemblage is evident, where connections are strengthened by a desire for the shared pleasure of learning, belonging, connecting.

Willow was unique among the 'international' students in the way she engaged with an open ended refrain in the form of the physiotherapy imaginary, at such an early stage in the

physiotherapy course. In those early days, most of the students' stories referred to the refrain as a circular territory, providing sanctuary in an unsettling time (for example Diane's daily video call to her mother, or the groups of students speaking in their mother tongue in the classroom). Willow's open ended refrain seemed to act as a grappling hook projecting into the future and pulling Willow forwards, accelerating her becoming physiotherapist.

The Emergence of the Physiotherapy Imaginary

While Willow seemed to arrive in the UK with a ready formed physiotherapy imaginary, I noticed the other students referring to memories, thoughts and ideas relating to becoming physiotherapist, which over time seemed to intertwine into their own unique imaginary. During the early part of the course, many students described vivid *memories* of the physiotherapists they had observed, which were very *separate* to each student's mental image of themselves, for example:

> "I observed physios in Hong Kong and they were very caring and talkative to encourage the patients. I think they were very good at multi-tasking because they were very busy and there are a lot of patients in Hong Kong that need physios. And they have good problem-solving skills - they just ask a few questions and they already know what problem you might be having – so they are very professional.
>
> (Aida)

> "They were very social and very good at communication, and very positive outlook on life. They were also very smart and looked at things in depth. They looked broader in different people because nobody is the same."
>
> (Diane)

"I think they were really kind, like they really wanted to help
the patients, and not just care about the job and the salary.
They really want to help people from the bottom of their
heart."

(Kim)

Kim, Aida and Diane's descriptions are clearly m*emories* of the physiotherapists they met in
the past, rather than *imaginaries* of what they might become. However, Rosie, Mary and
Natalie's recollections were slightly different. In their stories, it is clear that the memories
of physiotherapists from their past are becoming entangled with their own inner image of
themselves:

"Everyone just thinks physiotherapy is sports, but it's more
about good communication skills, like a caring nature and the
desire to help people get better. I guess I have good enough
patience because back home I do a lot of coaching with
children, which can be a bit tricky, so you have to remain
patient. And I think I have a helping nature, so like I volunteer
quite bit, back home."

(Rosie)

"I think that physios are very talkative because when I started
to study physiotherapy, I noticed that it is very important to
find out about patients - like how they are doing and how they
get injured and how they overcome their difficulties – like it is
really important to talk to them to assess them. I'm trying to
be more talkative but I think what I have is thinking positive – I
like to encourage people to have treatment and tell them to
believe that they are going to be better."

(Natalie)

"I think they are caring because you need to help people in

order to do this job and you need to care about the patient's

feelings, like maybe if they are stressed or have problems. I

like caring for people and I'm a helpful person and also I'm

really talkative so it helps - like doing physio, you need to

communicate with people a lot."

(Mary)

It might be that as each student repetitively interacted in thought, with multiple memories of different physiotherapy experiences, these memories became entangled with their image of themselves and developed into the physiotherapy imaginary. While this is only speculation, it is certainly an interesting aspect of becoming physiotherapist that warrants further exploration.

The Closed Imaginary Limits Becoming

Through many conversations, it became apparent that students seemed to interact with a range of imaginaries in thought, and I have presented these imaginaries as portable segments of a previously occupied territories. While the open-ended refrain (in the form of an imaginary) seemed to accelerate becoming, as in Willow's story, I noticed the presence of (what I have termed) closed imaginaries which seemed to actually limit becomings. One such example came to light in a conversation with Ayesha, where she shared her observation that many of the 'international' students focused on *passing assessments* rather than *becoming physiotherapists.* It seemed that the interactions between these students (who Ayesha termed "exam machines") and the *exam-passing imaginary*, influenced these students' responses to the affects of the different learning materials they encountered during the course:

"Some students think they only need to learn what is on the marking criteria, but to

me, I know that even if I get through the exam, if I don't know all the things, they

may come again in the next semester, and then the next semester will be so painful

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for me. I just think, like - do I need that in the future when I go out on placement or for my future practice? I want to try to be prepared in a holistic way so I won't come out just being an exam machine that does good in examination but fails on placement. To become a physiotherapist you can't learn as an *exam machine*."

Ayesha demonstrated remarkable insights into her thinking, indicating the presence of an open ended physiotherapy imaginary, projecting forwards to a future time when she would be practising as a physiotherapist. Interestingly, like Willow, Ayesha had had a lot of experience of health care before she started the course, from which emerged a *health-care imaginary*. During her time at university, this developed further, into an open-ended refrain, a catalyst to becoming physiotherapist. In contrast, the students Ayesha referred to as "exam machines" interacted with an imaginary which projected only as far as the exam. Thus when encountering learning resources at university, they would be more receptive to affects which they recognised as relating to the exam (rather than relating to becoming physiotherapist).

Nikki shared a more personal insight into her own interaction with imaginaries. Unlike Ayesha and Willow, Nikki found the course very challenging. She was often quiet and despondent in our conversations but during the final year of the course, I noticed a dramatic change in her as she recalled an extraordinary, emotionally powerful experience with a patient during a practice placement. From this encounter, at a much later stage in the course, emerged a physiotherapy imaginary which drove Nikki's becoming at an accelerated pace for the rest of the course:

"All through the course, I only think of getting a pass! (Laughs) That's a bad thing, I know 'cos I was focussing too much on getting a pass so I wasn't enjoying the course. I thought I was doing enough to get a pass but halfway through this placement, I learned I was failing **ALL** of it. After I fail the halfway point, I had a click – it's like now I know what to do! Then I passed my placement! (Laughs)

The thing that made the click is this one patient. (Smiles) She was the first patient that my educator gave me that I can do by myself, and I was so scared. She is the click 'cos every day I saw her, she gave a lot of positive energy. I was shaking and very shy and very scared but she talked to me – she always start conversations like

telling me 'you are fine' – 'you are doing better' - and when I saw the progression she made at discharge, I nearly cried! (squeals and smiles, laughing)

At the beginning I talked very softly - like no confidence, but she knew that I knew what to do - so she distracted me and she kept talking to me like 'where you from?' - asking me a lot of questions, just like my grandma, so I don't feel so stressed. She gave me confidence. I feel like when I saw the progress she was having, I saw I had helped her. So I think that's the click I was talking about!

Before her, I just thought about passing each placement, just to graduate. But after her, I feel like it's the thought that I want to treat the patients to try to help them recover, that is important, rather than thinking about getting a high score on placement."

Ayesha's metaphor of the "*exam machine*" captured the way Nikki described herself well, but after the experience with this patient, there was a dramatic change, where Nikki's focus moved from *passing exams*, to *becoming physiotherapist*; her imaginary changed from being *closed* to *open ended*. Something about this particular patient was important to Nikki. In this clinical milieu, Nikki was able to decipher the social code and be affected by this patient (perhaps she reminded Nikki of her grandma or her behaviour may have implied a certain kindness or understanding of Nikki's nervousness). Nikki's behaviour clearly had an affect on the patient, causing her to respond in this compassionate manner, which resulted in the rapid territorialisation of a productive physiotherapy assemblage from which emerged the physiotherapy imaginary.

As students shared stories around their first practice placements, I started to notice that many of them alluded to an imaginary around professional practice, which seemed to have a negative affect on their becoming. Kim's story is typical and highlights how the imaginary with which she engaged before her placement was responsible for her initial fear of placement. She gushed with pleasure as she described the actual experience, surprised that not only was it not scary, but highly enjoyable and a profound learning experience:

"I think it was much better than I expected. I thought it would be a really scary experience. I thought it would be more of me just standing and observing people do things but it was completely the opposite. I was working all the time - with different

members of the team, handling patients. I got really emotionally attached to the ward as well, by the end of it. I felt really sad when I left the ward. I was like "Oh no – the placement is over!" (Laughs) It was really interesting - beyond just being a physio. I think I grew as an individual as well, while being on placement, just being more compassionate, just sitting there and listening to people and I think emotionally it really helped me to grow."

Kim's fear and anxiety in anticipation of her first placement infers the underlying affects produced by this *placement imaginary*, which may have emerged from Kim's previous interactions with thoughts about how her placement *might* be, stories she had heard or read about. It might be that the fear experienced by many of the students in anticipation of practice placement could be diminished by structuring focused preparation in university to facilitate the production of a more authentic and open ended imaginary, one which more closely resembled professional practice. Interestingly, it transpired that this sometimes happened informally, as Aida explained:

"I'm always afraid of starting a new placement and it makes me even more stressed to talk in English. But now I have some friends who have already been on placement so they can share their experience with me. They told me about what goes on, on placement and what they do during each day – so as I know more about how the placement will be, I am less stressed so I think will be able to talk more fluently when I'm less stressed."

This thought-provoking reflection suggests that Aida's interaction (in thought) with the imaginary relating to the forthcoming placement, restrained her action relating to communicating in English. Interactions within the friendship assemblage, generated insights into the structure of the placement environment and associated codes, resulting in the emergence of new imaginary, which aligned with the forthcoming placement more closely. Thus when Aida entered the new environment, her attention was not drawn to decoding the new structures and systems, instead she was able to focus her attention on the people she met, engage fluently in English: listening, observing, being affected and responding, becoming physiotherapist.

From conversations with the twelve international students it appeared that for an open ended physiotherapy imaginary to emerge, a certain entanglement of thoughts were required, including memories of experiences with physiotherapists and an understanding of the codes and structures of clinical practice. It was only through repeated interactions with these thoughts that the physiotherapy imaginary emerged. This certainly has implications for physiotherapy education. Firstly these stories have highlighted how spending *time* gaining familiarity with structures and codes in advance of entering a novel situations would mean that not only would students be spared the anxiety of anticipation, but would have built capacity to be affected by experiences in clinical practice and to be able to affect others. An understanding of the physiotherapy code, is an essential factor for the emergence of the physiotherapy imaginary. This provides an argument for pre-placement students interacting with students who have already completed practice placements (as Aida suggested) and also engaging in observational placements early in the course to provide them with an opportunity to begin deciphering the physiotherapy code and subsequently building capacity to be affected by learning resources introduced in the classroom which aim to enhance becoming physiotherapist.

In addition, these stories have highlighted one of the negative impacts of assessment. Assessments produce a strong affect on students, with the potential to drive the development of an *exam-passing imaginary*, comprising an entanglement in thought of exam criteria, with associated codes and behaviours. While interaction with this closed refrain might fuel the behaviours required of exam success, it might actually limit becoming physiotherapist. Certainly this is beneficial if exam success equates to an increased capacity for recognising the physiotherapy code, but (as discussed in Chapter five, page 117), physiotherapy knowledge is a multiplicity and understanding a single thread (which may be demonstrated though exam success), might be at the expense of a more holistic becoming, particularly when there are a large number of assessment points across the academic year (as in the physiotherapy degree). The concept of a physiotherapy imaginary as a catalyst for becoming physiotherapist, might provide an argument for reducing the number of assessment points and the consideration of type of behaviours to include in criteria for passing.

Conclusion

Through this chapter I have discussed the three forms of refrain and explored how students' becomings can be enhanced through engaging with familiar previously occupied territories. In the early days at university, Diane found comfort in engaging in the daily ritual of the TV quiz with her mother. A group of Hong Kong students "drew a circle" (Deleuze and Guattari 1987: 362) of stability around themselves by using the refrain of their mother tongue, as they engaged with learning activities in the English language mediated classroom. The third type of refrain is an open ended circle, and acts as a catalyst to becoming, as illustrated through Willow's interactions with the physiotherapy imaginary. From the discussion around this open ended imaginary, I have introduced the novel idea of a closed imaginary, which projects to a specific time (such as an exam or a placement) which may actually limit becoming physiotherapist. The concept of the refrain has provided a new perspective on a range of behaviours described by the 'international' students and I have suggested a number of implications for physiotherapy education. More focused exploration of this vibrant concept through further inquiry may reveal additional creative insights.

While this chapter has focused on the international students themselves, the following chapter will examine the learning spaces in which the students engage, and the impact of different environments on their becoming physiotherapist.

Chapter Seven: Becoming Physiotherapist - The Impact of Smooth and Striated Space

Introduction

I have presented *becoming physiotherapist* as a process with which each of the 'international' students engage, through their interactions with a broad range of human and non-human entities during their life experiences. Capacities emerged through interactions in different assemblages, as students changed, developing new capacities to be affected (starting to recognise previously unfamiliar codes and structures), and develop new capacities to affect others (through speech, touch, behaviour). A striking observation was the difference in each of the students' becomings. While one student shared with me the joy of territorialising a productive assemblage, suddenly aware of new skills and knowledge (expressed in their feelings of joy and confidence), another student would share their despair at being unable to engage with a similar situation (expressed in their feelings of frustration or lack of confidence). Viewing the process as a rhizome (as described in Chapter three, pages 35-37), the ease of the process, its shape and density seemed to be influenced not only by the affects the different components of the assemblage had on each other, but by the structure of the particular milieu the assemblage occupied at the time. The impact of such environmental structure will be the focus of this chapter.

In the previous chapters, I explored the way students responded in new situations, deciphering the unfamiliar structures and codes and how becoming can be enhanced through interactions with a refrain. In this chapter, I will use Deleuze and Guattari's concept of smooth and striated space as a framework to explore the students' experiences of territorialisation. First I will provide an introduction into the way a learning environment can influence formation of an assemblage, before relating this to the concept of smooth and striated space (Deleuze and Guattari 1987), and how this impacted student learning in the university and on clinical placement.

The Influence of Learning Space on Becoming

As discussed in Chapter five, page 108, practical classes were highly valued by all of the students, and they shared many stories of positive experiences during these classes. All of the students seemed to have a familiarity with the 'code of physicality', so that during

practical classes, they were able to affect others and be affected (for example, as they engaged with exercises and handled each other's limbs). As dynamic 'learning assemblages' were territorialised during the classes, so physiotherapy knowledge expanded across the group, in terms of familiarity with the look and feel of the human body, the small (but important) differences between different bodies and an awareness of their own capacities in terms of affecting others (motor skills) and being affected (sensory skills). Willow outlined the way students territorialised and deterritorialised different assemblages during these classes, resulting in the production of physiotherapy knowledge and skills, and how this related to physiotherapy practice:

> "I love all the practical lessons. I can practise with my classmates, and we can always change to other people, to palpate some bony points and chat. I have also found that everybody may have differences between palpation, so I think it is good for me to experience more about palpation and all the skills and it has helped me to step up for the clinical placement"

It was interesting that these types of powerful insights emerged specifically from experiences in practical classes. These classes were loosely structured, with the tutor presenting a task (such as demonstrating a physiotherapy technique) or a problem (such as a case scenario of a patient with physical difficulties), and groups of students worked together in their own way, to explore and complete the task. This loosely structured classroom milieu seemed to provide a medium for the territorialisation of dynamic assemblages which were highly productive of physiotherapy knowledge.

This contrasted with the more formally structured, theoretical, tutor led classes, where interactions *within the classroom* seemed to be limited, but remarkably, like the shoots of rhizome, the territory often spread out from the classroom, emerging in different locations, such as the library or a student's bedroom, as connections were made with many other heterogeneous elements: laptops, textbooks, other students, forming intensely productive assemblages. For example, Mary struggled to keep up with the pace of spoken English in class, which limited her ability to be affected and therefore interact, but she described the way she territorialised a productive assemblage at home, interacting with memories of the lecture (in thought) and repeatedly with the recording of the lecture (in extension) and with her dictionary and personal notes:

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"What I like about how we are learning is that I can go back over the videos and replay it many times - so I can have a pretty good understanding of all of the contents. Like in class maybe I can't catch up with things that teachers talk about because it is kind of, too fast. Now I can go back and take a look at what I learned before, because I forgot sometimes - I can pause the video and check on dictionaries so I can fully understand."

Thus, Mary's learning assemblage was spatially broad with heterogeneous components but was highly productive of physiotherapy knowledge. In the same context, a different student might have had a very different learning assemblage. For example, a 'home' student, arguably with a stronger familiarity with language, cultural and learning codes may have been able to interact much more deeply *during* class, with the developing assemblage being more compact and homogeneous, with much stronger knowledge production within the classroom. Interestingly, while students shared countless stories about learning in the classroom, it was surprising to me that for many 'international' students, powerful learning experiences often occurred outside of the classroom. For example, Diane clearly described a dynamic learning assemblage as she reflected on the way she and her friend worked together in the library:

"Me and one of my friends actually plan to study in the library and like, cover this and this today – and tomorrow we can cover this - so that's good. We can study on our own, do it quietly and then if we have a question, we ask each other or if we have any ideas that could help, we share it and then we talk some and then work. We go to the library and sit there for hours, either planning out what we need to study for or preparing. Before assessments, we would have question-cards prepared, where we would go back and forth answering them. It helped by encouraging us not just memorizing, but actually knowing what we were learning. It also helped by making sure that in the pile of information you haven't missed anything."

Diane's friend was another 'international' physiotherapy student from her class. They had bonded early on in the course and their connection encompassed a productive friendship assemblage and also a productive learning assemblage. Her description of the way they worked together in the library reveals a comfortable, smooth and automatic interaction, with ideas flowing between each student and their learning resources. Each student

territorialises a separate learning space with her own learning resources (books, laptop, thoughts) and at times (when sensing a certain affect), deterritorialises from that space to reterritorialise the shared space of the learning assemblage. It is clearly a dynamic system, with students switching smoothly and intuitively from one assemblage to the other. Both assemblages are productive, and the evident desire undoubtedly strengthens the connections. As Delanda (2016) emphasises in his discussion around assemblage production, the output of an assemblage is greater than the output that the combined individual entities can produce, which is clearly apparent in Diane's learning assemblage. This production was also alluded to by Kim as she reflected on the value of discussing ideas with classmates, recognising that becoming more actively engaged in class was linked to creativity:

> "It's really different. Maybe it's because in Hong Kong at secondary school, usually the teacher talks most of it and we listen but, in the UK it is more like discussion. I'm used to listening but not creating."

Kim's implication was that something new was being produced in the classroom as the students actively engaged with discussion. She was aware of something new arising from the group work; the output of a productive assemblage. What is interesting from these stories is that highly productive, intense interactions seemed to occur when students were engaging with learning activities *at their own pace, in their own way*, in many cases away from the formality of the university. In terms of learning assemblages, the stories suggested that in the classroom, it was much more likely for the international students to engage with the PowerPoint slides (and read what was presented) rather than listen to the tutor's explanations. As reported in other research (for example, Ren and Hagedorn 2012; God and Zhang 2019; Deuchar 2022), many international students acknowledged that they found it difficult to keep up with the pace of tutors' explanations. Thus, they were affected by other entities within the classroom (such as the slides, or other students) more strongly than the voice of the tutor. These stories highlight how the more structured learning spaces, such as the traditional lecture theatre may provide cues to deciphering the codes of a particular situation, but more fluid learning spaces, provide students with opportunities to interact with each other and learning resources in flexible ways, resulting in the territorialisation of assemblages which are more productive of knowledge. This less structured approach to

teaching has been widely documented as universities have moved away from the traditional didactic approach to education. De Vita (2007: 159) reported the benefits of this approach to the education of 'international' students in particular, as it "values cultural differences and different ways of knowing. It encourages expression of diverse cultural experiences, perspectives and background knowledge." It was through thinking about these informal, fluid learning spaces, that I was drawn to another one of Deleuze and Guattari's concepts relating to the way our world is structured: the notion of smooth and striated space, which I will introduce in the following section.

Smooth and Striated Learning Spaces: Influences on Becoming

In chapter 5, I introduced Deleuze and Guattari's concept of *coding* and used it to explore the way the 'international' students faced the range of new experiences in a different country, including different cultural and communication codes. In this chapter, I will introduce a similar concept which Deleuze and Guattari (1987) use to describe the structure of the world around us, the notion of *smooth and striated space.* I will use this concept to explore the ways the international students engaged in the different types of learning space in university and on professional practice placements and how it influenced their becoming physiotherapist.

Deleuze and Guattari (1987) view areas within the world as in a continual flux between smooth and striated space:

> "The two spaces in fact exist only in mixture: smooth space is constantly being translated, transversed into a striated space; striated space is constantly being reversed, returned to smooth space. In the first case, one organises even the desert; in the second, the desert gains and grows; and the two can happen simultaneously"

> (Deleuze and Guattari 1987: 552)

It is easy to understand Deleuze and Guattari's notion of smooth space if we think of the desert, a space without roads, signposts, buildings, order. A group of travellers might enter the smooth space of the desert and decide to settle there for a while. Through their interactions, they must decide where to erect tents, who will sleep where, who will manage

the food and water, where people should relieve the call of nature. So, the smooth space becomes ordered, striated. When the settlers move on, over time the desert will overcome the order of the organised settlement and smooth space will return. In contrast, if the travellers entered a city, setting up camp would be different. After spending time gaining familiarity with the structure of the city, through interactions with local systems, they might be provided with temporary accommodation at a hostel, where a kitchen and toilet already exist, in the striated space. In this simple example, it is clear that in many ways settling in striated space is easier for the travellers: once they become familiar with the structure, there are fewer decisions to make, systems already exist which they can follow. On the other hand, the smooth space has less restrictions and more potential for creating a home which specifically suits their unique needs. However, while this is a great benefit (compared to living in striated space), the individual (or group of individuals) must have the capacity to build a home, otherwise discomfort and possibly disease might ensue. In a similar way, this concept could be applied to the physiotherapy students' becoming. In the smooth space of the library, Diane and her friend were able to chat and read at their own pace and through this easy interaction emerged shared physiotherapy knowledge which was meaningful and relevant to their own becomings (though it must be acknowledged that without the structure of the classroom, the girls may have neglected to explore important parts of the topic). This contrasts with the striated space of the lecture room, where little effort needs to be made by the students, as the relevant topic material is prepared and presented in a predictable way by the tutor (though student interaction with the material is not guaranteed, as with Mary, when she recalled finding it difficult to keep up with the pace of her tutor's lecture).

The concept of smooth and striated space has been applied to education by several scholars. Gorodetsky and Barak (2016) introduced a smooth learning space into teacher education, in the form of Educational Edge Communities (EECs), where students were able to meet and explore issues that arose on a particular day, free from the usual restrictions of university life. The authors' description of EECs captures the freedom within these spaces for the dynamic flow of intensities, ideas and knowledge:

> "Learning within EECs is a dynamic and nomadic adventure that is dependent on the inherent flows of the unique learning community. Such spaces legitimate and

encourage polyvocal discourse that is not directed toward attaining coherent understandings of pre-given academic demands, rather it is flowing in different directions as these emerge from the multiplicities and the differences in kind that the dwellers in this space bring to it."

(Gorodetsky and Barak 2016: 88)

The authors' description of this learning space is exciting, and it is easy to imagine the innovative insights which might emerge. However it is also easy to imagine how "the nomadic adventure" could lead to the emergence of ideas which were totally unrelated to the students' degree programme. When efficiency in terms of resources and time, to cover specific content is important in the provision of an education experience, it is understandable why such learning spaces are not commonplace. Kuby et al. (2016) examined the experiences of learning and teaching on a research methods course, using post qualitative inquiry. As they reflected on their experiences as both teachers and learners, they discussed the way they moved between smooth and striated space during their time on the course and the tension they felt between the restrictions imposed by striated space (adhering to assessment guidelines, submission dates, attendance requirements) with the freedom of unstructured, smooth spaces, which allowed students to explore new ways of becoming. As experienced researchers, the authors were very familiar with the codes associated with research and academia, so their feeling of being limited by the rules is understandable, as is their desire to be free to explore their ideas, unrestricted by the university rules. This might not be the case with students who are new to the field of research (or 'international' students, new to the university). Students like this might value clear structure to guide their familiarisation with the codes and conventions of the new situation. For example, Peter explained how he found more structured learning spaces useful in building capacity in terms of physiotherapy knowledge, and this increased capacity allowed him to be affected and to affect others in classroom discussions:

"I learned anatomy using a website. In the website I can use 3D models to see the muscles in 3D so it is very helpful for me. This has helped me to memorise how the muscles work. I think attending the practical anatomy class gives me a chance to touch the muscles because in the lessons, the tutor will teach you how to palpate the muscles and what movement is produced by the muscles – so it is one of the

methods to help me memorise the muscle. Discussions in class also helps but the most important thing is you need to memorise by yourself first – if you don't, you can't explain them well, you cannot discuss with your classmates because you have limited knowledge about anatomy – so even though when they are discussing the muscles, you do not know what they are saying."

As an 'international' physiotherapy student, Peter not only had to overcome the challenge of deciphering the codes of the human body, but also had to become familiar with the rules of the university systems, cultural differences and communicate in his second language. His structured approach to rote learning muscles on the anatomy website and repeating what the tutor demonstrated in the classroom, provided him with a predictable framework with which he could engage, in an ordered manner. Through interacting with the anatomy images and the associated English words, emerged the capacity to engage with the less structured classroom discussion. This pattern of moving from striated space to smooth space also seemed to happen during the Problem Based Learning (PBL) classes. PBL is a non-traditional approach to learning, where knowledge is generated through the students' interaction with the learning activities (rather than listening to the tutor sharing information which they have selected and prepared). Land and Hannafin (2000) describe it as an open form of learning where students are not directed in what they should do, but instead are presented with open ended activities, which they must explore and find solutions to themselves. Rosie described how after initially finding this new approach to learning difficult, students came to value the less structured learning space:

"I find the problem based learning stuff really good - so when we are introduced to the topic and then a case scenario, it kind of gives you the chance to learn more in depth. And I find the discussion part good because you kind of learn from each other - because I haven't done anything like that before, it was kind of like you were taught and that was it - you just listen, you don't really read around and find out. It was a good way of learning because if you didn't pick up on something, someone else might have found out different information so it was a good way of getting a lot of information at once. We found it difficult at the beginning. We were just like, doing it! (Smiles) But everyone's doing more now, finding out about stuff, why is that

happening, why is this happening. As the weeks have gone on everyone's kind of got used to it"

It is interesting that Rosie admits to "just doing it", implying that she simply followed the tutor's instructions without understanding why she was doing the tasks, but through engaging with the activities, understanding followed, allowing them to engage more deeply with deeper insights emerging. It implies that initially students looked for rules and instructions (which provided cues for deciphering this new learning code); after initially engaging in striated space, becoming familiar with the expectations, they were able to interact in a less structured, smooth learning space, where more in-depth understanding emerged. Interestingly, this aligns with Deleuze and Guattari's (1987) explanation that over time, striated space transforms into smooth space (and vice versa).

Savin-Baden (2011) acknowledged that the move away from traditional learning approaches has provided students with more freedom to learn actively, but she argued that PBL was still relatively stable and structured (as Rosie's comments seem to confirm). She linked her vision for a modern curriculum to Deleuze and Guattari's concepts of smooth and striated space, applying the ideas to the way curricula are structured.   In a striated curriculum, the dominance of structure and rules (and content), provide order and predictability at the expense of creativity and the emergence of new knowledge. An open, smooth curriculum embraces creativity but might be considered risky because of the lack of tutor control and ambiguity of what is considered relevant knowledge (Savin-Baden 2011). While it is important to acknowledge the benefits of smooth space, it must be stressed that each type of space has value (it is not a case of one space being good and one bad); the different spaces elicit different affects on those occupying the space, which produce different behaviours, as Deleuze and Guattari (1987) explain:

"In a smooth space-time one occupies without counting, whereas in a striated space-time one counts in order to occupy" (Deleuze and Guattari 1987: 555)

In other words, in smooth space, there are no expectations, no rules; a person only needs to occupy the space (and respond to any affects which may impact them). This might be highly beneficial when individuals have the capacity to interact with ideas which may have already started to form, or to explore topics, through in-depth interactions with others, for example the experienced education students' in the EECs (Gorodetsky and Barak 2016), described

earlier. In contrast, to occupy striated space, a person needs to first check the structure (or count) and align with it, in order to occupy, which might be highly beneficial to newcomers who are in the process of deciphering the codes of a new social milieu (as with the 'international' students during their first year at university). Thus, while striated space might place restrictions and order on a system, this might not always be viewed negatively. For example, for professionally regulated courses, where graduates will be responsible for the wellbeing of others, it is understandable that a certain degree of structure is needed to ensure key quality standards are demonstrated by all graduates.

This would certainly apply to the BSc Physiotherapy curriculum which would have to align with the quality processes of the Health and Care Professional Council, as well as those of the university, and also incorporate the content demanded by the professional body. So, while there was no formally scheduled smooth learning space within the physiotherapy curriculum, it seemed that such learning spaces emerged, almost automatically. As students deciphered codes within a particular learning context, so through interactions within a particular assemblage, they might slip into smooth space for more intense production. For example, in Willow's practical class, smooth space emerged as she and her classmates explored and tried out various techniques which had been introduced by the tutor earlier (in the striated space), or in a formal lecture, a student may drift into smooth space, alone with their thoughts, from which a valuable insight might emerge. On the other hand, as Diane and her friend, chatted aimlessly, occupying smooth space in the library, a funny memory might cause them to giggle, attracting the strict librarian to their desk, to remind them of the rules (returning them to striated space). In addition, over a longer period of time, it might be that a student behaves differently in smooth and striated space, as Rosie revealed in a profound, personal reflection about her own professional development:

> "I think at the beginning, because it was a new course and I was away from home, I was trying to do too much – because I was comparing everything I did with what other people were doing. It's just like if people are saying what kind of studying they are doing, I felt like I wasn't doing enough or maybe needing to do more.
>
> Now I think I'm focusing less on what other people are doing and more on myself and what I'm doing. I'm probably a bit more confident I guess, like talking in front of people I don't know, if we are working in groups. I guess now I recognise that I do

know stuff. Even when we get exam results – people say 'what did you get?' It doesn't really matter as long as you are happy with your own results - so I think now I focus a bit less on other people. I think it is the knowledge base that gives you confidence. I just think if you know the knowledge, it's easier to actually communicate."

As a newcomer, Rosie was experiencing new affects and intensities, to which she had not responded before. She looked around the striated space for prompts to guide her behaviour, unsure of how she should respond and took cues from other students. In these circumstances it could be argued that striated space is highly beneficial in providing such cues. What is interesting about this reflection is how Rosie changed over time so that she no longer needed cues about behaviour. She explains her capacity to interact freely with others in the classroom as a result of her increased confidence. A post humanist view of this situation would explain Rosie's change in capacity as resulting from earlier interactions in striated space which allowed her to decipher the code of that milieu. Once she was familiar with the codes, she was able to respond to affects as they arose in a particular moment (which she interpreted as confidence). Thus, I argue that striated space provides an environment for newcomers to build capacity, while smooth space provides an opportunity for creativity, to explore ideas and new ways of approaching problems. Hence, the experienced researchers in the study by Kuby et al. (2016) reported feeling restricted in striated space, while as newcomers gaining familiarity with new codes, Peter and Rosie valued the cues provided by striated space.

This section has highlighted the benefits of smooth and striated space in terms of students' becomings, and how assemblages become territorialised in both spaces: striated space providing cues around behaviours and meaning; smooth space providing freedom to explore broader issues which are unique to a particular assemblage. In the context of the university, in order to ensure students learn the required content of a particular course to the required standard, striated space is the norm, but as students' capacity in recognising codes increase, so they seemed to move automatically into pockets of smooth space, where new ideas could be explored and broader knowledge emerged. This is demonstrated through Peter's reflection on the problem solving activities in the loosely structured classroom:

"I think due to the different education systems, in UK a lot of local people will discuss the question – discuss anything with their friends to find out the solution - but in Hong Kong the teachers will tell you all the solutions – you don't need to find it by yourself. Discussing with others helps you find the answer by yourself, by the discussion. I think you can adapt more – you can change - train you how to think and how to find a solution. The system in Hong Kong is more time saving because all the solutions are listed in the textbooks but if you find some situation which is not listed in the textbook, how can you solve that? I think it is better to learn how to solve problems and work things out. I think I try to discuss more in the UK because other students were opting to discuss more, and this encouraged me to discuss more with them – because students ask lots of questions and some questions you might not have considered before so I think it can inspire you to think more"

It was interesting that Peter was able to recognise a change in himself and his capacity to solve problems through engaging with these activities. It was also interesting that he felt that this approach is more time consuming; possibly another reason why smooth space is not formally included in the curriculum.

What seems to be clear is that moving between striated and smooth space seems to be part of the flow to becoming physiotherapist. As codes are deciphered in striated space, productive assemblages are territorialised, capacity builds so that students are able to interact in smooth space; returning to striated space as they meet with challenges. These flows are associated with positive emotions of enjoyment, delight and discussions around confidence. However, timing seems to be crucial, not only to provide students with opportunities to decipher codes (as discussed in Chapter five, page 106) but also relating to the development of the capacity to perform in a particular space. This was highlighted strongly by many of the students when they vividly described the terror they experienced when placed in a highly structured space, without an understanding of the structure or coding of that milieu.

The Impact of Highly Striated Space

One of the ways in which physiotherapy students are assessed in relation to professional knowledge and skills is the viva voce. It is considered an authentic form of assessment (Bayley 2023), as it requires students to engage with a case study of a patient in a similar way to how they would engage with a real patient in practice. They have to think on the spot, apply theory to practice and justify their decisions verbally in a professional manner. The student's performance is assessed according to specific criteria, within a particular timeframe, in the presence of an experienced tutor. In terms of striated space, it is difficult to picture a situation during a student's university experience which is more structured. Kim's recollection of the first year viva was typical of many:

> "The vivas were the worst thing - I really worry about that. I am really nervous about talking to the teacher during exams and I usually forget everything because I'm so nervous. I spent a lot of nights revising everything. I need to memorise a lot of stuff and I don't know what the teacher will ask – maybe I don't know and won't pass it – so I'm really worried – I don't want to resit it. Luckily I passed!"

The discovery that students find this experience stressful is neither new nor surprising. Horwitz, Horwitz and Cope (1986) explored 'international' language students' experiences of anxiety in the classroom and identified three specific sources of anxiety: firstly, the act of speaking in a foreign language, secondly, anxiety about the assessment but thirdly, fear of a poor mark. During the viva assessment all three of these factors would be at play so it is small wonder that students identified this type of assessment as particularly terrifying. In a study examining the experiences of Pakistani students delivering oral presentations in English, Riaz and Riaz (2022) recognised oral presentations as one of the most intimidating experiences for non-native speakers, with students identifying poor proficiency in English, fear of judgment, lack of confidence, but also lack of experience in delivering presentations, as key factors which contributed to the anxiety. It could be argued that vivas are less intimidating as there is not an audience listening. However, students have time to prepare for a presentation and can rehearse what they intend to say. This is not possible in a viva where the conversation between student and assessor is less predictable, and students may be faced with a question which they had not expected. Aida's reflections on her

assessments highlighted how this pressure to think on the spot and give an immediate response is particularly challenging, pressures which do not exist in written assessments:

> "I pass everything except the viva. I think I failed because I revised in the wrong things and also my English is not that fluent so I get even more nervous with an unfamiliar topic. In Hong Kong we used to have written exams and we don't have viva exams so it was very new to me. When we are doing written exams, if I don't know the answer for that question, I can pass it and do the next one. Then, as I remember I can come back. But when you are doing a viva it is hard to go back. When you are nervous, you can't think."

The purpose of the viva assessment is to assess the students' professional knowledge and skills but their lack of familiarity with the structural codes of the situation (format of the assessment, behavioural expectations, use of professional language) may make it impossible for students to demonstrate physiotherapy knowledge. It is clear from the students' comments and associated literature that the impact of anxiety on students' ability to demonstrate the requirements of the assessment, is enormous. This calls into question the validity of assessments such as this, particularly in the early part of the course when students are still becoming familiar with so many new concepts and behavioural expectations. However, it was interesting that after the first practice placement, many students acknowledged that while they found the experience very stressful, it actually helped prepare them well for professional practice, as Kim described:

> "I think doing the viva at uni really does help - because I think I'm fine with writing essays because I don't have to speak, but in the viva, I need to answer the question immediately, and that is really necessary in clinical practice. But when I'm doing an essay, I can't practice that, so I think the viva helps."

Thus it seems that time to gain familiarity with structures and codes of the viva assessment, provided students with the opportunity to build capacity so that over time, they were able to interact productively in the assessment situation later in the course.

The reasoning behind an academic tutor's decision to use the viva assessment in the first year is likely to be to help students gain familiarity with the structure of professional discussions in clinical practice (and clearly it does that). However, if facing the examiner in

such highly striated space produces an *affect* in the first year student which results in *restraint of action* (with associated high levels of anxiety), then the student would be unable to demonstrate their knowledge and skills in that context (even if they had developed the capacity to produce the required behaviours). In order to gain more benefit from this type of assessment, it would seem logical to schedule opportunities for students to gain familiarity with the structure, for example through formative assessment. This approach was explored by Braier-Lorimer and Warren-Miell (2022) as a method to prepare medical students for their OSCE (Objective Structured Clinical Examinations) which are similar to the physiotherapy students' viva, in that they are face to face discussions with tutors where students have to demonstrate their professional knowledge. Before the examination a group of 84 students engaged with a peer led mock OSCE and their views relating to this experience were evaluated. Not only did they find this experience much less stressful that previous OSCEs (which were tutor led and summative) but they felt much more confident in engaging with the summative OSCE which followed the mock. These striking findings demonstrate the benefits of students gaining familiarity with the structure and expectations of the examination format in an environment which was less highly structured, an approach which could be used with positive outcomes as a way of preparing physiotherapy students for assessments.

Despite the stress experienced by some of the students during the first year viva assessments, the experience did seem to provide an opportunity to gain familiarity with the codes associated with such activities so that, while all of the students reported feeling some nervousness around the oral assessments on placement, they did not seem to produce such intense feelings of fear as those during the first year of university. The following sections will now explore the influence of smooth and striated space on practice placement in more detail.

The Impact of Striated Space in Professional Practice

All of the students engaged with a number of different practice placements, in different clinical environments: hospital wards, outpatient clinics, schools or community settings. While these placements were in different geographical locations, involving different health professionals and patients of different ages with differing health conditions, all had the commonality of existing in striated space. The spaces were geographically striated but also the expected behaviours were highly structured. As students approached their first practice placement, our conversations were tainted by fear – the fear of anticipation, of entering an unknown striated space, possibly in a new city, in a clinical context which would be new to them, meeting new people and importantly, having to perform as a physiotherapist, interacting effectively with patients. This is a valid reason to feel fear and is common to all students, who engage with a degree comprising professional practice placements (Lewthwaite, Gray and Skinner 2022). While this is challenging for all students, it is undoubtedly more challenging for students who are not from the UK, with limited knowledge of local area. Grace's story highlights typical challenges and also the emotional impact:

> "My placement was a long way away and I was really lonely the first few weeks because when I got back from the hospital there was no one to talk to or do anything. On the first day, I was really scared to go in because I didn't know where I was going or what they expected from me – so it was pretty scary. The first day I went there, I just took an Uber and the next day, I got out an hour early to figure out what route to take – how to walk there because it wasn't far away. It was a bit difficult that first week, finding out the routes, where things are and everything but later, I really started liking the place."

These stories revealed a multiplicity of interweaving flows: geographical travel and transportation to the hospital, timings of daily routines, the flows within the hospital (of which Grace had very little awareness) and a range of new codes to decipher, particularly the code of practice within the hospital. Nevertheless, despite the logistics relating to travel, accommodation and hospital structures, combined with the additional worry of how

to communicate with patients, it was remarkable that the majority of students settled in very quickly, for example Ayesha explained (my italics):

> "It was a new thing for me and also having to adjust to the language as well – having to talk in English - especially because I am living with people from Hong Kong, so we are speaking our own dialect every day so yeah – *I took at least a few days* to adjust into it. I think I adjusted quite well because my team, they were very welcoming to me and very helpful to me."

There was no doubt that Ayesha found those first days very stressful but the settling in period seemed to be very quick and in no way compared the length of time many students took to adjust to the different approach to learning that they experienced during the first year at university. This suggests that a change in capacity had taken place during the first year at university which allowed students to express their capacities in terms of affecting and being affected by what they encountered in the new clinical environment.

Negotiating Striated Space - Impact of the Professional Team

It was clear from many conversations that while anticipatory anxiety about clinical placements was a common experience, for the vast majority of students, the actual experience was much less stressful than what they imagined. For those students who did experience difficulties on placement, the challenge was not the novel striated space per se, but rather the professional team with whom the student was working had the biggest impact on the placement experience. For Diane, a placement during the third year of her degree proved to be the most difficult:

> "So my last placement was community rehab. I learned that I'm not doing community, it's not for me! It just felt like they were really understaffed and overworked and it almost felt like it was my fault that I'm not picking up the work of the qualified physio while I'm still trying to learn. Because Community is quite different from what I have experienced before, because you're not in one single setting every day - it changes. You go from a patients home to a care home and it's very discombobu-lating. They just kind of quickly went through the induction and

then like 'oh, we have a patient, we have to leave' and I'm just like, 'I just got here!' So yeah, just kind of thrown into it. I just felt like I was constantly interrupting their work and they're too busy to give me feedback or just to go through what happened."

The tone of Diane's voice betrayed feelings of injustice and frustration as she relived the experience. It was clear that she found herself in a very structured environment but found it extremely difficult to decipher the social codes. It is undeniable that she was experiencing *affects* from the behaviour of the staff (indicated by her strong emotions) but rather than drawing her to interact with them and the placement, her response was the opposite. She was unable to interact, unable to build relationships, and unable to territorialise a productive assemblage. Diane entered this striated space, with no cues around codes, structure or conventions around behaviour. Thus, she was filled with negative emotions and a feeling of helplessness. This experience contrasted with Ayesha's experience in a community rehabilitation placement:

"I think what has helped me most was the whole environment that I am immersed in. So my team didn't have a heavy workflow at that time – and we have three OTs [occupational therapists] and two therapy support workers and we had a lot of time just chatting informally about clinical or non-clinical stuff – so in those conversations they got me to think about why I am doing this intervention and they got me to understand our approach to the patient – not only the physiotherapy point of view but the psychosocial factors – so I feel like these small chats at coffee time, with me and my educator and also my team is a lot of help because I learned to understand why I was doing the treatments"

Ayesha had also entered a highly structured environment but while Diane felt like an outsider, Ayesha described feeling "immersed" in the environment. The *affect* of the team's hospitable behaviour was to draw Ayesha into interactions. The informality of their behaviour seemed to provide a space where Ayesha's behaviour would not be considered 'incorrect' or 'inappropriate'. This hospitality seemed to provide a pocket of smooth space within the striated space of the clinic. Ayesha was able to respond to affects by expressing her capacities, and through this, interact with the team through informal chats, as territories were established, and new insights around physiotherapy knowledge emerged. Thus, while

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both students entered a *striated clinical space*, only Ayesha was able to be affected by the occupants of the space and have an *affect* on those occupants.

An important factor in both of these stories is the impact of time. Diane emphasised that the staff were very busy and had no time to talk to her, while Ayesha emphasised the workload was light, providing the team with opportunities to support Ayesha in becoming familiar with the new situation. Both students viewed this situation through the usual humanist lens and their emotions revealed the personal impacts: Diane feeling like an outsider, with clinical educators who were not supporting her effectively and unable to express her capacity; Ayesha feeling valued, grateful for the attention of a welcoming team and able to interact easily. A post-human view would see the situations more holistically; recognising that for newcomers to engage with an environment, time is needed for them to decipher the codes of the striated space (with opportunities to observe and interact). Diane's unpleasant experience resulted from having insufficient time for the important process of decoding. Time is essential for newcomers to decipher the social codes within a new milieu (as discussed in Chapter five, pages 107-108), so it is essential that students are allocated such time at the beginning of a placement. This highlights the importance of placements providing an effective induction programme (and also has implications for university standards around placement provision).

The importance of time to becoming familiar with new codes was raised by students on many occasions. It was unsettling to see again and again, how entering striated space without time to acclimatise, resulted in students being unable to interact with others in the environment or express capacities, along with the unpleasant emotions of fear, injustice or confusion. In contrast, if time was initially spent allowing students to familiarise themselves with a new situation, they were quickly able to express their capacities freely and easily. This was illustrated in a heart-warming story shared by Willow, about an experience on a busy medical ward when, after an initial induction period, her usual clinical educator took leave:

> "My educator had annual leave so the band 7 [senior physiotherapist] was my educator for that week. She encouraged me to do the meeting with the nurses on my own. The nurse really appreciated me and said my SOAP notes [professional notes about patients] writing is really good. Then my educator asked me whether he

can take some of my SOAP notes as an example to show the qualified physios. I felt really grateful. (Smiles)

In week three, when I head up to the ward and speak to the nurse, I ask her – 'what's the problem with the patient?' 'How is their mobilization status?' and 'how many patients do I need to see today?' Then the occupational therapist came in and I asked her whether we can see the patient together because that patient needs Physio and OT, and I know the patient quite well - and then I jump in with the OT. Then when the band 7 came into the ward, she thought 'Where is Willow?' And after we finished the session, the OT said 'Sorry, I stole Willow' (Smiles) and she was so surprised that I did a joint session with the OT - and when we went for a break, the band 7 told me, 'I was so impressed with you today' and I was so surprised!"

Willow was brimming with delight as she shared this story. It was clear that with an understanding of the codes and structures of that clinical environment, Willow was able to focus her attention on the many individuals and materials within the environment and respond to the affects she encountered by expressing her capacity. The dynamic interactions and the forming and unforming of many assemblages were evident, along with tangible outputs in terms of tasks being completed, patients recovering and Willow becoming physiotherapist. Less tangible outputs were also evident in the shared understandings around patient status and workloads, and the joy of shared productivity, indicating the emergent desire from the productive assemblages. What is interesting about this story is the dynamic, fluent and automatic way Willow engaged with the different professionals on the ward. As a final year student, striated with a range of codes relating to clinical practice, she moved fluidly within the structure of the ward environment, finding pockets of smooth space to explore new ideas and capacities.

Pockets of Smooth Space generated through Hospitality

Certainly, the importance of time in providing students with opportunities to decipher codes in new situations was an important finding of this inquiry. However, in terms of becoming physiotherapists, students seemed to emphasise the *hospitality* of clinical staff as much

more significant. In fact, from the many discussions around practice placement experiences, the hospitality of the team with whom students were working seemed to be one of the *most important factors* to both the students' enjoyment of the placement and their ability to territorialise productive assemblages. A poignant example of this was shared by Diane, whose joy was evident as she recalled her favourite placement:

"My final placement was one of the best ones. I had an amazing experience. I think they just really made me feel welcome, made me feel a very big part of the team. I really didn't feel like a student, but like a qualified personnel. They would include me in conversations. They would joke between themselves. They would take breaks and just talk about personal life and then make jokes. And then I felt more comfortable approaching them and also talking about myself and also making jokes. So, it was a different sort of connection, not working relationship, not just always talking about, 'OK, this is the patient' - and 'I saw this one',' I need to do this'. It was less work-talk more on a personal level and they were really open and just honest and just talk about everything really. I don't know why this particular place was so different, so open, but I really never experienced that before. They were just open to new people and just being friendly and approachable."

Diane's narrative emphasised how the team made her feel. Their behaviours had very strong affects, producing strong emotions: "I felt welcome", "I felt like a qualified personal", "I felt comfortable". All of these feelings suggest that Diane felt accepted by the team, her behaviour was accepted. She was able to respond to affects by expressing capacities which produced positive affects in her teammates. Interactions were easy. Even though she was in a new environment, she did not feel fear, she did not have to work hard to decipher new codes. The hospitality of the team allowed Diane to acclimatise quickly and territories were established. The hospitality of the team seemed to have opened up a pocket of smooth space within the striated space of the clinical setting, where she could express capacities, make connections, becoming physiotherapist. In a similar way, Rosie shared a story of how the informality of the physiotherapy team with whom she worked, seemed to open up pockets of smooth space, resulting in the territorialisation of dynamic, free-flowing and highly productive learning assemblages:

"It was quite a big department. There was a lot of physios, kind of floating around. They would just like, come and grab me and get me to do a knee assessment or a back assessment or whatever it is. They just tried to give me a chance to get hands on practice and things like that. Sometimes, even if I had been working with one of the other physios, I'd go back at the end of day and talk it through with my educator – about what I'd learned and things like that. Talking to him about it helped as well, for me to understand and if I said something wrong, he was able to correct me and tell me where I was going wrong. Yeah, so it was a really good way of learning."

Again, the dynamism of this smooth learning space is striking. The teaching and learning was not prescribed and planned. Each person was responding in the moment; vigilant to their senses, responding to affects and changing over time. The essential requirement for this productive assemblage was clearly the interactions: the attention of each person to affects in the moment and the freedom to express capacities in response to those affects.

All of these highly productive assemblages demonstrated the pace at which affect and response happens, and how the events taking place cannot be prescribed, they occur in the moment as individuals are affected by the entities around them and respond by expressing capacities, which in turn affect others. This capacity comprises a familiarity with codes of the space and is developed over time and through previous interactions. The trajectory of each actor within these assemblages was not predetermined but driven by the interactions of that moment in smooth space, as Deleuze and Guattari (1987) explain:

"In striated space, lines or trajectories tend to be subordinated to points: one goes from one point to another. In the smooth, it is the opposite: the points are subordinated to the trajectory…

…There are stops and trajectories in both the smooth and the striated. But in smooth space, the stop follows from the trajectory; once again the interval takes all, the interval is substance. In smooth space, the line is therefore a vector, a direction and not a dimension or metric determination"

(Deleuze and Guattari 1987: 556)

Thus, while the structure within striated space provides limitations and boundaries (which are essential for predictable and safe working within a healthcare setting), smooth space

provides an opportunity for an individual's capacity to expand (along a trajectory in the interval between boundaries). The value of smooth spaces within the striated space associated with healthcare settings was described by Bleakley (2013), when he contrasted the traditional hierarchical methods for professional interactions (which historically occurred in formal spaces such as an office or at a patient's bedside, led by the doctor), with a more modern method of fluid, co-operative inter-professional communication, which seem to occur in less formal spaces, such as corridors and stairwells. He used Deleuze and Guattari's concept of smooth space to emphasise how such spaces, which lack the usual structure and order are "essential for improvised inter-professional collaborations, where hierarchical habits are suspended" (Bleakley 2013: 29). In other words, rather than following standard and accepted routines in discussions around patient care, novel ideas may emerge from such spontaneous, informal interactions (in smooth space).

What seems to be important about the students' experiences (described above) and Bleakley's (2013) research, is that these informal smooth spaces seem to allow more ease of interaction and development of innovative ideas and solutions to problems. In strongly striated space, even a person who is very familiar with related codes might be affected in a way that restrains their action, so problem solving may become more difficult or constrained. The benefit of smooth space is that any response is acceptable (bearing in mind the necessary boundaries of healthcare environment) so individuals experience a freedom to experiment and explore. Interestingly there has been some recent discussion around the benefits of considering hospitality as an important factor in an educational environment, to enhance students' sense of belonging and engagement with the learning environment, for example Braganza (2018), relating to social work education and Van Ooteghem at el. (2022), more generally. This is certainly an aspect of physiotherapy clinical education which would benefit more detailed examination through further research.

Conclusion

The stories I have presented about students moving between smooth and striated space, involve an almost unconscious shift between different learning spaces. In fact, physiotherapy students rarely encountered smooth space as part of the formal curriculum,

and considering that the purpose of the degree programme is to develop specific capacities so that graduates are able to fulfil strict requirements of the professional body, spending three years in smooth space would not be conducive to this. In all aspects of their degree programme, students encountered different forms of striated space: in the classroom, in clinics and hospitals, and even in the community as they worked with patients in their own homes. This striated space provided students with a framework for becoming physiotherapist. Spending time in such spaces provided students with opportunities to familiarise themselves with and interact using specific codes, becoming striated with those codes themselves. Familiarity with the various codes seems to allow students to move from using vision and hearing to explore their environment, to less conscious focus on incoming affects which generate behaviours from within (rather than repeating what they have seen). This might be an example of what Deleuze and Guattari mean when they describe smooth space:

> "It is a space of affects, more than one of properties. It is haptic rather than optical perception."

> (Deleuze and Guattari 1987: 557)

As I have presented smooth space, it seems like an informal, comfortable space, where new insights emerge from students exploring ideas in their own way. The smooth learning spaces described by Savin-Baden (2011) are rather less comfortable; instead they were seen as spaces of uncertainty, where students grapple with trying to find solutions to troublesome problems. The different feelings experienced by students in these two examples of smooth space might be to do with the timing of the experience in terms of the students' becoming. For the students on practice placement, smooth space was experienced as a joy, allowing them to express the capacity they had already built during their previous experience. However, the smooth space Savin-Baden (2011) described was a *method* for building capacity; hence the feeling of effort and labour as students tried to decipher codes with limited cues available.

The benefits of smooth and striated spaces have been highlighted but timing is important to the benefits we experience in either space. We are all changing, in a state of becoming, just as smooth space and striated space are in a continual flux, one always transitioning into the other. Thus, it is logical to say that a person's experience in smooth and striated space is

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dictated by both where the space is in terms of transition and where the individual is in terms of becoming.

One of the most interesting points raised in this chapter is the way the hospitality of the staff, allowed students to interact, express capacities and experiment, as professional knowledge emerged. Linked to this, it was interesting to note that every student shared stories of working with a specific member of staff who seemed to spark their ability to engage with the placement. They used terms such as "open", "welcoming", "trusting", to describe that individual. Reflecting on this drew me to another of Deleuze and Guattari's most well-known concepts: the Body without Organs. It seemed that in presenting themselves with humility, these clinical staff were presenting a neutral, accepting persona (a Body without Organs), which was receptive to affects produced by a student's behaviour and which elicited a response which affected the student, driving interactions. In the following chapter, I will explore this concept in more detail, illustrated with stories from the students.

Chapter Eight: From Organised Machine to Body without Organs

Introduction

In the early part of the course, I was surprised how much the 'international' students referred to the 'home' students. Many 'international' students were a little fearful of the 'home' students and expressed no wish to interact with them, while others saw them as brilliant, viewing them as role models and attempting to engage with them. It was very clear that the behaviour of the 'home' students had a strong impact on the behaviour of the 'international' students. In the previous chapter I examined the impact of environmental structure. In this chapter I will explore the ways in which other individuals influenced the 'international' students' becoming.

Deleuze and Guattari devoted much time to exploring the way the world is organised, including the way animals and human bodies are organised in terms of being different from each other. In the previous chapter I explored the concepts of smooth and striated space, in relation to how the structure of the environment influences the capacity of an individual to affect and be affected. The concept of smooth and striated space leads easily into the notion of the Body without Organs, as Deleuze and Guattari (1987) explain:

> "[Smooth space] is a space of affects, more than one of properties. It is haptic rather than optical perception. Whereas in the striated, forms organise a matter, in the smooth, materials signal forces and serve as symptoms for them. It is an intensive rather than extensive space, one of distances, not of measures and properties…
>
> … a Body without Organs instead of an organism and organisation."

(Deleuze and Guattari 1987: 557)

Thus, a Body without Organs is to the individual, what smooth space is to the environment, while an organised organism is to the individual, what striated space is to the environment. To explain this relationship further, in this chapter I will first explore the way 'international' students were influenced by others in the classroom, and how behavioural codes have different affects (whether they are recognised, not recognised or misinterpreted). I will then introduce the concepts of Desiring Machines, contrasting it with the Body without Organs and through these concepts, examine the experiences of 'international' students in the professional practice context, where the impact of others on their becoming physiotherapist is more striking. Finally I will explore how it is through becoming stratified

with the physiotherapy code as a desiring machine that the students build the capacity to become a Body without Organs and interact flexibly in new situations (which they expressed as a feeling of confidence).

The Challenge of Diversity in the Classroom

It was interesting how the students from different backgrounds perceived each other through the different behavioural codes they expressed. Many of the 'international' students viewed the 'home' students in awe, perceiving the way they asked questions and discussed ideas freely in the classroom, as highly courageous and indicating their superior knowledge. Nikki's reflection was typical:

> "The local students are so perfect! It's like in brainstorming – they have so many ideas. I don't know why but I don't have any ideas! (Laughs) It's not just me (raises voice, laughing) – if you ask the other internationals, 'do you have an opinion or any suggestions?' They say 'I have no idea!' (Laughs) I think it's the way they teach us here is not memorising stuff - it's like us using our own words for things. I think local students are just used to doing this and getting into discussions. I think to demonstrate learning back home, it was to repeat to the teacher what we had read in a book, rather than develop our own opinion"

Nikki demonstrated a remarkable insight into this difference between the two groups of students; suggesting that expressing an opinion was a behaviour that the 'home' students had developed through their pre-university education and was a natural habit for them, while for her it was a skill she had yet to develop. Hence, she was amazed by the 'home' students' performance in the brainstorming activities in class; a social milieu which she perceived to have definite rules of behaviour (striated space), which the 'home' students understood but she did not.

On the whole, during the early days at university the 'international' students tended to sit together in class and form friendship groups but there were instances where some tentative interactions with 'home' students took place, with communication starting to flow, as Gemma recalled as she reflected on the early days at university:

"There were a few local students that treated us a lot better than other classmates. One of them was a mature student who offered us help if she sees us having trouble during the practical lessons and when we ask her questions, she would answer us in details. Another classmate would come and chat with us if she meets us on the way walking to school or even chat with us a bit during class as well. Two of the local boys in our class also treated us better than the others, one of them would often say hello to us when he sees us at the start of the lesson, while the other one would smile at us sometimes."

I was surprised at Gemma highlighting these very specific incidents which I perceived as normal behaviour, which of course, emphasises the difference in my own formatting, based on my own cultural background. Gemma was affected by certain behavioural codes (which she recognised) and was able to respond, seemingly perceiving the 'home' students' behaviour as altruistic (implying that the 'home' students did not benefit from the interactions). Through a post human lens, it is clear that all of the students are *affecting* each other in ways that produce interaction. Perhaps the behaviour of the 'international' students, is interpreted by the 'home' students as a certain vulnerability, an unease with the newness of the situation, which results in an expression of their capacity for caring or helping (with the associated feeling of pleasure). Peter's story about his interactions with 'home' students was particularly interesting as he actively engaged with the 'home' students during classroom activities, in a way that many of the other 'international' students did not. His highly emotional and animated reflection on these early classroom interactions sheds light on his atypical behaviour:

"Language is the main problem. I think I need to speak more, but before I speak more, I need to know how to speak – because I think that they usually don't understand what I am saying. They need to think about my meaning – they think for a few seconds and then answer. I'm so unhappy because I thought my pronunciation was better. I thought they would understand me but they don't. Also sometimes I can't understand what they are saying – it is so hard. I think the accent is hard because they will link the back and the front of their words, for example they will say 'ador' and in Hong Kong we would say 'at all' not 'adorrrrr' - so I get so confused. (Laughs) I don't ask them to slow down because I'm so shy. (laughs) Yeah, I

mean in UK you don't need to ask people to slow down, so I will try hard to understand."

Interestingly, Peter was the only male member of the cohort, which may explain why his behaviour was different to that of his female peers, but he was also a little older than the others and had completed a diploma in Rehabilitation Studies before coming to the UK (which would likely have contributed to his feelings of confidence). It is conceivable that through his previous experiences with both higher education and physiotherapy, an open ended refrain had developed (as discussed in Chapter six, pages 130-134), in the form of an imaginary of himself at university in the UK. Arguably, Peter had some familiarity with the communication code of the classroom from his interactions with this refrain, so did not view the behaviour of the 'home' students as significantly different to his own. Thus he was able to respond to affects within the classroom and interact with learning activities in a similar way to the 'home' students, while other 'international' students could not. He was remarkably perceptive, noticing that the 'home' students had to think about what he said and try to work out his meaning before they replied. However while disheartening, the interactions were sufficient for Peter and his classmates to territorialise a productive assemblage.

In the early days of university, the natural groupings within the classroom tended to be small uni-national groups, where students found a sense of belonging from a shared understanding of language and cultural codes (and were comforted by the rhythm of the refrain, as discussed in Chapter six, pages 123-126). Many of the students recalled with horror, how this natural grouping was disrupted by the regular classroom ritual of tutors allocating students into mixed nationality groups. This is a widely practised method to facilitate the integration of 'international' students, improve their language skills and gain familiarity with the different approach to learning (Leask 2007; Montgomery 2009; Sweeney, Weaven and Herington 2008) but its value was clearly not appreciated by the students in those early days at university.

The Changing Dynamics of Mixed Nationality Groups

Nikki's recollection was very dramatic. She spoke for herself and her 'international' student peers, of the terror they all felt about working on classroom activities with 'home' students. She laughed and threw up her hands as she proclaimed:

> "It was a nightmare – it was a nightmare! It is so hard to talk to them ['home' students] - and I'm very scared – very scared that my opinions might be wrong – since they think so differently - like they aren't afraid of saying the wrong answer. But we are very afraid of saying the wrong thing 'cos back in Hong Kong if you say something wrong, your classmates will laugh at you and stuff like that."

The strong intensities she felt during those early days in the classroom were experienced again with me, demonstrated by her facial expression and animated gestures, as she recalled her experience. As well as the strong feelings of fear, Nikki expressed the connection she felt to her 'international' student friends in the class, implying a real 'us and them'; a solidary. Nikki clearly places the reason for the lack of interaction onto the shoulders of the 'international' students: their apparent inability to think of ideas and fear of having the "wrong" opinion (suggesting that there is a predetermined 'right' opinion, a 'right' way to behave). Mary also felt that this teaching strategy was not effective and she too, blamed her own inadequacy:

> "The teachers mix us up sometimes, but I don't think it really helps…. I am just too shy I guess"

Viewed through the humanist lens, these stories paint a picture of a divided classroom with anxious 'international' students, unable to engage with classroom activities and feeling inadequate in terms of their communication skills and physiotherapy knowledge. This image has been alluded to in other literature, for example Popov et al. (2012) argued that working in mixed-nationality groups has many challenges for students, ranging from communication and cultural differences to students' negative perceptions about others in the group, all of which emphasise the perception of a *deficit* in the 'international' student. In another study, the benefits of uni-national groups were highlighted by McLachlan and Justice (2009) who observed that 'international' students actually sought out co-national groups for support with the anxiety associated with the challenges of academic study in a

different cultural context and different language (which was definitely the case with the physiotherapy students). De Vita and Case (2003) proposed a different pedagogical approach for 'international' students which might address these issues, suggesting that teaching should include:

> "strategies aimed at facilitating processes of self-enquiry, critical reflection, mutual dialogue and questioning. These strategies would lead to a more participative and student-centred approach, in which the lecturer becomes a facilitator and students become more responsible for their own learning and development"

> (De Vita and Case 2003: 393)

However, this type of approach also presumes a certain familiarity with specific behaviours (unintentionally promoting a different type of striated space), where students who do not have that familiarity with these presumed behaviours, might be unable to engage, possibly experiencing strong negative feelings (like the 'international' physiotherapy students described).

I offer a different interpretation of these findings by presenting a post humanist perspective, which decentres the 'international' student and the concepts of blame, responsibility and agency are removed. Instead we see behaviours and interactions occurring as a result of the affects of flows of intensities across the milieu; causing each individual's behaviours to be "aided or restrained" (Spinoza 1677: 96). Rather than resulting from conscious decisions made by an individual student, a student's engagement in the classroom is determined by their familiarity with firstly, the structure and codes of the classroom milieu and secondly, the behavioural codes of others in the group. Applying this idea to a different context, we would not question the *abilities* of a world-class dancing champion if we noticed a degree of awkwardness in her dancing if asked to perform with a group of school children, in the school hall.

While the stories around mixed nationality groups during the early days at university were rather unsettling, students' expressions of fear and dread diminished over time as they became more familiar with the language and many social codes both in and outside of the classroom. This is in line with other research which found that international students experience the most anxiety and stress during the first few months at university (Hotta and

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Ting-Toomey 2013). Again, the importance of timing is highlighted here. Students needed time to become acquainted with communication codes but once familiar, they were able to affect each other and be affected, and start to interact positively. In fact, Grace noticed a dramatic change in the classroom dynamics as she started her second year:

> "In the first year I used to try to be in groups with my Hong Kong friends but this year, we just change groups every time – we won't stay with the same person for multiple times. I feel I am more involved in class because my classmates will also respond to my opinions – so I'm more involved"

Grace's narrative specifically refers to her capacity to affect her classmates, and reflects a sense of comfort, a sense of belonging which has emerged from the students working together. That feeling was not present from the start, and it took time for the individuals in the groups to learn about each other and establish a shared communication code for their interactions.

These findings suggest that the anxiety produced by working in mixed groups during the early weeks at university outweighs the potential benefits. However if introduced later in the first term, when general anxiety levels have reduced and students have gained some familiarity with new codes, it is a useful method to bring students together through a shared activity, which will enhance interaction and production of physiotherapy knowledge. Time has been foregrounded as an important factor for students from different backgrounds to gain familiarity with each other's behavioural nuances and this seems to happen over the first year at university. However, each practice placement lasted just five or six weeks, so time was a limited resources in this part of the course, and might explain the powerful stories students shared about the impact of specific individuals on both their enjoyment and learning during their practice placements. Before I explore these stories, I will return to Deleuze and Guattari. An understanding of their ideas around the way a body becomes stratified, and the impact this has on behaviour of that individual and others, will enhance the interpretation of students' placement experiences.

From Desiring Machine to Body without Organs

As a desiring machine, an individual is coded to function in a particular way; their body is stratified into specific patterns of action, allowing it to affect and be affected by (and therefore connect with) *only* certain others. Nikki could also be considered a desiring machine but formatted in a different way to the 'home' students she described. During the brainstorming activity, as the tutor asked students to share their ideas, the actions of Nikki and the 'international' students were restrained, while the 'home' students immediately raised a hand or whispered to their neighbour (responding quickly to the affect of the tutor's request). It was as though the bodies of the 'home' students were programmed to function in a specific way, just as a pet dog runs to the door when he hears his lead rattling, or as a car moves forwards when the driver presses the accelerator pedal. This organised, structured and productive, bodily action is a feature of what Deleuze and Guattari describe as the desiring machine:

> "Desiring machines make us an organism; but at the very heart of this production, within the very production of this production, the body suffers from being organised in this way, from not having some other sort of organisation, or no organisation at all"

(Deleuze and Guattari 1983: 8)

Thus, one of the key features of the structured "organism" is that it is productive but Deleuze and Guattari also emphasise that with this organisation, certain limitations are imposed on the body, restricting it to that particular organisation. Another feature of the desiring machine, which Deleuze and Guattari (1983: 5) stress is that they are "inherently connective in nature", for the purpose of interrupting flows (as discussed in Chapter four pages 72-76). We see this everywhere, as individuals (desiring machines) make connections other machines: with mobile phones (to interrupt knowledge flow), with books (to interrupt narrative flow), with artwork (to interrupt emotion flow) with a bicycle (to interrupt energy flow) and with other people (to interrupt communication flow). Importantly though, Deleuze and Guattari (1983) emphasise that each organised machine interprets everything *from its own perspective*, from the point of view of the energy flowing from it, and connections between machines are only established if one machine is able to '*see*' the way

flow is interrupted as it moves between them. In other words, there must be a degree of familiarity between the coding of the two bodies before a connection is made. Thus, when a student from a particular cultural background expresses their capacity through behaviours which might signify different meanings to a student from a different cultural background, it may result in the restraint of actions (as in the '*brilliant, talkative'* 'home' students failing to connect with the '*quiet, reserved*' 'international' students). In contrast, Peter seemed to recognise the British students' behaviours as 'normal student behaviour' and had the capacity to be affected by them, producing a response which they recognised, in a way which drove territorialisation of a productive assemblage.

These examples demonstrate how the way an individual expresses the degree of organisation or stratification in their behaviour, has an impact on others. This is a topic which Deleuze and Guattari (1983; 1987) have explored in detail, describing the functioning individual, as a desiring machine, which contrasts with an individual who is free of structure and referred to as the Body without Organs (BWO):

> "The full body without organs is the unproductive, the sterile, the ungendered, the unconsumable"

<div align="right">(Deleuze and Guattari 1983: 8)</div>

Deleuze and Guattari (1983; 1987) describe the BWO through complex and abstract narratives. They emphasise how social forces constrain the body into behaving in certain ways, for example, the way human sexual behaviours are disciplined by social conventions (Deleuze and Guattari 1987). The BWO is what is left when all forms of stratification are removed:

> (i)   The organism (the fully functioning unique desiring machine: (you; me),
>
> (ii)   The signifiance *[sic.]* (the meaning or signification of our language, appearance and behaviours),
>
> (iii)   Subjectification (our sense of self);

or in the powerful words of Deleuze and Guattari (1987):

> "You will be organised, you will be an organism, you will articulate your body – otherwise you're just depraved. You will be signifier and signified, interpreter and interpreted – otherwise you're just a deviant. You will be a subject, nailed down as

one, a subject of the enunciation recoiled into a subject of the statement –

otherwise you're just a tramp"

(Deleuze and Guattari 1987: 185)

Comparing the BWO to a fertilised egg (before the organs have developed and the body has become organised), when the egg has the potential to become anything, Deleuze and Guattari (1987) argue that if a body could be freed of the restraints imposed on it by structures in the environment, it could reach its full potential. The body might experience different affects and respond in creative, alternative ways.

What is clear is that the BWO does not simply mean an empty shell of a body. Deleuze and Guattari (1987) emphasise that the BWO is part of each of us already but it is also a limit, which none of us will ever reach. They argue that we can *try* to reach this limit state by stripping ourselves of the striations which were imposed on us by social forces. However, they stress that this has risks, as it may leave us with a body empty of structure and unable to function, for example, in psychotic states such as schizophrenia or drug-fuelled delirium, or even death. We must retain sufficient stratification to allow us to function, but let go of the influence of social structures so we can become filled with the intensities within a specific situation and respond to affects in new, creative ways (Deleuze and Guattari 1987). The importance of the BWO in Deleuze and Guattari's writing is central to their philosophy of difference. Instead of searching for the essence of materials (what *is* a body?), Deleuze and Guattari (1987) asked: *what can a body do*?

> "We know nothing about a body until we know what it can do, in other words, what its affects are, how they can or cannot enter into composition with other affects, with the affects of another body, either to destroy that body or to be destroyed by it, either to exchange actions and passions with it or to join with it in composing a more powerful body."

(Deleuze and Guattari 1987: 300)

Thus by stripping a body of the stratification imposed by the environment the body was born into, that body has the potential to become something quite different. For Deleuze and Guattari, becoming a BWO seeks to address the fundamental question: *what can a body do*? As with their other theories (such as the assemblage, desiring machines, smooth and

striated space), many scholars have used the BWO in different ways to explore various structures with the aim of exposing the potential for broader, more creative possibilities. For example, Markula (2006) used the conceptual framework of Deleuze and Guattari to dismantle the dominant, static identity of the fit feminine body as the "thin, toned and young-looking". She used the idea of the BWO to explore the potential to move beyond the binary oppositions of feminine-masculine identities. Fox (2011) used the BWO as a means to explore the broader idea of the body in relation to health and illness, arguing that for too long the concept of the body has been constrained by the privileging of its biological structure, and Bazzano (2021) explored the implications of the BWO in broadening the potential for psychotherapy theory and practice. However, I will use the BWO in a different way. Rather than trying to dismantle the culturally imposed stratifications of the students, I will plug into this theory as a way to analyse the students' stories, using Jackson and Mazzei's (2012) "thinking with theory" approach (as discussed in Chapter three, page 66).

With these ideas in mind, I return to the stories presented earlier, where it was evident that the signifiance (sic.) associated with the 'home' students' appearance, behaviour and speech, made them inaccessible to those who were different (in this case, Nikki, page 172). In contrast, in Peter's story (page 173), the signifiance (sic.) of the 'home' students' behaviour was not decidedly different to his own, so mutual affects were felt and responded to, as territories were established. A final point to make about the way students were drawn to forming friendships in those early days arose from several students' comments, which provided a clue to why they were *affected by particular* individuals. They described these people as "*open*." Diane's reflection was typical as she contrasted the difficulties she felt in connecting with the 'home' students with the ease of connecting with 'international' students (my italics):

> "I didn't really connect with British people; they didn't have interests in meeting international people, they were not *open*. They were *open* to meeting other British people but not as much as the international people. At first, I kind of made friends with a British girl, but when she was making plans, she was making plans with other people but she didn't include me at all. But then I met this international girl, and she introduced me to her group and now we are in this international group. I think

maybe because of the cultural differences, we wanted to know more about different people, and just being excited and *open* to meeting different people."

Diane frequently used the term *'being open'* as important to making friends. She perceived that the 'home' students were "open to meeting other British people" but not open to meeting international students. Presenting the situation from this humanist viewpoint, Diane is implying that the 'home' students were consciously closing themselves off from the 'international' students; seeking out friendships with other British students. Diane was observing their behaviour and interpreting it based on what that behaviour would mean if she acted that way. It is therefore perceived in a negative way, as though Diane is being treated unkindly by this group, while the 'international' students are more open, implying they were interested in others and wanted to make friends.

Diane's humanist labelling of her classmates as '*open*' or '*closed*' could also be an accurate description from a post-humanist perspective. Open implies that senses are open, as in eyes wide open, while closed implies senses are closed, as in eyes closed to the surrounding world. Being open infers that person is presenting as a BWO rather than an organised machine, revealing the potential to be affected by others; while closed infers that a person is presented as an organised machine, demonstrating they are only receptive to affects of others who are formatted in a similar way. This perspective removes any idea of blame or conscious decision-making by individuals. The negative feelings experienced by Diane were based on her humanist interpretation of the different students' behaviours. The 'home' students Diane described, were *closed* to being affected by her, not because they did not like her, but because her behaviour did not affect them, she was simply overlooked. They were much more receptive to the other 'home' students, whose behaviour, they recognised, which resulted in rapid territorialisation of new friendship assemblages with the other 'home' students. The 'international' students were open to being affected by Diane as, like her, they were newcomers and unsure of the expected behaviours, so presented as BWOs, without strict codes, and with the capacity to be affected by her, another newcomer.

The impact of behavioural codes on students' capacities to territorialise friendship assemblages was evident in the early days at university but by the end of the first year, students were able to interact easily, recognising each other as physiotherapy students rather than members of different groups. Again the importance of time has been

highlighted as essential to build capacity to affect and be affected by others and this may explain the many powerful stories students shared about the impact of other individuals during their five to six week practice placements.

Organised Machines or Body without Organs – Impact on Professional Practice

All professional practice placements are designed as modules, with specific learning outcomes which are assessed through a range of methods on each of the different placements. During the placement, each student is allocated a qualified physiotherapist (the clinical educator) who will supervise, support and guide the student's professional development and assess their performance. Of all of the individuals students encountered during their placements (from patients, relatives, to other health professionals and other students), the clinical educator was the individual who seemed to have the greatest impact on students' becoming physiotherapist. This finding is not new and has been previously highlighted in the literature (Shepard et al. 1999) and was discussed in Chapter two, page 31, but the extent of this impact in terms of students' enjoyment, their capacity to express their skills and their becoming physiotherapist, is one of the key findings of this inquiry. Students shared many heart-warming stories of the powerful influence a particular clinical educator had on their professional development, but there were also a number of distressing stories. For example, Kim's frustration and hurt were evident as she shared her experience of a particular placement, feelings that were typical of other students who shared similar experiences:

> "There was an educator who was very very strict and they keep asking, Why? Why? Why are you doing this? And why like this? - in each session, and it makes me really really stressed. I know that she wants to help me, but... (pause)
>
> At the halfway [assessment], they said I would fail, that I'm not proactive enough and that I'm not able to adapt my assessment - but they are very busy, and not able to give me more support. That placement is the most stressful thing in my life. I think the most important part is that sometimes I knew what I needed to do, but I

wasn't able to do it. This makes me sad the most. I just cannot think - it's the fear - like the stress that make it so difficult."

Kim's honesty in expressing the extent of the emotional impact this particular individual had on her was moving, and it was clear from her facial expression that she still experienced those feelings when thinking about the situation. Kim described the educator as being "very very strict", suggesting that this clinical educator had a very definite code with which she was expecting Kim to engage. The term strict also suggests that rather than being attentive to Kim's behaviour in *extension*, her attention seemed to be in *thought*, interacting with an imaginary of the rules and expected behaviours. She was therefore unable be affected by Kim and respond authentically to that situation. Thus neither body was able to '*see*' the flow from the others perspective, so they were unable to connect.

This inability to express capacity, associated with a high level of anxiety in the presence of a clinical educator was shared by many students and was also reported in a study by Laitinen-Vaananen, Ulla and Moinna-Ritta (2018), which examined the interactions between clinical educators and student physiotherapists during patient treatment sessions. They found that often students refused to engage with the treatment because of feelings of uncertainty and nervousness. Using a humanist lens, the authors interpreted this behaviour as being the result of the strong power differential between the students and the clinical educators. I offer an alternate, post humanist explanation that the anxiety experienced by these students (and the students in this inquiry) indicates underlying affects; affects which restrained action. On encountering a body which was evidently highly striated with a code which the student was not familiar, they were unable to be affected (in a way which drove connection), nor express capacities which would affect others in that milieu.

Kim's assertion that at times she felt she *did* know what to do but was somehow unable to express it was particularly alarming, considering the purpose of the placement was for students to practise their skills (express capacities). The affect the educator had on Kim restrained any action she might produce. It was interesting that this point was raised by several students, and Nikki shared fascinating insights about this as she reflected on her different educators on different placements:

"I have had one or two educators who I feel like in front of them I'm too nervous and cannot do anything. But, if they just stand back, I can do everything, I'm alright and not nervous at all. I feel like I can do this stuff - but some of them make me feel really nervous 'cos I feel like they are examining me all the time."

It seems that certain behaviours expressed by clinical educators (such as asking lots of direct questions, seeming to expect a specific, correct answer) was central to this paralysing affect (possibly because of the strong association with the assessment code). In all of the examples shared by students in this inquiry, the clinical educators who produced this paralysing affect were rigid in their approach, adhering to pre-existing rules (which the students may not have been aware of) and outwardly presenting their structured expectations of the students. As a desiring machine, alert for the opportunity to make a connection, each student would view a highly formatted, stratified body, which did not have the capacity to be affected by the student. Making connection was impossible and the students' behaviour was restrained. These stories were memorable to me, particularly the common point many students highlighted: the feeling that they knew how to behave but (often, overwhelmed by fear) were unable to produce that behaviour in the presence of the clinical educator.

These stories clearly demonstrate the powerful impact that the clinical educator has on both the students' enjoyment of the placement, but also of their ability to form connections and build capacity. It also raises important questions about the approaches used by clinical educators to enhance student learning on practice placement (which I return to later, pages 187-189). While these stories are disturbing, there were *many* more that demonstrated the positive influence of clinical educators on students' becoming, as highlighted in the collection of vignettes below:

"On my stroke placement, at the beginning of every assessment and treatment, my educator slowly let me try it, and then in the second week, he just sat at the back and said 'you can do it' and 'if you need help, just ask.' I felt very comfortable having the way of slowly letting me observe how he did it and then I do the same thing – rather than I just observe the first week and in the second week I had to do it. I didn't really have to tell him 'I can't do it' or 'I can do it' – he knew when is the time– like he can see my ability and when I actually did well, he would say 'Oh you are doing really well – I only taught you once and you are doing the handling right already' – like it's a way of complimenting me."

(Nikki)

"Before we met the patient, my educator would ask me what are my ideas to do for the patient, and we will go through some ideas and how to approach it – and then because we have lots of time before we see the patients, she will demonstrate on me and show me how it feels and why she would like to do it like this – and then she also gave me lots of time to think of the ideas and also ask her questions – so I think this is a good way for me to learn."

(Willow)

"First the clinical educator would let me do it and if they thought it wasn't quite right, they would tell me what to do – so they would just explain it to me and if I got it, I would just do it. If I was struggling with something, they would help me to understand it, by just holding my hand and placing it correctly on the patient so the next time I would know how to do it better. So they helped me a lot with my handling and I got daily feedback on it."

(Natalie)

"I had a really wonderful educator - he was one of the young ones
and he knew all the struggles that students go through. That really
helped me – I thought OK, I'm not alone in this! He really listened to
what I said and he saw how I learned in practice, and made his own
observations. He's like, OK, I've noticed that you do this when I'm
around and maybe if I give you some space, you will feel more
confident, because I guess he saw that I don't like it when people
watch over me. Then if I feel very anxious - like put on the spot, he
gave me that space to build my confidence, talk to the patients and
just be my own person. And I think him being so aware of how I
learn made a big impact. He was a very open and friendly person."

(Diane)

In all of these stories, there is a sense of openness and acceptance in the way the clinical
educator responds to the students (similar to the hospitality shown by the professional
teams, described in Chapter seven, pages 164-166). There was clearly a strong professional
code with which the students were not yet fully familiar and in all of the cases, students
made mistakes (in terms of the way they expressed professional knowledge, verbally or
physically), but this was simply responded to in a way that produced a positive response in
the student. What was notable in all cases was that the educators and students were highly
attentive to each other, which seemed to contrast with the 'strict' educators, whose
interactions *in thought* with rules and expectations, seemed to draw their attention from
the students. In the relationships described above, there is an evident toing and froing
between student and educator, as interactions flowed, as the nature of the interactions
changed, suggesting changes within the student (in terms of capacity) and in the way the
student was affecting the educator (demonstrating this change). In all cases, *time* was
devoted to this process of dynamic interaction. The accepting, attentive behaviour of the
clinical educator presented to the student a BWO, freeing that encounter of rules and
restrictions, allowing the students to express their capacity in response to the intensities
flowing through the environment. As a BWO, the educator responded to the affects the

students had upon them, as fluid, dynamic interactions ensued as productive assemblages were territorialised, with associated feelings of pleasure.

It was interesting to note the similarities between those educators who seemed to trigger restraint in the students and those who triggered interaction and production. Those educators who were perceived in a positive light seemed to be accepting, encouraging students to express their capacity (even if they were not fully familiar with the 'rules'). Importantly, these educators did not seem to emphasise 'rules and expectations' in a formal manner. What was particularly notable was the attention they paid to the students, as if the affects of that milieu had already triggered the deterritorialisation from previous assemblages. All of the stories revealed individuals who were vigilant to affects within that milieu, particularly focusing on what the student said and did, and having the capacity to respond in a way that affected the student and drove interactions. As a BWO, they were open to the flows and intensities within that milieu, having the capacity to be affected and respond, in new ways, change, be adaptable (but having retained the striations relating to physiotherapy knowledge, their behaviours were not completely indiscriminate). This idea of having part of the body in touch with the striations while part is free from striations and open to new affects, was referred to Deleuze and Guattari (1987) in their description of a book as an assemblage, but the idea can readily be applied to this situation:

> "One side of a machinic assemblage faces the strata, which doubtless make it a kind of organism, or signifying totality, or determination attributable to a subject; it also has a side facing a body without organs, which is continually dismantling the organism, causing asignifying particles or pure intensities to pass or circulate, and attributing to itself subjects that it leaves with nothing more than a name as the trace of an intensity."

(Deleuze and Guattari 1987: 2)

Thus, considering the 'attentive' clinical educator as a machinic assemblage, the part facing the strata is not perceptible to the student, so the student's behaviour is not constrained by the affects of structure; only the part facing the BWO is perceived by the student, meaning they are able to express their capacity freely in a way that responds to any affects with emerge in the milieu. In contrast, the 'strict' educators' questioning behaviour did not seem to be a response to affects within the milieu, rather a response to their own thoughts (as

they interacted with entities in thought). Thus, they were unable to become a BWO and instead, displayed this structure, and students' behaviour was restrained. This also explains the apparent lack of attention paid to the student and surrounding milieu (as attention was focussed on thoughts) so they were unable to respond to the student and shared territories could not be established.

Considering this situation further, it may be that it is only possible for an educator to become a BWO if they are already stratified in terms of the physiotherapy code and the assessment expectations of students. These stratified educators have the capacity to deterritorialise from interactions with 'rules' in *thought*, and focus attention on the unfolding milieu in *extension*. It is possible that those 'strict' educators were novices and less familiar with the rules and expectations relating to student performance and were therefore affected by those rules in *thought* (and unable to deterritorialise). However, comments from the students suggested this was not the case. Surprisingly, many students commented on how they felt more at ease with the more junior (arguably less knowledgeable, less stratified) clinical educators, reporting that the more senior educators were often busy with other responsibilities, leaving little time to spend with the student. If these senior therapists were interacting in *thought* with ideas relating to important tasks which needed completing, this may explain their lack of receptivity to being affected by a student and therefore being unable to respond in a way that enhanced interactions. Thus it seems that the availability of *time* to spend with a student is more important than the expertise of the clinical educator in providing opportunities for students to build and express capacities in the clinical situation; a suggestion which has some support from findings in other research. In a study exploring the different approaches to clinical education, Moore et al. (2003) identified that time spent with the educator was one of the key factors in successful physiotherapy student placements. Certainly this is a topic which warrants further exploration: allocating more junior therapists to student supervision roles might not only be beneficial to student learning, but could potentially increase the overall capacity of many clinical locations for hosting students.

Becoming Humble – Becoming a BWO

The image of an open and accepting educator, who is attentive to a student in a particular moment, drew my thoughts to the recent discussions in the health and social care and education literature around cultural humility. Tervalon and Murray-Garcia (1998) first used this term in relation to the education of physicians, as an approach to addressing the power dynamic in professional interactions and promoting more "mutually beneficial and non-paternalistic partnerships" (Tervalon and Murray-Garcia 1998: 122). They defined cultural humility as:

> "A commitment and active engagement in a lifelong process that individuals enter into in an ongoing basis with patients, communities, colleagues and with themselves…
>
> … to develop and maintain mutually respectful and dynamic partnerships with communities."

> (Tervalon and Murray-Garcia 1998: 118)

They argued that through a process of self-reflection, which challenges personal biases and pre-conceived stereotypes, doctors are able to develop a more "patient-centred" approach to consultations, where rather than leading and directing conversations, the doctor would focus on *listening* and allow the patient to initiate questions (signalling to the patient that their perspective is valued). Since then, this approach has been explored in relation to nursing (Mainwaring and Davies 2022), social work (Bibus and Koh 2021) and counselling education and practice (Zhu, Luke and Belini 2021). It has been found to enhance relationships and communication between professionals and students, clients, patients, even improving health outcomes (Fisher-Borne, Cain and Martin 2015). Of particular interest is the description Bibus and Koh (2021) give to the practice of humility. As well as self-awareness and the ability to acknowledge one's limitations, they argue that in being humble, a person appreciates the *value of all things*, recognises themselves as being *one part of a bigger picture* and being *open* to new ideas. While this has been presented through a humanist lens, these ideas align well with a flat ontology, and the behaviours described by Bibus and Koh (2021) could easily be applied to the open and friendly students described by Diane (page 181) or the open and accepting clinical educators (described pages

186-188). Thus I argue that my description of clinical educators presenting as a BWO represents a post humanist perspective of humility. By deterritorialising from interactions in *thought* (with rules and expectations of a milieu), an individual is able to be vigilant to the affects within that milieu and respond authentically in that moment.

The positive impact of individuals whose behaviour suggested humility was not only evident in some clinical educators, but in other individuals, for example, unqualified physiotherapy assistants, other health professionals, such as occupational therapists (OTs) and also other students. In all of the students' stories around individuals who influenced them in a positive way, there was a sense that the student rapidly and easily established a territory with an individual who behaved with humility, as a BWO. This will be presented in the following section.

Interacting with Other Students

In professional practice it is not uncommon for more than one student to be placed in a particular clinical area, and many students commented on the benefits of this. Rosie explained how working with another student allowed her to engage with the patient more intensely:

> "My last placement was a really good experience – it was in Trauma and Orthopaedics. There was another student there and it was probably better because he was quite quiet and I was quiet so I kind of, took the lead more (smiles). So at first, we were seeing patients together and he would be quite quiet, so I said I would take the lead and then if there was any silence, I would jump in. It helped me more, as if there was somebody who was more chatty, I would take a back seat. So I think that helped quite a bit."

Throughout the three years of the inquiry, Rosie had shared with me many stories in which she would tend to stay quiet in social situations, but in this instance she behaved differently. The affect of the patient, combined with the other student's hesitancy (presenting as a BWO), caused Rosie to respond by engaging with the patient and through the ensuing

interactions, physiotherapy knowledge emerged across the assemblage, accompanied by changes in the patient (becoming well) and the two students (becoming physiotherapists).

Kim's reflection was typical of many, highlighting the absence of 'pressure' when working with another student:

> "On this placement there's two students with one educator, so I think it's quite good. At first, we did some assessment together and then we give feedback and then after that we do it individually. Then we compare notes and maybe he'll tell me some of his experience, and then we can chat, it's less pressure. I think doing it with students is less pressure than with the educator because you know they are not assessing you."

This story presents a highly productive assemblage with both students interacting freely as BWOs: attentive to affects within the milieu and simply responding (with stratifications turned away from each other). While students may be from different cultural backgrounds (through which they developed different cultural striations), they had not developed the additional striations associated with the physiotherapy code or the codes around assessment. Working with each other, students encountered shared familiarity with the codes around professional practice and were able to recognise each other's behaviours and respond in ways which allowed the territory of a productive assemblage to be established. The benefits of students working together on practice placements has been alluded to in other research, for example, Baldry Currens and Bithell (2003), Moore et al. (2003), O'Connor, Cahill and McKay (2012). These findings and the theoretical perspective of this inquiry provide justification for moving away from the traditional 1:1 (student: educator) model and the adaptation of a 1:2[+] model, particularly with the current shortfall in practice placements for all allied health professionals (NHS Employers 2022).

Interacting with the Physiotherapy Assistant

Within many physiotherapy departments unqualified assistants are employed to support the physiotherapists in their work, for example they may supervise patients in carrying out exercises that the qualified physiotherapist has prescribed or work alongside the

physiotherapist, providing assistance. Often the assistants have a vast experience, have excellent communication skills and it is not uncommon for students to spend time with assistants in their day-to-day practice. Grace's reflection of working with an assistant, was typical of many students' experience:

> **"**I think one major reasons I felt more comfortable with the assistant is because it felt like they weren't supervising me that closely and not actually wanting to know what I'm planning or what I'm trying to do. I always had the independence to lead sessions by myself and she would just stand there and make sure things were safe and help me with my handling skills. But when I went in with my educator, I was always a little bit anxious as I always had the fear that she is supervising me so I have to do this and do that. I always had it in the back of my head that I have to do things perfectly (laughs) so that was a fear all the time."

Grace's story clearly illustrates the freedom she feels in expressing capacity when her educator is not observing. The constraint of performing in the presence of the assessment framework (marking, scoring, inspecting) is removed but the reassuring presence of a humble guide in the form of the assistant, allowed Grace to interact freely with the patients they encountered. Nikki's experience of interacting with the assistant is particularly interesting and reveals a valuable output of the productive assemblage:

> "I learned a lot from the assistant - not just by talking to her but observing what she is doing - I think that helped a lot. My placement was orthopaedics, so after the surgery, the patients have to do bed exercises and when she starts off, she keeps on talking with the patient, like casual stuff and everyday life - but the qualified physio, maybe she is not so nice – she went straight to doing the exercises - like 'I'm the physio and today is your first day after surgery, so you must do this.' So I saw a difference with the assistant – she taught me that when you do bed exercises on the first day after surgery, keep talking to the patient and distract them so then they won't feel the pain - she kept on talking, but her hands were doing the handling as well. After I saw it a few times she did it - not exactly the same, but I copied what she did to the patients. (Laughs)

It was very helpful because when you do the exercise, the patient will look at you and you know there is a pain, but if you keep talking to them, you are like (acts out the exercise, smiling) doing it very slowly - that helps a lot. It's like I started to talk to them more - not only about - how do you feel today? Can you walk? Not only about the therapy thing, I talked a lot more other stuff – so when you talk more about the casual stuff, you feel more comfortable while doing the therapy."

Nikki revealed a profound insight, relating to developing her communication skills. Her story presented a scene of intense, dynamic interactions between the assistant, the patient and Nikki, each one of them affecting and being affected by the other, observing, listening, moving, talking. The output of this assemblage was a change in capacity for the patient (in terms of movement) and a change in capacity for Nikki (in terms of her communication). Through her accepting, open and attentive behaviour, the assistant presented as a BWO allowing the patient to express capacity in terms of movement, and also allowed Nikki to express capacity in terms of physiotherapy skills. What was particularly interesting in this scenario was that through these interactions Nikki developed the capacity to present herself as a BWO with future patients. This notion of a student as a BWO turned out not to be unusual. In the many wonderful stories students shared about successful physiotherapy treatment sessions with patients, I noticed that the territorialisation of the physiotherapy assemblage seemed to accelerate if the student presented a BWO (just as the clinical educator presenting a BWO accelerated the territorialisation of the learning assemblage). In the following section I will explore the process of students 'becoming BWO' in more detail.

Becoming BWO – Building Confidence to Go with the Flow

The humanist term, *confidence* was mentioned by all of the students frequently over the three years. At times they would express sadness or frustration at their 'lack of confidence' and at other times, express joy and sometimes, surprise as they acknowledged the confidence they felt. Interestingly, it is widely documented that there is a relationship between self-confidence and performance (for example, Bandura 1997; Woodman and Hardy 2003), suggesting that as performance improves, so students feel more confident. However, this relationship is not quite as simple, as some studies (for example, Woodman et

al. 2010) have found that high confidence may be associated with worse performance (possibly due to confident performers taking risks or becoming complacent), while others may lack confidence while performing well (possibly due to negative experiences in the past). Feltz (1988), argued that self-confidence is context-specific and defined it as "a belief of a person that they can successfully achieve an activity and [other] individuals' trust to their own judgment, ability, strength and decisions" (Feltz 1998: 425). Applying this humanist lens to the current context, confidence could be viewed as a students' belief that they can perform physiotherapy successfully in a particular clinical context, along with the trust of the patient or clinical educator in their ability. This self-confidence was something which seemed to develop over time, a feeling, or emotion. Bandura (1997) argued that certain requirements are essential for developing self-confidence, including the experience of success in the task (for example, treating a patient effectively) but also positive feelings about the performance and receiving positive feedback from others. Interestingly, Bandura (1997) also argued that observing a person in a similar position, perform successfully can impact on a person's self-confidence, which might be the case for physiotherapy students who observe other students, the physiotherapy assistant or junior staff members performing successfully. This provides another argument for students interacting with a range individuals while on practice placement and in particular, the benefits of peer observation.

Taking a post human view of self-confidence, would decentre the student and view confidence as an immanent property of the interacting bodies within a particular milieu. Bandura's criteria might be considered differently, as flows across a multiplicity. For example, in a clinical assemblage comprising a patient and two students, through therapeutic interactions the patient becomes able to walk across the gym, associated with a positive feeling experienced by all, with each actor perceiving the success, while sharing positive feedback. It is reasonable to view confidence as one of the many outputs of a productive assemblage such as this, which I will explore further in the following section, along with its relationship to becoming physiotherapist.

As I examined the different circumstances in which the students referred to feeling confident, commonalities seemed to be the ability to express capacity for physiotherapy knowledge in a *variety* of contexts and *flexibility:* the ability to *adapt* to different patients'

needs. Diane's reflection on her feelings of confidence hinted at a certain 'knowing' or automaticity (suggestive of an organised machine):

> "It feels like I just know what I am doing, and I'm like, yeah, I'm gonna do this because of this. I start automatically clinically reasoning - like it's obvious what I should do because *this* is gonna lead to *this*. On the ward I was by myself and I was just - OK, so I need to do this, I need to make a plan for this, I'm gonna prioritize this, and I just really saw - OK, I can really do this! I just really felt confident in doing it. And yeah, I think it was that internal thing, like I'm surprised in myself. I'm like, I can really do this. I know what needs to be done and it's working!"

From Diane's story, it seemed that confidence was an internal feeling of being able to express her capacities automatically in response to affects in the environment. A key feature of the students' description of confidence was flexibility or adaptability. In their conversations about confidence, many students explained how every situation was different and techniques they learned in university needed to be adapted to different patients. Physiotherapy was not one specific action, it was something that emerged from the interactions in a particular milieu, and confidence was the ability to perform in that milieu in a way that drove the production of the assemblage. Nikki's reflection on how she had changed as her confidence increased, shed further light on the importance of flexibility:

> "I think I feel more confident now that I understand things. Like I used to write down a lot of notes - copy down every single sentence and memorise it, but now I just write down some bullet points saying what I have done today. Now I feel like I have to *understand* it rather than getting it all into my brain - because if I understand it, it is easier to explain it as well.   'Cos for example, previously when we practised some treatment, we might sit on the bed - and I would memorise it and when we do it in SDP [Self Directed Practice], I would only do it sitting on the bed - but now I think we can sit on the chair - it is fine, as long as it's safe (laughs) but previously I was like that!" (chops down her hand)

Nikki's gestures implied a change from rigidity to flexibility as her confidence developed and this change allowed her to adapt her responses to the needs of a particular situation. What was also evident was the extent of the capacity building activities she engaged with, (highlighted by her own emphasis on the change from memorising to understanding).

What was evident from the stories relating to confidence was a move to automaticity and students recognising that they were *adapting* what they had previously learnt to the new situation, in other words, creating something new and unique in a new and unique situation. Two factors are essential for students to behave in this way. Firstly, on entering a clinical situation, they must have the capacity to be affected (for example, recognise the significance of a patient's posture) and have the capacity to respond in a way that drives interaction (for example, asking the patient a pertinent question). A student must enter the milieu as a BWO, having deterritorialised from interactions in *thought*, so that they are vigilant to the affects of that moment. Providing the student has built capacity through previous interactions (becoming stratified with the physiotherapy code) such vigilance will allow the physiotherapist to respond appropriately in each different clinical context.

A post human view of confidence could be considered students becoming organised machines: stratified by the physiotherapy code so that they are no longer affected by the internal *thoughts* relating to what a particular patients symptoms mean, or stutter over a response aligning with the code of a milieu. Once stratified, the student is free to *go with the flow*, as a BWO, free to be affected by flows in the moment and free to deterritorialise from interactions in thoughts to reveal the BWO, just like the humble clinical educator. Approaching a patient as a BWO, the student allows a patient to express their capacities and communicate their needs clearly, as the flow of physiotherapy ensues. Deleuze and Guattari (1987) emphasise the importance of the BWO in making connections which allow free flow of intensities across an assemblage:

> "We are a social formation; first see how it is stratified for us and in us and at the place where we are; then descend from the strata to the deeper assemblage which we are held; gently tip the assemblage, making it pass over to the side of the plane of consistency. It is only there that the BWO reveals itself for what it is: connection of desires, conjunction of flows, continuum of intensities. You have constructed your own little machine, ready when needed to be plugged into other collective machines."

<div align="right">(Deleuze and Guattari 1987: 187)</div>

Through this statement, Deleuze and Guattari (1987) are explaining how to do what we all strive for: make connections. In the same way that smooth space and the BWO represent fluid, unstructured states, so the "plane of consistency" refers to a broader amorphous state. Thus Deleuze and Guattari (1987) propose that to enhance our ability to make connections, move, grow, *become*, so we must first be aware of the striations or structure around us and then allow the assemblage which we form part, move to face this free plane. At this point we project an unstructured portal which allows us to connect to others. This is what we saw with the clinical educators who were able to interact productively with the students. And this is what we see when the student physiotherapists interact productively with patients.

To end this discussion, I would like to share one example of the many remarkable stories shared by the 'international' physiotherapy students which demonstrated their capacity, their *becoming physiotherapists, becoming BWO*. Ayesha's story illustrates a dynamic assemblage, productive of physiotherapy and highlights changes in both her and the patient. She is highly attentive, responding authentically in that moment, presenting a BWO, allowing the patient to express his capacities, entering into the therapeutic interaction, becoming well.

Ayesha

"There was one patient who came in with peripheral neuropathy and shortness of breath and I became the main physio for him. I was mainly doing strength and conditioning and cardio stuff – breathing techniques and that sort of thing.

This patient had a very interesting character (smiles) and we call him a bit naughty – like he doesn't listen to what we ask him to do, he won't follow any instructions, he will trick around, just to be playful (smiles) and actually all of the people on my team don't like this patient because it's just too difficult to deal with him. But maybe because I'm the younger one and the student, he was a little easier on me and I built up a rapport with him. So sometimes other physios will come in to do stuff with him and he will reject it but once I come in, he will become much softer and agree to do stuff. (Smiles)

I think it is something about me and him during the session, because I observed other physios doing sessions with him. They would be quite strict – 'You have to do this!' 'You have to do that!' (points finger) – follow all of their instructions. But I was experimenting on my own way of giving instructions, so I was changing all the things and whatever this guy wants to do, I will sort of let him do - after making sure that he is not going to hurt himself – so I think I gave him the sense that he can have more control of his rehab.

His main problem was shortness of breath so every day I tried to use the Borg Scale but it didn't work for him - every time I try to assess him, he will kind of make it invalid – like if I am timing his walking, he would deliberately go faster or slower – just to make it invalid. (Smiles) So instead I used functional stuff like how far he can walk till he gets too short of breath or how many flights of stairs he can do. For these types of measures I don't have to say to him I am assessing him, I just have to observe. That makes it easier because I learned to be flexible. Not only flexible around the patient's condition, but the patient's character as well (smiles). I had to learn to be very flexible. Sometimes even though the measurements might be a little unorthodox, they worked better for him."

Conclusion

This chapter has explored the way an individual's signifience (sic.) can influence another person's capacity to affect and be affected. A student's behaviour was restrained if there were evident codes and structures in another individual's appearance and behaviours which were unclear or did not align with their own, as in the "strict" clinical educators. In contrast, faced with an individual who behaved with humility (attentive, listening and responding in the moment), who did not display strongly stratified behaviours (as in the "open" clinical educator), students were able to interact freely and express capacities. In terms of becoming physiotherapist, the benefits of becoming a BWO were highlighted in relation to forming relationships, learning in professional practice and in relation to productive therapeutic interactions.

Becoming productive as a BWO was explored as a post-humanist view of confidence. The capacity building activities that students engaged with throughout their degree (and before their degree) resulted in their becoming stratified with the physiotherapy code. Confidence was expressed by the students as becoming flexible, being able to express different capacities in different ways in different contexts. Having become stratified with the physiotherapy code, they were able to deterritorialise from thoughts to reveal a BWO, an unstratified persona, which was perceived by others as open, not demanding specific 'coded' behaviours. Thus other individuals were able to respond to affects and express capacities freely and engage in productive, therapeutic interactions.

Chapter Nine: Conclusion

Introduction

As I engaged with theories and data over the course of this inquiry in my shift to post qualitative inquiry, I had no roadmap, no 'thesis imaginary' with which to engage. Over time, I began to recognise myself as a multiplicity, a product of all of my life experiences and it was the flows around me at the time that resulted in my 'plugging into' this inquiry. I was affected by the theories and the data and it was through thinking and writing with them, affecting them, and our (myself, the students, supervisors, wider colleagues, friends, family) ongoing interactions within this assemblage, in smooth space, that this thesis emerged. However, at this point I am aware of a strong imaginary affecting me *in thought*, drawing me back to structure. I am aware that this imaginary has arisen from the assemblage, projecting forward. It is an image of a flexible, hospitable learning space with learners moving between striated space (as they decipher codes and practise) and smooth space (where they express and adapt capacities), as they are affected by entities within the milieu; where educators are humble, welcoming learners as bodies without organs; vigilant to the affects within the place and responding to learners as unique and integral parts of a functioning machine. My response to the affect of this imaginary is to write a conclusion with the potential to affect those who may engage with the actualisation of this imaginary; those who are becoming physiotherapist, becoming educator, becoming bodies without organs.

Thus I return to structure, first to review the question and aims which were at the forefront of my mind as I set out, and discuss how they changed over the course of the inquiry, as my perspectives on becoming physiotherapist changed. I will then discuss insights which emerged from the inquiry, in relation to students' stories around becoming physiotherapist and a range of pedagogical implications. This will be followed with reflections on theoretical perspectives, the use of post qualitative inquiry and on my own becomings. Finally, by drawing on key conclusions, I will share my recommendations. The most important contribution of this work was in challenging the deficit model which is often used in relation to international students. I argue for changes in the way educators approach students from different backgrounds, and offer suggestions for designing affective learning spaces in which *all* learners are free to decipher codes, express capacities and engage with productive assemblages.

Change, Process, Becoming…

Over the course of this study, the way I viewed the students, their learning and the inquiry itself changed, and so too did the focus of my original questions and aims. At the outset, my aim was to explore how 'international' students experienced becoming physiotherapists. However my ontological turn to post humanism changed the way I perceived 'becoming'. Originally, the question implied that students were moving from a position of *not* being a physiotherapist to a position of *being* a physiotherapist. It became clear that neither of these positions exist. When I met the students they were already in a state of becoming, and after three years, none viewed their degree certificate as a token of having 'become', all recognised that they were still becoming. The post humanist ontology has allowed me to present a novel, more holistic view of physiotherapy education and the way students and tutors engage with learning activities, recognising that as each individual interacts with other human or non-human bodies, so changes ensue, in capacities across the assemblage, and (in the case of the students engaged in this inquiry) in terms of becoming adult, becoming friend and becoming physiotherapist. Thus, my original research question changed almost imperceptibly in its written form, but significantly in its meaning. I moved from seeking to understand how individual students become *a* physiotherapist (implying that it is a finite learning process, which an individual undertakes independently), to seeking to understand how individual students experience *becoming* physiotherapist (implying an ongoing process of change with no clear point of entry and exit), encompassing the individual student *and* their relationality with a range of other bodies.

I propose a post humanist view of physiotherapy knowledge: a multiplicity, a complex entanglement of codes, including the structure and function of the human body, how it behaves in states of health and illness, as well as the breadth of methods to communicate with the body. I have labelled this the *physiotherapy code*. I argue that becoming physiotherapist is a process of deciphering and becoming striated with the physiotherapy code. Capacity building is viewed in terms of the ability to be affected and to affect bodies (both human and non-human) in a clinical milieu. For example, students build the capacity to recognise pain from a patient's facial expression, recognise muscle spasm through feeling a patient's limb, recognise risks to a patient's safety in the layout of their bathroom, the

affects of which produce responses which induce interaction, for example, handling a patient's joint in a way that reduces pain, prescribing a specific exercise to increase strength or providing a patient with equipment to reduce their risk of falling. *Relationality* is central to becoming, so that once familiar with the code, individuals have the capacity to be affected by patients and respond in a way that affects the patient, as they territorialise a therapy assemblage. *Physiotherapy* is viewed as the product of the dynamic interactions within such an assemblage.

I have presented *becoming physiotherapist* as a rhizome; an irregular, indistinct process which is difficult to observe and define, and importantly, is unique for each novice physiotherapist. Rather than viewing each student as an agentic actor who made a conscious decision to move to the UK, to become a physiotherapist, I have presented the behaviours of the individuals engaged in this inquiry as simply responses to the affects they perceived in their environment. Individual behaviours formed part of a wider system of flows, across education, healthcare and social systems and wider global flows relating to public health, economics and social phenomena.

I have viewed each student's capacities in terms of their ability to *affect* or *be affected* in a particular situation. This was central to becoming. The capacity to be affected by another body (being able to recognise the codes and patterns of a particular sensation), presented a potential for interaction. If that affect produced a response in the individual which affected the other body (through speech, touch, behaviour), so interactions could ensue, using the unique communication code of that encounter (whether it is reading a book, adjusting the height of a treatment couch or stretching a patient's limb). It was through the many interactions between individual students and a range of other human and non-human bodies that new capacities emerged and change ensued in the form of becomings. A striking observation was the difference in each of the student's capacities and in each of the student's becomings and the complexity of the codes and structures they faced as they started their degree. While they all seemed to have a familiarity with the code of physicality, and quickly became familiar with new cultural and learning codes, language codes impacted their becoming throughout the three years.

Becoming Physiotherapist: Student Experiences and Pedagogical Implications

Viewing the students as unique individuals with different capacities to affect and be affected is central to the conclusions of this inquiry, and substantiates the portrayal of becoming physiotherapist as a rhizome rather than a linear journey. The following section outlines the students' experiences of this process, with implications for theory building and physiotherapy education.

Deciphering Codes – Theoretical Perspectives

Capacity building requires time for decoding. In a new environment, students might first observe and listen; be attentive and *sensorially active*, and may respond to affects by territorialising an assemblage in *thought*, comprising memories of previous experiences or with their laptop, as they link to translation software or previous lecture notes. Only as students become more familiar with the structures and codes within a milieu, will they respond to affects in extension (in a way which may affect others). This type of 'learner' behaviour is well documented. Vygotsky (1978) described of the 'zone of proximal development', where learners are able to carry out a skill if assisted or guided by others, while Lave and Wenger (1991) described how novices engage in 'legitimate peripheral participation', only interacting at the edge of a social group before moving to more influential positions, as learning progresses. However, Vygotsky (1978) and Lave and Wenger (1991), foreground the learner as an individual, emphasising the influence of others on *their* abilities. In contrast, I have emphasised the *connections* between the novice and the different components of the milieu as central to capacity building. While only a small difference, it is important as actor agency is redundant and the significant factor is whether the bodies within the milieu have the capacity to affect and be affected by each other. For example a 'scaffolded' learning environment or presence of a 'more knowledgeable other' (MKO) will not necessarily be conducive to learning unless a student has the capacity to be affected and to affect the MKO. This was evident in many stories in this inquiry, such as the 'strict' clinical educator, who might be considered a MKO and the self-directed practice activity, which might have been considered a form of scaffolded learning. In both situations

some students did not have the capacity to be affected and were therefore unable to engage. In a similar way, while legitimate peripheral participation *might* indicate learners observing and decoding, it might also indicate novices not being affected by the learning milieu (and therefore not engaging). I argue that rather than the location of the student being important, it is their *interactions* in terms of attending to activity in the milieu, as in the *relationality,* that is central to becoming.

This relationality also accounts for the difference between my interpretation of becoming physiotherapist and previous work relating to professional socialisation. Professional socialisation is presented as a discrete journey, during which identifiable knowledge, attributes and values are internalised by the individual (Goldenberg and Iwasiw 1993; Richardson 1999), while I argue that becoming physiotherapist is a rhizome, with no clear start or finishing point. Professional socialisation *does* emphasise the importance of social interaction in the profession environment, but explains individuals' conforming to group norms as acts of agency (Clouder 2003). In contrast I argue that while capacities are built through interactions with others, the expression of these 'physiotherapy capacities' are determined by the environment in which an individual inhabits and the affects of a range of components within that environment. Agency (as understood through the humanist lens) plays *no* part in expression of capacities. A final important point is that the post humanist lens recognises the ubiquity of change, in terms of professional knowledge, society, population health and the impact of the many entangled multiplicities which may influence a person's becoming.

The Post Human Classroom

The post humanist lens removes students' human exceptionalism (with its associated gifts of agency and responsibility for actions), which has a remarkable impact on the traditional view of the classroom and student behaviours, with important pedagogical implications. If a student is not engaging with a learning activity, it is not seen as the student's choice. It would be viewed simply as the student being *unable* to be affected, at that moment (possibly being more strongly affected in thought, for example, by a sick parent, many miles away). After a phone call with their family, the student may be able to deterritorialise from

the 'family assemblage', and be open to affects in the classroom. Alternatively, a student may simply not recognise the code of that particular milieu, as was evident from many student stories. The pedagogical implications of this are twofold. Firstly, in terms of the interpretation of students' behaviours. If a tutor views lack of engagement as an act of agency, the *affect* on the tutor may be to respond with a punitive action, which would further restrain the student's engagement. In contrast, if lack of engagement is viewed as a student lacking the capacity to be *affected in that moment*, the tutor may respond with a different approach, which might produce an affect (and therefore drive engagement). A second point is that engagement with activities is not always indicated by observable actions; engagement might be a sensory experience, as students become familiar with the rules and structures associated with a particular topic. This highlights the benefits of tutors having some insight into each student's background and capacities, which will affect the tutor in a way that drives their production of affective learning activities.

In addition, consideration of the potential affects of different learning activities and resources on each of the students at different stages, should be an essential part of curriculum design. Such considerations will encompass both accessibility (will students recognise the code) and relevance (will it capture their attention, produce a response which drives action). This aligns with the widely reported finding that motivation to study is a strong success factor for international students (Gibbs 1992; Corno 2007; Li et al. 2010, Phana et al. 2020). Motivation is a humanist term, one that relates to the individual, so it would be interesting to view the data of such studies through a post humanist lens, to examine the wider learning context and the types of interactions which produce motivation (and the affects which drive it)

Smooth and Striated Space

Deciphering the physiotherapy code took place at all stages of the course, as students moved in and out of different learning spaces and at all stages different students were familiar with different aspects of the code. Their familiarity dictated their receptivity to different affects *and* also whether they were drawn towards smooth or striated space. When students were unfamiliar with the code, striated space was beneficial, providing

structured cues around the meaning and use of behaviour codes. As students became familiar with the codes, so striated space seemed to restrict their behaviours and they seemed to move (almost automatically) into pockets of smooth space, which provided freedom to express capacities, adapt, develop flexibility and become stratified with specific codes and structures. With this increased capacity, so they would be receptive to different affects as they returned to striated space and started to decode more detailed nuances of the codes and structures. This automatic movement between smooth and striated space seemed to be an integral part of becoming and is something that has not been highlighted in previous literature, which has tended to focus on the benefits of one type of learning space (for example, Savin-Baden 2011; Gorodetsky and Barak 2016; Kuby et al. 2016). It was also evident throughout this inquiry that the timing of individual students' interactions in striated and smooth space were important. Even within a particular teaching session, students' stories indicated that different students moved fluidly between smooth and striated space at different times.

It also became apparent that if a student encountered either smooth or striated space at a time that did not align with their familiarity with key social codes, the experience would impact their becoming in a negative way. A striking example of this was the first year viva assessments: highly structured spaces which were unfamiliar to many students, whose affects produced a restraint of students' actions, along with strong feelings of anxiety and fear. Interestingly, the one scheduled smooth learning space (self-directed practice) was neither utilised nor valued by the 'international' students during the first half of the course. It was only through building capacity on practice placements that this milieu affected them, resulting in their engagement and recognition of its value. This highlights the importance of designing *affective* learning activities, for example in this case, scheduling self-directed practice (SDP) for students from different year groups at the same time, might change the *affect* of this activity for all students.

In terms of curriculum development, I argue that both spaces are important to student development and if tutors are mindful of this, a more flexible learning environment could be designed, which would allow students to move between smooth and striated space in response to affects, for example, providing some guidance for early SDP sessions, which would provide cues for some students around learning behaviours. In a similar way, as a

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way to prepare for summative assessment, providing students with cues around the assessment process in striated space, with opportunities to explore and practice behaviours in smooth space, might also take away some of the stress and anxiety experienced by students in relation to assessment.

The Impact of Stratifications in English Language

A key insight from this inquiry is that becoming physiotherapist is a process that begins long before a student enrols on a physiotherapy degree, so on arrival at university, all students have familiarity with some aspects of the physiotherapy code. However within the British university and healthcare placements, learning spaces were stratified using English language codes and many affect-response interactions were mediated through English language. While all of the 'international' students were familiar with English language, most were not fully striated with its codes, so it took longer for many students to decipher written, and particularly spoken information in learning environments. Different students used different cues to help decipher language codes (as discussed in Chapter five, page 110-115) and moved fluidly and automatically between learning resources, for example from working in class with 'home' students, to engaging with their phone to access online resources, or viewing recorded lectures repeatedly. Formal strategies used by the tutors to enhance students' communication (such as allocating student to mixed nationality groups and scheduling self-directed practice) seemed to be less effective, particularly in the early days, when neither of these activities affected students in a way that drove interaction. In a similar way, the engagement with scheduled induction activities aimed at enhancing 'international' students' transition to university was limited.

However, a surprising finding was that from the beginning of the course, all students were able engage with learning materials *and* with each other during practical classes, where the learning space was stratified using the code of physicality. Despite being unaccustomed to some of the communication codes used within the English classroom, all of the students were comfortable observing and handling the human body and were able to interact with each other using this code, territorialising productive assemblages. This novel finding has a number of implications. Firstly, it highlights the value of previous experience relating to

physical activity and health, and provides evidence for considering applicants' past experience as a part of the admissions process for the physiotherapy degree. In addition, it suggests that in a diverse student group, learning activities which demand communication using the code of physicality might enhance students' interactions with each other and the learning material. These type of activities could therefore be beneficial to induction, providing opportunities for students from different background to learn about each other (and the codes associated both culture and language), and enhance a sense of belonging across the cohort. It may also be beneficial in the early part of the course, for tasks to be presented as a physical activity, where all of the students in a group would be affected in a way that drove interaction, the by-product of which might include enhanced understand of language and cultural codes, as well as the wider physiotherapy code. This is certainly an area which deserves further exploration, in terms of physiotherapy education.

Interactions in Thought

Some of the most fascinating student stories related to their interactions in *thought* with a *physiotherapy imaginary*, which seemed to an act as a catalyst to becoming. I explained this (Chapter six, page 130) using Deleuze and Guattari's (1987) concept of the refrain and argued that this imaginary emerged from students' interactions *in thought* with memories of physiotherapy experiences, memories of learning materials and images of themselves practising in the future. Interacting with this imaginary seemed to provide an opportunity for repeated interactions using the physiotherapy code, a requirement of becoming stratified. The pedagogical implications of this are exciting and emphasise the importance of students having tangible experiences of physiotherapy from an early stage. It would provide justification for the use of real life examples of physiotherapy throughout the course (such as the use of simulated clinical environments, clinical case scenarios and role play), which are already widely used (Dalwood et al. 2020; Van Wyk, Labuschagne and Joubert 2020; Torres et al. 2022) but also for the value of an observational placement during the first year. Being immersed in a clinical environment at an early stage would not only provide opportunities for deciphering clinical codes but would provide memories with which students could repeatedly interact, contributing to the generation of an open ended refrain.

Impact of Shared Familiarity - Belonging

The importance of interpersonal relationships and a sense of belonging, to an individual's mental health was highlighted by Baumeister and Leary (1995) and has also been linked to the academic success of 'international' students (Beech 2015; Singh 2018) and to students' performance on clinical placements (Levett-Jones and Lathlean 2007 and Mattila, Pitkäjärvi and Eriksson 2010). This was also referred to by students engaged in this inquiry, who felt that the sense of belonging and acceptance with their classmates was highly beneficial to learning. However, this took time to develop. At the beginning of the course, many 'international' students perceived the 'home' students as very different and unreceptive to friendship; they were drawn to others of the same nationality, forming small groups in which they communicated using their mother tongue and through this, found some sense of belonging. I used Deleuze and Guattari's (1987) concept of the refrain (Chapter six, page 123-126) to interpret this behaviour, arguing that the rhythm and feel of the students' mother tongue brought comfort and stability in an unsettling time. I also argued for the value of these uni-national groups during the early part of the course, when the benefit to students' mental health might outweigh the potential benefits of working in mixed nationality groups.

The importance of this sense of belonging was also highlighted by students during their clinical placements. Previous research by Edgecombe, Jennings and Bowden (2013) argued that language and cultural differences limited 'international' students' ability to interact with professional colleagues on clinical placements. However, this inquiry has clearly demonstrated that this is not always the case. Many students shared heart-warming stories about the way their professional colleagues' hospitality impacted both their learning and sense of belonging. In such environments, where students felt accepted and valued, cultural and language differences became irrelevant and students were able to respond to affects by expressing capacities and territorialise productive assemblages. I argue that a clinical environment comprising a hospitable, professional team represents an area of smooth space, where students (who have already gained some familiarity with the physiotherapy code in university) are able to be affected and affect others, explore professional behaviours and adapt responses. This vibrant learning environment contrasted

with other highly structured clinical milieus, where students were unable to be affected or affect those around them. The importance of the hospitality of the team in a clinical learning environment (to students' sense of belonging and ability to interact with others) is one of the most important findings of this inquiry. It builds on research from other areas, such as social work (Braganza 2018, Bibus and Koh 2022) and business management education (Matheson and Sutcliffe, 2017) which places a sense of belonging as central to effective communication and learning. This finding also highlights the responsibilities of the university in ensuring and monitoring and the quality of placement providers.

Linked to this is the finding that many students highlighted the benefits of encountering individuals at university and on practice placement, who made them feel valued and accepted, to both their overall experience and learning. They commonly referred to such individuals as 'open' and 'attentive', implying that they were receptive to the affects of the student's behaviours. Encounters like this resulted in rapid territorialisation of productive assemblages. I used Deleuze and Guattari's (1983; 1987) concept of the Body without Organs (BWO) (Chapter eight, pages 179-182) to describe these 'open' individuals, arguing that being already stratified with the physiotherapy code, on meeting the student, they easily deterritorialised from interactions in thought, and responded to affects in that moment. This contrasted with other (often more highly qualified) professionals who students perceived as 'strict' and unreceptive, whose inability to be affected by the student, (I have argued), results from the individual interacting with imaginaries in *thought*, from which they are unable to deterritorialise. Thus, they were unable to respond to the student and interaction failed to progress. These findings build on recent research which emphasises the benefits of approaching clinical interactions with humility, for example, in nursing (Abdul-Raheem 2018), medicine (Solchanyk et al. 2021) and counselling (Zhu, Luke and Belini 2021). This also justifies the argument for universities to provide effective training for those physiotherapists who will be supporting students in practice, emphasising the importance of preparation (for example, gaining familiarity with assessment codes) so that staff are able to be attentive to the students' behaviour and respond authentically in that moment; as well as the value of more junior or unqualified staff and student peers contributing to student's education.

Time and Labour to Decipher Codes

One of the topics which emerged again and again through the inquiry was the impact of time. If becoming physiotherapist is a process of deciphering codes, then students who have more familiarity with aspects of the physiotherapy code from previous experiences, will decipher codes more quickly. For the students who are less familiar with the culture and language of the learning context, it is understandable that they require more time. This lack of familiarity also brings with it additional stress for the 'international' students, associated with the cognitive load of the constant vigilance to new sensory experiences around them. Having an awareness of this would allow tutors, clinical educators, as well as the students to understand the behaviours of 'international' students more clearly and to respond in a more empathetic way.

One solution might be that 'international' students complete extended programmes, providing additional time, but not only would this have significant financial implications, it might not be the best solution, as this inquiry clearly demonstrated that the majority of the 'international' students completed their degree in three years. A more sensitive solution might be to allocate *all* students additional time for engaging with material in smooth space. This might be in the form of formally scheduled SDP classes, the inclusion of informal online learning activities, or the addition of reading weeks throughout the year. Thus students would be able to engage with whatever activities they felt drawn to in those times (rather than being stressed by attending sessions with which they could not fully engage). That said, consideration would need to be given to the potential *affects* of such activities. Further inquiry is thus required to tease out the type of activities 'international' students are drawn to.

Becoming a Body without Organs

Through the process of becoming physiotherapist, students' familiarity with different aspects of the physiotherapy code increased, and over time they recognised that they were becoming more flexible in the way they expressed capacities: automatically adapting responses in unique ways, according to each unique clinical context. Associated with this change was a feeling of confidence.

This move to automaticity provides a clue to the underlying changes. I argued in Chapter eight, pages 194-198, that as students become stratified with the physiotherapy code, when they enter a new clinical milieu, they have the capacity to deterritorialise from interactions in thought (possibly relating to ideas around possible diagnoses or treatments approaches) and be fully vigilant to affects in that environment, becoming a Body without Organs. Approaching a patient as a BWO, allows a patient to express their capacities authentically in a way that affects the student, and from the ensuing interactions emerges a unique therapy intervention, along with feelings of pleasure and confidence. Thus confidence could be viewed as an emotion which indicates a student becoming a BWO, free to respond to the unique flows of affects within a new clinical milieu.

Reflection on using Post Qualitative Inquiry - Becoming Post Human

Through the process of this inquiry I have engaged intensely with many theories and concepts but two have stood out and seemed to underpin everything else. The first relates to Spinoza's (1677) opposition to Descartes's (1637) view of mind-body dualism. Instead, he argued that there is just one universal substance whose attributes can be manifest in two modes: thought (in the mind) or extension (in space). This concept resonated with me as I examined the stories shared by the students, many of which referred to memories or imaginaries (manifestations of substance in thought), which seemed to have a definite impact on students views and behaviours. In line with Spinoza's philosophy, I came to view such thoughts and imaginaries as distinct entities which comprised many assemblages and contributed to the outputs of the assemblages.

Reflecting on my own experience of becoming, I was surprised at the amount of time I spent interacting with thoughts. Of all the activities associated with this process: reading, writing, discussion and thinking, it is thinking that filled the biggest portion of my time.

There were thoughts around:

Spinoza and his tragic life story, and…

Deleuze and Guattari in animated debates with their poststructuralist contemporaries, and…

The different concepts: BWO, machines, assemblages, and…

Stories which students had shared, and…

My own memories of previous students, teaching experiences, physiotherapy experiences, and…

Imaginaries relating to what physiotherapy education might be…

Through repeated interactions with these thoughts, so they became more entangled, and as I look back now, I see that *this was my method*. However it was not a method driven by my conscious mind, one that was thought out and planned. It was a process driven by affects, the second of the key theories which have underpinned the inquiry.

I introduced the concept of affect in Chapter four, page 80 and I have used it to explain the way bodies interact in different milieu. Affect dictates a body's behaviour and whether that behaviour impacts others, as Massumi (2021) emphasised when he referred to the simple dynamic between sensation and movement, which is central to affect theory. All of our behaviour is a response to *affect,* produced by substance in our environment, in the mode of *extension* (sensed through our body's receptors: eyes, ears, skin) or in the mode of *thought* (sensed through our mind's eye); a continual interaction between sensation and movement.   The capacity to affect and be affected has been central to all of the discussions within this thesis.

Unlike emotions, which are conscious experiences and products of an assemblage, affects are *unconscious* intensities which seem to drive us (Seigworth and Gregg 2010). I noticed that through the thesis I described many of the students behaviours as *automatic* (for example, the way them moved from striated to smooth space) or intuitive (for example, the way they recognised potential friends). I came to view this intuitive feeling as a result of affects, just as I viewed emotions as conscious signifiers of the underlying affects. As well as using affect to describe student' interactions, my approach to working with the data was driven by affect, for example, the way I was drawn to particular fragments of data. Considering that 'I' represents 'me as a multiplicity' (comprising an entanglement of stratifications relating to physiotherapy, internationalisation of education, narrative inquiry,

the theories of Deleuze and Guattari and a range of other threads) the data which produced such an affect could be considered as particularly relevant to the inquiry.

Focusing on affect, I trusted to follow my instincts, whether I turned to reading theory, reading research, to writing or whether I turned to my supervisors. Through this process I became attuned with my way of studying and how to be most productive, something I had never done before. I recognised that for my whole career, I had been a 'follower of rules', keeping the peace, doing as others did. This inquiry has been different for me. It has been a process of liberation and I now recognise that I have engaged with the material as a BWO, vigilant to affects produced by the material I encounter, whether in thought or extension. Thus I feel that what has emerged from the inquiry assemblage is authentic and unique, and true to the spirit of post qualitative inquiry.

While this has been a profound, highly rewarding experience, it has been all-consuming and labour-intensive with no potential for short cuts. While it has been liberating and innovative, I have had to become comfortable with uncertainty and the reality of never actually finding *the* golden answer. Thus, I wonder about the appeal of this approach in the current climate where quick answers are so attractive to over-worked researchers. That said, I feel changed by the experience and bound to the approach, and see potential for using post qualitative inquiry as a way to examine a wide range of other questions in education, physiotherapy and wider healthcare and social science.

If I were to start the project again with hindsight, I would make one major change. I would have started with theory. I recognise now that as I embarked on my inquiry, I was following what was expected and looking to model my work on others. Even as I started to examine the data, I was drawn to what I already knew. I have come to recognise that in order to move forward into new ground, *theory* should drive the process. Once stratified with a theory, an inquirer can face the inquiry as a BWO and openly attend to the affects of what emerges.

Reflections on Findings

I started out on this inquiry with a passion to solve the apparent inequity in the experiences of 'international' and 'home' physiotherapy students. While 'home' students were not included in the inquiry, for many years I have observed the fun and joy that physiotherapy students experience during their classes, their excitement at the prospect of clinical placements and their delight in being able to treat patients effectively. It was evident that the 'international' students experienced the same *utter joy* when interacting successfully with patients, and all of them successfully completed their degree. In this respect, there was a certain parity in their experiences. However, the level of stress and anxiety experienced by the 'international' students during the first year, and in anticipation of practice placements will be a lasting memory of the stories they shared. This anxiety related to encountering unfamiliar striated spaces without accessible cues to help them decipher structures and codes. A post humanist view of the classroom provides a novel insight into student behaviour, and clues for *affective* learning which is accessible to different learners. Thus I have argued for a flexible, dynamic and *affective* curriculum.

Insights around clinical education were powerful and novel in terms of physiotherapy education. However there is a growing body of literature around the value of hospitality and cultural humility (such as Matheson and Sutcliffe 2017; Abdul-Raheem 2018; Zhu, Luke and Belini 2021; Bibus and Koh 2022) which strongly link to what has emerged from this inquiry (in terms of students feeling valued and accepted). However, recommending therapy teams to provide hospitable environments for students, would need framing in an empathetic way for busy clinicians to be affected by such guidance. A possible way to do this might be to present a post humanist view of clinical education to clinicians, where they are able to recognise the dynamics within the clinical setting, the affects of various bodies on both patient and students' behaviours. This approach might provide a way to engender a more attentive approach to clinical education, emphasising the importance of allocating time to both prepare for supporting a student and being attentive and receptive to the student during supervision time. While the idea of senior staff trying to find more time in the day to supervise students might be concerning to clinical staff, other findings provide justification for allocating more than one student to a clinical educator (providing opportunities for peer support and learning) and using more junior staff in the role.

Recommendations

All of the students graduated and gained employment as physiotherapists and all of them shared stories which indicated that they successfully entered into productive therapeutic assemblages. This suggests that the physiotherapy course provided the structure and resources required for 'international' physiotherapy students to become successful. However it was evident, that their experiences of becoming physiotherapist were punctuated with periods of high stress and anxiety; a new finding in terms of physiotherapy education but in line with other research exploring the experiences of 'international' students (Tseng and Newton 2002; Suspitsyna 2013; Wang and Greenwood 2015; Bittencourt et al. 2021). A range of recommendations has emerged from this inquiry, which may result in the provision of a learning experience which is more enjoyable and does not impact students' mental health in such a negative way.

- ### Challenging the Deficit Model through a Post Humanist view of Education

Viewing student education through a post humanist lens would transform the way 'international' students (and other students who are perceived as having different learning needs) are viewed by educators both in the university and in clinical practice. Student behaviours would be interpreted differently and educators might approach interactions in a different manner.

A post humanist lens could challenge the deficit model through which so many students are viewed, from 'international' students, to those with learning differences, physical impairments or those from less privileged backgrounds. Viewing 'becoming physiotherapist' as a process of deciphering the physiotherapy code, places all students in a state of deficit, whether that deficit lies in understanding codes relating to human anatomy, physiology, behaviour, or the codes relating to healthcare in the UK and communicating in English. Thus, all students need time to spend deciphering various codes and practise in using the codes. This perspective would view all students as requiring flexibly structured cues to decipher codes, which could be adapted to different student's needs.

- ## Affective Learning Design

Designing learning spaces which allow freedom to move between smooth and striated space (at different times); both in university and in clinical practice would allow students to respond to affects in the moment. It would provide dynamic learning spaces in which learning activities affect students at the *right time* for their stage of development and with the potential for engaging *all* students within the classroom.

It was evident from many students' stories that students cannot be affected by learning material if they do not have the capacity (do not recognise the codes relating to that activity). The graded introduction of new structures is essential to enhance earlier engagement and prevent the stress associated with students entering (or anticipating entering) unfamiliar spaces. Rethinking assessment strategies would be a positive step, with the introduction of gradually more complex formative activities, which would provide cues to new codes in a gradual manner. The same approach could be used for becoming familiar with the codes of clinical practice, such as the introduction of an early observational placement and the scheduling of simulation activities or interactions between students who have experienced placements and those who have not.

In terms of physiotherapy education, rather than building first year learning around activities based on language skills, activities should be built around the code of physicality, for example, physical games, fitness testing, experimenting with posture and balance, or real life simulated clinical scenarios. Students would be more receptive to affects and therefore be able to engage with interactions, from which enhanced verbal communication and understanding of cultural differences would emerge as a product of such an assemblage.

Importantly, an essential role of all educators is to engender a sense of belonging in all students through the provision of a hospitable learning environment. In such learning spaces, students' behaviour will not be inhibited by unfamiliar structures. In a similar way, educators must be educated on the impact of their behaviour on student learning and the value of approaching learners with an open, humble attitude and sufficient time to engage with interactions.

- ## Affective Learning Design

The value of peer support has been highlighted throughout this inquiry and could be maximised to the benefit of all students, for example, senior and novice students working together on induction activities, in self-directed practice or in formative assessment activities, and small groups of students being allocated to the same placement. This inquiry has also provided justification for broadening the current clinical education models to encompass not only more peer learning but use of junior staff and unqualified staff to support students.

- ## The Impact of Open and Closed Imaginaries

The notion of a physiotherapy imaginary as an open ended refrain which accelerates becoming, is a novel concept, which would benefit from further exploration, both in terms of theoretical scholarship and inquiry. In a similar way, it would be beneficial to explore the impact of interacting with a closed imaginary (with a specific timeline, such as those generated by assessment deadlines), on becoming physiotherapist. These ideas of open ended and closed physiotherapy imaginaries raises questions relating to the value of the high number of assessment points during the physiotherapy degree, and also the value of goal setting as part of physiotherapy professional development. It also raises the possibility that patients interacting with open ended imaginaries of '*becoming well*' might be more beneficial than interacting with closed imaginaries (focusing on specific tasks or SMART goals). Drawing on research into goal setting in the field of leadership (such as Ordóñez et al. 2009) which has highlighted some of the negative aspects of goal setting, might be a useful starting point for such work.

- ## Further Inquiry

This study has raised many points which deserve further examination, not least the notion of the physiotherapy imaginary. However, the use of post qualitative inquiry as an approach could provide useful insights into a range of related areas. For example, a post humanist perspective of healthcare would decentre the individual service user and provide insights into the many drivers of health behaviours, lifestyle choices, and engagement with interventions. This approach would also provide powerful insights into patients'

experiences of degenerative conditions such as arthritis, multiple sclerosis, diabetes or recovery from conditions such as stroke, physical trauma or mental illness. Similarly, building on the pioneering work of Nicholls (2010; 2018), a post humanist examination of the therapy relationship (in physiotherapy but also between other professionals and clients) might reveal useful insights relating to the entanglement of affects within that intense relationship and how these insights may be used to enhance therapy.

Finally, just as this inquiry has produced valuable insights into 'international' students becoming physiotherapist, post qualitative inquiry could similarly offer a means to gain a greater understanding of the experiences of other minority or marginalised groups in their many and wide ranging becomings. Interestingly, already I feel the pull, affects drawing me on to engage in future becomings…

Conclusion

The students have left,

The books have been returned to the library,

I am about to write my final words,

But it's not over,

The rhizome endures,

The buds emerging,

Soon to send out new shoots, in response to a felicitous affect…

> *"Voyaging smoothly is a becoming, and a difficult becoming at that"*
>
> *(Deleuze and Guattari 1987: 561)*

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Appendices

Appendix 1: Participant Information Sheet

Becoming a physiotherapist – insights from the experiences of international students

You are being invited to take part in the above study, which is part of my PhD. Before you decide whether or not to take part, please read the following information.

What is the purpose of the study?

I am interested in finding out about the experiences of international students during their BSc Physiotherapy Course. A greater understanding of the views and experiences of students will help educators to provide future international students with the most effective support for their professional development.

Why have I been invited to participate?

You have been invited to take part in this study because you are an international student enrolled on the BSc Physiotherapy Course at ████████████████. Your views and experiences are the key focus of my research.

What will happen if I choose to participate?

You will be asked to meet with me two times each year during your course. You and I will have an informal discussion about your experiences relating to your learning and professional development. I will record the conversation and after our meeting will take notes from the recording. The recording will be deleted as soon as my notes are complete.

In addition to meeting with me, I will ask you to write down short reflections about your experiences each month and share them with me.

Is participation compulsory?

No, participation is voluntary. You do not have to take part. If you decide not to take part, your decision will have no impact on your studies or your relationships with your tutors. However, if you choose to take part you will be asked to give written consent. You can withdraw at any time without giving a reason.

Are there any risks of taking part?

There are no specifics risks to you in taking part but you will need to put aside some of your time to consider your ideas, write your reflections and meet with me for the discussions. This may require you to put extra consideration into planning your time.

Are there any potential benefits to taking part?

Reflecting on your experiences is a very good way to develop your professional knowledge and self-awareness. Taking part in the study will therefore give you lots of opportunities to do this. The reflections and notes that you take for the research, can be used in your own professional development portfolio.

Is my contribution confidential?

You will be asked to choose a false name for the purpose of the research so your real name will not be used to maintain anonymity. Everything you say to me and share will be will be confidential. The recordings of our meetings will be deleted after I have listened to them and taken notes. My notes and your reflections will be stored safely on the university OneDrive and will be destroyed after the research is complete.

What will happen with the results of this study?

The results of this study will be written up as part of my PhD thesis and may be summarised in published articles, reports and presentations.   Quotes or key findings will always be made anonymous in any such documents.

Data Protection and Confidentiality

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Unless they are anonymised in our records, your data will be referred to by your false name. Your data will only be viewed by me and my supervisory research team. All electronic data will be stored on a password-protected computer in my office. All paper records will be stored in a locked filing cabinet in my office at ███████████. Your consent information will be kept separately from your responses in order to minimise risk in the event of a data breach. All collected data will be destroyed on or before 31st December2023.

Data Protection Rights

███████████ is a Data Controller for the information you provide. You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation thereafter. You also have other rights including

rights of correction, erasure, objection, and data portability. For more details, including the right to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk. Questions, comments and requests about your personal data can also be sent to the University Data Protection Officer - enquiry.ipu@███████████

Who has reviewed the study?

This study has been reviewed by my Director of Studies Professor ███████████████ through the formal university ethical approval process. Please send any queries or concerns to her via email: ████████████████████

What if I have any questions?

If you have any questions or you are unhappy with anything that occurs during the research you can talk to the researcher, Jackie Shanley (details below)

Jackie Shanley

████████████████

████████████

██████████

████████

j.shanley@█████████████

Tel: ████████████

Thank you for taking the time to read this information sheet

Appendix 2: Consent Form

INFORMED CONSENT FORM

Study title: Becoming a physiotherapist – insights from the experiences of international students

You are invited to take part in this research study. Before you decide to take part, please read the accompanying Participant Information Sheet. Please take your time in considering whether you would like to take part in this study. Feel free to ask any questions that you may have. If you are happy to take part, please confirm your consent by circling YES against each of the statements below and then sign and date the form as the participant.

1	I confirm that I have read and understood the Participant Information Sheet for the above study and have had the opportunity to ask questions	YES	NO
2	I understand my participation is voluntary and that I am free to withdraw my data, without giving a reason, by contacting the lead researcher and the Faculty Research Support Office <u>at any time</u> until the date specified in the Participant Information Sheet	YES	NO
3	I have noted down my pseudonym (top left of this Consent Form) which may be required if I wish to withdraw from the study	YES	NO
4	I understand that interviews with the researcher will be recorded. The recording will be deleted after the researcher has made notes.	YES	NO
5	I understand that all the information I provide will be held securely and treated confidentially	YES	NO
6	I am happy for the information I provide to be used (anonymously) in PhD thesis, academic papers and other formal research outputs	YES	NO
7	I agree to take part in the above study	YES	NO

Participant's Name	Date	Signature
Researcher	**Date**	**Signature**

Thank you for your participation in this study. Your help is very much appreciated.

Appendix 3: Application for Ethical Approval

Project title: Becoming a physiotherapist – insights from the experiences of international students

Project Summary

Over the past two decades, there has been a gradual increase in the number of international students studying at UK Universities (Thorpe et al, 2017). Many studies have explored the performance and experiences of international students with unsurprisingly mixed findings, considering that international students are not a homogeneous group. A more focused approach to research, exploring the unique experiences of individual international students might reveal more meaningful insights. In recent years, █████ University has recruited increasing numbers of international students to the BSc Physiotherapy Course, specifically from East Asia. The progression rates of these students, particularly in relation to professional practice placements, are not commensurate with home students. This finding is supported in the wider literature exploring the experiences and performance of international physiotherapy students (Winterton et al, 2015) and other health related courses such as nursing (Miguel et al, 2006). This research aims to explore the perceptions and experiences of international physiotherapy students at ███████ University, during their degree. It is anticipated that the findings will result in the development of recommendations to maximise the success of future students.

What is the purpose of the project?

This research aims to address the following research question: *How do international physiotherapy students experience their journey to professional status*?

The purpose of this research is to specifically address the following aims:

1. To explore the individual narratives (with a particular focus on their experiences and perceptions) of international physiotherapy students relating to their professional development
2. To critically evaluate the professional socialisation of international physiotherapy students
3. To critically evaluate the factors that influence the professional socialisation of international physiotherapy students
4. To synthesise findings into tangible recommendations for physiotherapy education

A focused exploration of individual students' narratives (of their perceptions and experiences) during their course, will aim to increase understandings of the factors that influence students' transition to studying in the UK and their overall professional development (including formal learning on campus and on clinical placement and informal development). This research will examine how international students experience the breadth of learning encompassing their professional socialisation in a UK university. It will aim to inform the development of student-centred approaches to academic and pastoral support for international students.

What are the planned or desired outcomes?

The research aims to address the following specific objectives:

1. Carry out a focused review of the literature relating to the process and factors influencing the professional socialisation of international physiotherapy students
2. Construct a series of unique personal stories of individual international physiotherapy students' journeys to professional qualification
3. Reconceptualise individual narratives by synthesising findings from the data with findings from the literature and theoretical perspectives
4. Develop a conceptual model representing professional socialisation of international physiotherapy students
5. Develop recommendations for physiotherapy educators, which will inform the development of supportive and inclusive strategies to enhance the professional socialisation experience of international physiotherapy students.

In addition, this research aims to contribute to the wider evidence base relating to the education of international students on health-related courses which include professional experience placements and more specifically, to curriculum development and staff development at ████████ University. Ultimately, it is anticipated that this research will result in an enhanced experience for international students studying physiotherapy, in which their development is supported in a way that facilitates successful professional socialisation.

Explain your research design

The focus of this research is subjective, in its exploration of the diverse views of individuals who have had different life experiences, embrace different values and beliefs and have different understandings and cultural references of what it means to be a physiotherapist. The nature of reality will be different for each individual, including the researcher and the approach to this research must acknowledge this view. In addition it is important to acknowledge that the process of professional development comprises a complex social interaction in a changing environmental context, emphasising the view that knowledge is constructed socially through shared experiences, perceptions and views. Thus, this research will be viewed through the theoretical lens of social constructionism and the methodological approach will be qualitative and interpretative.

The issue being examined in this study is complex: professional development occurs over time, involves many different experiences, including students' past experiences, their culture and hopes for the future. Thus, this research aims to explore students' stories, encompassing their past, present and future experiences and professional identity. This aim lends itself well to narrative inquiry, which will allow the researcher to gain a detailed understanding of students' professional development journeys, over the duration of their degree course.

Outline the principle methods you will use

Sample: It is expected that 30 international students will enrol on the BSc Physiotherapy course in September 2019. All international students will be invited to take part and it is expected that 15-18 participants will be recruited. Over-recruitment will be employed as a pragmatic approach to take into account drop out over the 3 year period of data collection. Diversity is important in the sample so that a range of views and experiences can be explored and this will be inherent in that each participant will have unique experiences, views and ambitions.

Data collection: Richness of data is important so a variety of data collection methods will be used at key points through the 3 year course. It is proposed that semi-structured interviews will be carried out twice every year: early in year 1 to capture aims, previous experiences and experience of transition; end of year 1 to reflect on development over that year in university; early in year 2, before first clinical placement to capture expectations of professional practice; end of year 2 to reflect on professional experience; early in year 3 to reflect on development and look forward to final stage of learning and close to the end of year 3 to review development. Key open ended questions will be prepared and the interviews will comprise an informal dialogue between the researcher and participant. The interviewer will be reflexive so that appropriate responses and follow up questions can be made to participants' comments and laddering will be used to explore issues in more depth or change the focus of a discussion. Interviews will last for approximately 45 minutes and will be recorded with digital recorder. Recordings will be transcribed verbatim. Data verification will occur through discussion and clarification during interviews and by revisiting key points from one interview during the following interview, for further clarification. Towards the end of each academic year, participants will be asked to complete an emotional graph, which charts the high and low points over the year. This will be used as a prompt during the end of year interview. In addition, participants will be asked to send short reflections to the researcher at the end of each month outlining experiences, development and perceptions.

As the researcher, I will be part of the research itself as I facilitate the participants' story telling, co-construct their narratives and interpret the data. Thus my own continual reflection, self awareness and transparency about my motives, impressions and interpretations are an essential part of the data and will be recorded in a reflective diary.

Pilot study

The interview schedule will be evaluated by carrying out pilot interviews with two second year international students (who will not take part in the main study). In addition, the various data collection methods will be discussed with the participants recruited to the study in order to gain student perspectives on the most appropriate and least time consuming approach to data collection.

Data analysis

Data analysis will take place in stages. Initial analysis will relate to the field texts and will take place during the interviews as the participant and researcher co-construct the participant stories into a logical narrative, integrating additional data from emotional graphs and reflections. On-going dialogue and collaboration between the researcher and participant, along with researcher reflexivity will ensure authenticity of the reconstructed stories.

Subsequently, further analysis will take place to develop the field texts into research texts. Here, three main approaches will be used in relation to data analysis. Firstly in terms of the text, relating to the plot, characters, settings, discourse and chronology. Secondly, the data will be analysed in terms of meaning, for example in relation to pace, missing details, areas of significance or tension, and finally in relation to interpersonal issues (between the researcher and the participants, integrating data from the researchers reflective diary).

On completion of the analysis, a series of unique narratives will be constructed, relating to each of the participants.

The final stage of analysis will involve exploring a thematic analysis of all of the individual narratives in order to identify trends in the data.

Appendix 4: Initial interview Schedule

Question	Research Aim	
	To assess students' perceptions and experiences of becoming a physiotherapist	Evaluate the factors that contribute to students becoming physiotherapist
Tell me about what lead you into a career in physiotherapy	May highlight understanding of physiotherapy knowledge and skills; professional identity	May highlight early expectations, personal characteristics
Why did you choose to study physiotherapy in the UK?	May highlight perceived differences between physiotherapy culture in UK vs home country	May highlight barriers and enablers
Tell me about the first few weeks / months you were here	Will contribute to narrative around becoming physiotherapist	May highlight issues that arise in early days of course
What sort of things have influenced your development as a student physiotherapist	Will contribute to narrative around becoming physiotherapist	May highlight barriers and enablers
What does physiotherapy mean to you now?	May highlight previous experiences and understanding of physiotherapy knowledge and skills and expectations	May highlight previous experiences, perceived challenges and enablers
Where do you see yourself in 4 years' time?	Will provide insight into motivations, professional identity and learning needs	May indicate some barriers or enablers to further development