The Negotiated Teacher: Student Mathematics Teachers' Navigation of Conflicts and Tensions within the Overlapping Figured Worlds of School and University

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Contents

Abstract

This thesis explores the developing identities of a group of student-teachers following a university-led PGCE route into education. Schools are increasingly positioned in a global market as part of a neoliberal system in which education is seen as a commodity and trusted professionals are viewed as a technical workforce. This thesis questions to what extent student-teachers are able to be the teacher they want to be within this neoliberal context with its routine surveillance and performativity measures. This situation is particularly acute in mathematics education where pedagogic practice is heavily contested and the tension between university-based theory and school practice has a significant bearing on student-teachers' experience of mathematics teaching. This thesis explores how student-teachers resolve these issues both internally and socially.

The thesis follows the one-year post-graduate journey of four student-teachers to qualified teacher status: Kate, Niamh, Caroline and Jake. They were enrolled in the 'university schools' programme, a unique model of teacher education in which the university tutor (myself) was also immersed in the day-to-day experiences of the school and participated in the students' co-planning of lessons, teaching observations and discussions. Data were collected throughout the year from a range of focus groups, semi-structured interviews and students' reflections. Interview and focus group questions focused on their thoughts, emotions and conflicts concerning their developing pedagogy, as well as their relationships with each other, their university tutor and with their school mentors. The reflections were unstructured and were the stories that the student-teachers chose to tell me about their week, providing insight into their perceptions of the conflicts and tensions they experienced, how these were or were not resolved, and how they impacted their development.

Holland, Lachicotte, Skinner and Cain's (1998) theory of 'figured worlds' is used as the theoretical lens for this research. This theory enables a reflection on the figured world of the university and how it interacts with that of the school and how this impacts the students' development as mathematics teachers. The thesis explores how their figurative identities, based on their histories in person, as well as the relational (positional) identities shaped each student-teacher's identity. Student-teachers experience a range of advice and feedback throughout their placements from school mentors, university tutors, their peers, pupils in class in addition to their own ideals and beliefs about teaching. The theoretical lens of figured worlds enables a focus on their orchestration of these multiple and often competing voices and explores how positioning and identifications are counterposed and brought to work against each other to create their own position and their own voice. Thus, my research question asks: How do student-teachers develop an authorial position across the figured worlds of the school and university? Sub-questions focus on how figures, voices and authoritative discourse impact on the students' self-authoring, and their development of an internally persuasive

discourse in response to the conflict between theory and practice which they experience in their PGCE year.

The thesis concludes that student mathematics teachers must negotiate versions of the teacher they can be based on the teacher positions available to them. They are affected by the neoliberal context they find themselves teaching in, as well as their history-in-person and their shifting positional identities. This thesis explores the role of the conflicts and tensions student-teachers experience as a result of contested views of mathematics pedagogy which force them to question their beliefs about mathematics teaching. It focuses on the ways in which student-teachers develop an internally persuasive discourse and an authorial stance over time.

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1. Introduction:

1.1 Position and Background - What Drove Me to Take This Journey:

I am currently a senior lecturer in secondary mathematics education, specialising in Teacher Education. I clearly recall the decision to take this role and the ideals I had when applying for the job. I had been appointed as Assistant Headteacher in the school I had worked in for a decade and my Headteacher invited me to discuss my future vision. It was during this discussion that I realised that my desire to develop mathematics pedagogy and influence pupils' understanding was currently limited to the pupils who attended our school. As a teacher I had influenced the mathematical understanding of those in my class, and as a Head of Department this had extended to influencing the teaching of all the pupils in the school. The Headteacher encouraged me to consider becoming a University Lecturer so that I could influence the mathematical pedagogy of teachers entering the profession and subsequently improve the mathematical understanding of significantly more pupils. I believed the seeds that were planted during their teacher education year would grow and the influence I could have on pupils' learning of mathematics would be exponential; the reality was quite different. However, this naïve ideological view of my profession was not too dissimilar to those who come into the teaching profession on a PGCE course who have altruistic reasons for becoming a teacher.

As a teacher educator, during the three formal observations over the year, I was often dismayed to see student-teachers who had previously been creative and innovative in their teaching revert to didactic methods. There was an apparent gap between the theory learnt at the university and the practice seen in school. Whilst on teaching practice the student-teacher was isolated from the support and advice of the university tutor and so too often pedagogy was sacrificed to ensure compliance, diminishing the influence that my role as a university lecturer was having. This led to my development of an innovative approach to teacher education placements, based on the Finnish system of schools and universities working more closely together; we titled it the 'University School Model' of teacher education (USM)

1.2 University School Model of Teacher Education

During the banking crisis of 2008, there was a significant increase in people with mathematical backgrounds applying for a PGCE in secondary mathematics education (See & Gorard, 2019; Fullard, 2021; Worth et al., 2022). Worth et al. (2022) reported a 61% increase in mathematics teachers being trained in 2008, which they attributed to the recession. A significant increase in student-teachers paralleled a need for a significant increase in the number of schools offering places to accommodate the teaching experience. The shortage of placements along with the increased demand meant that

there was significantly less control over the quality of experience the student-teachers were receiving. The varied motivation for schools to support student-teachers, along with the pedagogy being modelled, led to diverse and wide-ranging experiences for the student-teachers (see Maynard, 2000, Hopper, 2001). As university tutors in the Mathematics Education department at the university where I worked at the time we had a number of concerns. Firstly, we were concerned that the increase of partnership schools being used would mean that the links between the theory advocated at university and the practice experienced in schools was reduced due to less time available to work with each school. Subsequently this raised concerns regarding the relationship between the university tutors and the mentors in schools as we were working with a larger cohort of mentors as well as student-teachers. Student-teachers require support from experienced teachers during their PGCE year (Ambrosetti et al., 2017). However, the poor retention of teachers meant that subject mentors in our partnership schools fluctuated and the valuable experience of teachers in the role of mentors was diminished; with some schools in our partnership relying on early career teachers to mentor the student-teachers. Faced with these challenges we wanted to explore the options for maximising the relationship we had with a fewer number of schools to try to minimise some of these issues and work closely with some schools in a more intense and practical way. We therefore considered other models of teacher education and visited Finland to experience their teacher education system.

Teacher education in Finland is completed in specialist teacher-training schools which are governed by the university (see Sahlberg 2011). The partnership school, in the university I visited, was physically attached to the university building. In the lessons I observed, the class teachers and university tutors worked collaboratively in the classroom strengthening the relationship between educational theory and classroom practice. The transition between the university and the classroom is solidified for the student-teachers by the school and the university having a shared understanding of the pedagogy being developed and how pupils learn in the classroom (Sahlberg, 2011).

In our university school model six student-teachers from one subject (mathematics) were placed into a school for each of the two placements, significantly reducing the number of schools we were partnered with. This allowed the university tutor to spend a full day per week throughout the placement in the school, working alongside the student-teachers and the mathematics department. Student-teachers were arranged in teaching groups of three and they undertook both collaborative and individual teaching, including joint planning and team-teaching for a large proportion of their timetable. In the first placement two thirds of their teaching allocation was taught collaboratively and a third individually. In their second placement only a third of the lessons were taught collaboratively and two-thirds were taught independently. The university tutor's role involved supporting student-

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teachers with planning, observations, evaluation of lessons, as well as direct classroom support and working alongside the subject mentor to target interventions when required.

This model was important for me as a teacher-educator because the collaborative element encouraged the student-teachers to support each other and to take risks in their teaching and explore different pedagogies such as Realistic Mathematics Education (RME). My weekly visit and joint lesson planning meant that the student-teachers pedagogy could be supported and encouraged, leading to them becoming more reflective practitioners. I could mediate between the student-teachers and the school's teachers to encourage this exploration of innovative teaching strategies. However, working in a group with differing pedagogies and priorities can lead to tensions and emotions that student-teachers find hard to navigate between themselves. Whilst working in the USM I spent significant periods of time immersed in the experiences of the student-teachers and witnessed first-hand the tensions and conflicts they encountered with the theory and practice divide. I was also aware of the conflicting and often contradictory advice they received from subject mentors and the expectations placed on them to develop into certain types of teachers based on the school's perceptions; which were often in conflict with their own ideals of teaching. This thesis considers student-teachers' experiences in three secondary schools in England, which ranged in size and context, from a small academy converted in 2010, a large established community school and a small newly converted multi-academy trust school, all of which had catchments in areas of deprivation and were considered urban schools. The unique ethos and context of each school was emphasised to me by my weekly presence in the schools and this developed into a significant consideration. These reflections were not limited to student-teachers in the USM but was a wider consideration for student-teachers in other models of teacher education. I became interested in why student-teachers were resisting advice given to them throughout their PGCE year, be it from the university or the school, and how this impacted the development of their teaching identity. This led to considering how student-teachers can develop their teacher identities within an environment fraught with rules and expectations and mediate the multiple voices they experience; my own being one of them.

1.3 Aims of the Thesis.
This thesis aims to explore and interrogate the tensions and conflicts that student-teachers experience throughout their PGCE year. I do this through a study of the experiences of four student-teachers: Kate, Niamh, Caroline and Jake. The USM is not the focus of this research, however it is a significant feature as it allowed me, as the researcher, access to the student-teachers' placement schools throughout the year and to be more immersed in their experiences than on a typical PGCE model of

teacher education. It afforded me a better understanding of their school context by attending the placement school weekly.   The thesis aims to explore and interrogate the tensions and conflicts that these student-teachers experience throughout their PGCE year. I aim to consider how a person's past experiences of education, their beliefs, their individual agency, and the cultural norms of the school and university interact in developing them as teachers. I specifically address how they mediate the cacophony of voices they experience with respect to the often competing and contradictory advice they receive throughout the year. I will consider how they navigated these tensions with respect to their own pedagogy, the relationships they formed with peers and teachers, and the way they experience the theory-practice divide.

Initially this led to my research considering how student-teachers negotiate positions and relationships and so the research question I posed was:

1) How do student-teachers negotiate positions and relationships?

1a) What roles do relationships play in student-teachers' positioning as mathematics teachers?

1b) How does the way that student-teachers relate to the theory practice divide impact on how they position themselves as mathematics teachers; how do the conflicts and tensions shape the student-teachers' experiences?

At the start of my research, I did not appreciate how significant the theory of figured worlds would be as a lens for making sense of the complex experiences of these four student-teachers. The theory became so powerful in providing tools to analyse their journey and stories that the research question was reconsidered to have more emphasis on the specific aspects that were being considered; using a figured world lens:

How do student-teachers develop authorial positions across the figured worlds of the school and university?

a. How do figures, voices and authoritative discourses impact on how student-teachers author themselves as mathematics teachers?

b. How do student-teachers develop an internally persuasive discourse in response to the theory and practice divide?

1.4 Overview of Chapters:

Chapter 2 is a review of the literature on the history of the education system and the educational reforms that have led to academisation and the marketisation of education. I consider how this, and

the pressures of performativity within mathematics, can result in a divide between the theory learnt at university and the practice observed in schools. The chapter then considers the role that schools, the subject mentors and the universities play in shaping student-teacher identities.

Chapter 3 is a discussion of the theoretical framework which frames this research. "Figured Worlds" theory, as developed by Holland, Skinner, Lachicotte and Cain (1998), draws on the work of Bourdieu, Foucault, Vygotsky and Bakhtin to consider how cultural forms and social relations come together in a collective space to conceptualise identities. The theory bridges the culturally constructed moral world that guides us with the constructivist view of how our discourse can be used to position ourselves in relation to others. In this chapter I consider how this theoretical lens can be operationalised to explore how student-teachers constantly change and improvise their identities.

Chapter 4 considers my position in the data collection and the ethical implications of using my own tutor group to conduct this research. It also discusses the reasoning behind using the student-teachers weekly written reflections as well as focus groups and semi-structured interviews. It finally considers how the theoretical framework can be operationalised to analyse the data collected.

Chapters 5, 6, and 7 are data analysis chapters. I present the stories that four student-teachers chose to share with me throughout their year on the PGCE course. I consider how they orchestrate the competing voices that they encounter throughout the year and author themselves depending on if they align with their existing internally persuasive discourse. The relationships they have with their peers, subject mentors and university tutor are also explored with respect to how they position themselves relationally and figuratively to these figures.

Chapter 8 draws together the findings of the literature review and the analysis of the data through the lens of figured worlds and responds to the research question posed in this thesis: How do student-teachers develop an authorial position across the figured worlds of the school and university? I will discuss the student-teacher's responses to the expectations to comply to the pre-established rules and routines of the placement schools and the expectations from the university, not only with respect to the tensions of differing pedagogies, but also the emotional and relational conflicts they experienced. The discussion will focus on how the accumulation of these experiences shaped their internally persuasive discourse and the role they played in the negotiation of the positions available

to them throughout the course and ultimately the teachers they presented themselves as at the end of the course.

Chapter 9 concludes the findings and considers the limitations of the research, implications for future practice and future research as well as the contribution to knowledge that this thesis brings. I argue that this thesis provides a nuanced account, an interpretation and re-presentation, of the lived experiences of four student-teachers from the unique position of being immersed in their experiences of the PGCE course. The role of tensions and conflicts was paramount to the way they negotiated their professional identity and the positions available to them in the PGCE year, particularly in the contested field of mathematics education. There is a large body of knowledge concerning the theory and practice divide, however my contribution to this knowledge is considering this pedagogical debate and combining it with the consideration that emotions, relations and beliefs play a significant part in developing student teacher's professional identities. Due to the USM, the concept of the figured world of the university overlapping the figured world of the school is a unique way to explore the dialogic sites of struggle that PGCE students must address in the process of becoming a teacher.

2. Literature Review

In this chapter I will firstly consider the broader politicising of education with a shift away from a welfare education system to a neoliberal form of education and its privatisation through the introduction of academies and multi-academy trusts. I will then deliberate the effects of performativity on schools and teachers and therefore on mathematics pedagogy. I will consider the politicising of mathematics education and the government's concern with the UK's global position and the effect this has had on the teaching of mathematics in the UK.

Secondly, I will discuss the changes to teacher education and the move to teacher training being practice based in schools with limited input from the universities. This will lead me to consider the effect this has on the divide between the theory learnt at university and the practice seen in schools.

Finally, I will explore the student teachers' identity and how the measures of performativity and the theory-practice divide affects their development. I will discuss the role that the schools play, and more importantly the subject mentors, in the student-teachers' development over the PGCE year. I will consider the implications for the different styles of mentoring and the role of relationships in the development of the student-teachers' identities.

2.1 Neoliberalism

A Brief History

Education was significantly reformed post-war in 1945 when it was considered a public service and therefore developed as part of the welfare state (Chitty, 2014; Ball, 2021). However, the tripartite system that was introduced, the secondary modern school, grammar school or technical high school, saw education as an instrument of social stratification in what was described as a necessary unequal society; 'the equal right to be regarded as unequal' (Jones, 2016:20). In 1976 the Labour prime minister, Callaghan, praised the creativity of schools, but claimed that they were unable to face the demand of 'preparing children for skilled jobs' (Callaghan, 1976). He challenged teachers that the onus was on them to 'satisfy the parents and industry' (Callaghan, 1976) which led to a shift in school culture where the teachers became held accountable for progress. The view that education policy should be guided by economic imperatives was the start of education being highly politicised (Jones, 2016) leading to a shift away from welfare education (Ball, 2021) towards a more neoliberal way of thinking about education, based on principles of market exchange and competition. Education continued to be repositioned as a private good (Gewirtz, Ball and Bowe, 1995) under Thatcher's Conservative government (Chitty, 2014; Jones, 2016). Education was being marketised and seen as a commodity, where parents were considered consumers and the schools as businesses in a free market

as a mechanism to drive up standards; however, it emerged instead as a major new factor in maintaining and reinforcing social-class divisions and inequality (Gewirtz et al., 1995).

The Education Reform Act of 1988 led to the development of a national curriculum for teachers to follow. Ball (2021:87) states that the introduction of national testing engendered the 'suspicion of teacher professionalism'. National testing was promoted as a 'robust' system of control and accountability, alongside 'teacher proof' evaluations and assessments (Ball, 2021). The results of these tests were published in 'league tables' as a way for parents to identify weak or failing schools. However, paradoxically the publication of examination results was not seen by all to be helpful but a source of further uncertainty for those not in privileged positions (Gewirtz et al., 1995). Schools were under a new model of leadership that was drawn from business practices and standards; targets and performance monitoring were given more credence with the emphasis shifting away from content and focusing instead on standards (Ball, 2021).

The move to a Labour government in 1997, with their traditionally left-wing politics, should have favoured a more comprehensive system of education in the UK (Jones, 2016). However, New Labour, under Blair, had reconsidered some of their social democratic principles, including the defence of comprehensive education. The Labour government saw the comprehensive system as no different for social degradation than the tripartite system, given that most secondary modern schools had been rebranded as comprehensive schools (Adonis, 2012). The DfEE (2001) made the bold claim that the comprehensivity of 'one size fits all' needed to change and there needed to be a more flexible system around the needs and aspirations of individual pupils. This fundamental weakness of the comprehensive system, that of the rigid and damaging division between state and private education, led to the academy programme being launched by New Labour in 2002 (Adonis, 2012). The academy programme effectively introduced state funded independent schools, outside local authority control, financed directly by central government and governed by private interests (Rayner, Courtney and Gunter, 2018). According to Adonis (2006), Sweden had one of the least ability-segregated school systems in the Organisation for Economic Co-operation and Development (OECD) and was therefore a system to aspire to. Adonis likened the successful social market reform and the independent state schools of Sweden to the independently managed academies and trust schools that were being championed by Blair (Adonis, 2006). The Scandinavian countries were performing well in international tests and therefore were seen as being 'at the cutting edge of public sector reform' (Adonis, 2006). These ideas strongly influenced the educational reforms in England. The academy programme was

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'turning out to be one of the most radical and encompassing programmes of school reform seen in a developed country' (Eyles and Machin, 2019:1107).

Academisation was a move to make schools independent of the local authority and to allow more freedom to be innovative and experiment with the curriculum (Gunter and McGinty, 2014). The move to being an academy was deemed to give headteachers autonomy and creativity over the curriculum; however, the reality for some headteachers was that their optimism for the academy programme had 'given way to the concern that they are probably less autonomous now than previously' (Thompson et al., 2021:216). The move away from government structures framing and directing policy led to the autonomy promised through academisation being merely a rearticulation of accountability regimes and compliance measures leaving headteachers feeling morally burdened and individually responsible (Thompson et al., 2021).

The academies programme continued to 'evolve and mutate' under the Conservative government (Thompson et al., 2021:217) with the development of Multi-Academy Trusts (MATs) in 2005. MATs take on schools from across different districts, which can lead to social and cultural justice concerns due to the narrow performative cultures in schools. MATs were seen as having the power to create a set of regimes proven to work in one school and then enforce them in subsequent schools, further removing any autonomy the headteacher had over their school. This created environments where teachers were expected to adhere to a 'rigid and predetermined recipe for success … based on school effectiveness theories' that used 'performativity and normalization as its mechanisms' (Perryman, 2006:150). However, the significant differences in performance and inspection gradings between schools in the same MAT suggests that transporting and implementing regimes without consideration of the local social and cultural concerns makes this a less effective strategy (Thompson et al., 2021). Chitty (2014:99) argued that school reforms have 'passed a "tipping point", a point of no return and are irreversible' with respect to neoliberalism regardless of the political party in power. However, the small, incremental changes to educational practice and policies that have been made post war (from teachers having autonomy over their teaching to the introduction of a national curriculum, from being controlled by the LEA to the introduction of marketisation, measures of accountability and privatisation under academies) have made each transformation feasible and acceptable; what Ball (2021) termed the ratchet effect, and this has given rise to the unprecedented changes to education over such a short period in history.

2.1.1 Performativity

School Performativity

Over the last three decades teacher performance has been reconceptualised as 'that which can be quantified and measured, relying on a system of performance benchmarks and assessments' (Holloway and Brass, 2018:361). According to Ball (2003) educational reform in schools, colleges and universities focuses on three key elements: the market, managerialism and performativity. Ball (2003) argues that the language used to describe teachers changed from that of cooperation and professional judgement to a focus on the discourse of competition and performance. The introduction of "Progress 8", where schools were judged on the improvements pupils made from primary to GCSE in eight 'real subjects' (Ball, 2021:104) encouraged English and mathematics to be prioritised in schools; due to them being double weighted. This led to the potential rivalry and resentment from other subjects, adding to the 'pressure cooker' that these subjects find themselves in (Perryman et al., 2011:180).

Through measures of performativity, schools were encouraged to be innovative to 'raise achievement and to provide a competitive edge' (Solomon and Lewin, 2016:228). Conversely, Perryman et al. (2011) argued that performing to league tables leads to a lack of creativity in teaching. The impact of performative measures on pupil learning and classroom culture leads to 'defensive teaching' (Holloway and Brass, 2018:370). Teachers' trepidation is that innovative teaching will not be captured by or valued within the metrics of accountability (Ball, 2003) and thus constrains practice. Solomon and Lewin (2016) argue that schools toil with finding a resolution to the conflict between the culture of performativity and innovative practice. However, conversely Ball (2003) notes that performative systems offer some teachers the opportunity and satisfaction of being identified as successful. Similarly, Holloway and Brass (2018) note that those newer to the profession found the accountability regime encouraged constant improvement to their teaching and 'showed not only an acceptance of the accountability system, but a reliance upon it for gaging their value and improving their worth' (Holloway and Brass, 2018:380). Similarly, Perryman et al. (2011) found that being successful and feeling important can make the forementioned pressure bearable.

With the use of appraisals, target setting, and outputs linked to performance-related pay, teachers are expected to promote their worth via numerical values (Holloway and Brass, 2018). Ball (2003:217) succinctly referred to this as 'value replaced values', the goal being to 'make myself calculable rather than memorable' (Ball, 2012:17) with outputs being prioritised over beliefs (Ball, 2003). This emphasis on externally driven forms of accountability is what Keddie et al. (2011:76) refers to as a 'fetish for

standards and outcomes in schools'. The frequency of inspections and the sense of being perpetually under surveillance, leads teachers to perform in ways dictated by the inspection to escape the regime (Perryman, 2006). This can lead to the teacher questioning their own beliefs about effective teaching and an uncertainty behind their actions, as well as a lack of confidence and trust in their own capabilities (Keddie et al., 2011; Ball, 2012). Ball (2003:221) calls this 'values schizophrenia' which is experienced by individual teachers where 'commitment, judgement and authenticity within practice are sacrificed for impression and performance'. Teachers are left questioning if they teach the way they do because it is important and they believe in it, or because it is measurable and comparable (Ball, 2003). This brings about teachers feeling inauthentic in their teaching, which Ball (2003:222) refers to as 'game playing or cynical compliance…an enacted fantasy' which is performed to be observed and subsequently judged. A study into teacher retention found that the major factor, in the 54% of teachers considering leaving the profession, was 'accountability pressures and the performativity culture in education', regardless of most stating altruistic reasons for becoming teachers (Perryman and Calvert, 2020:6).

2.1.2 Mathematics
Performativity and Mathematics Teaching

Black and Wiliam (2018) argue that test results are so high stake for teachers and their schools in England that the system ignores the derogatory effect on teaching, making it counterproductive. Wake and Burkhardt (2013), focussing on inquiry-based learning in mathematics, found that schools across many nations in Europe did not have national tests that supported inquiry-based teaching, stating that most tests were narrowly conceived and encouraged targeting teaching specifically towards a test based on application of knowledge relying on rules and procedures. These national tests were dominated by timed written papers prioritising technical fluency and knowledge recall over other skills such as problem solving and modelling (Wake and Burkhardt, 2013). Where countries diverged was how this data was used to measure school effectiveness and the effect this has on pedagogy.

> In most nations knowledge of measurement outcomes is formally restricted to those charged with effective running of schools. However, in some cases results are made available more widely to the public, for example in the UK. The pressure on teachers to ensure that their students perform well in assessments is therefore particularly intense and tends to sustain pedagogies that are well-established, non-risk taking and therefore provide further obstacle to change (Wake and Burkhardt, 2013:856).

Black and Wiliam (2018) claimed that there was significant evidence in the UK of teachers relying on rote learning, recitation and instruction by exposition and insufficient attention paid to discussion and dialogue. This is due to national assessments prioritising procedural competencies at the expense of

conceptual understanding, the ability to problem-solve and communicate mathematically; they are therefore at odds with the learning goals of innovative teaching (Maas, Cobb, Krainer and Potari, 2019). However, Black and Wiliam (2018) argue that discussion and dialogue is a strong component of formative assessment and leads to more effective learning.

Politicising of Mathematics Pedagogy

'Mathematics education is increasingly at the centre of political debate' due to the direct impact it has on future economic activity, business, employment and the economy (Wake and Burkhardt, 2013:851). Noyes, Wake and Drake (2013) claim that mathematics is arguably the area of the curriculum which is subject to the most scrutiny by policymakers, closely followed by English and science. The socio-political importance of the subject and the political goals that mathematics serves does not happen in other subjects (Pais, 2013). Brown, Solomon and Williams (2016:290) also stipulate that there is a special nature to mathematics education due to it being deemed as 'responsible for progress, of both society and of the self'. Mathematics, as a subject taught in school, performs a social role involved in 'mechanisms of accreditation', however, it could be argued that this is 'extrinsic to mathematics' and that teaching mathematics for everyday activities 'conceals the real importance of mathematics as a testing and grading device' (Pais, 2013:17). As a result of teachers being accountable to these examination regimes, the 'supposed wonder of mathematics is often lost in schools' (Brown, 2016:77).

There is a popular belief that mathematics is culturally neutral, which is why it is valuable for international comparisons of the effectiveness of education systems, such as the Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) (Noyes et al., 2013). A better PISA or TIMSS result becomes an indicator of better teaching, and policymakers and researchers seek models to follow from those countries that are doing well in those league tables (Brown et al., 2016; Biesta, 2009). The Conservative-Liberal Democrat coalition government, under Cameron, prioritised the UK's global position in mathematics saying '…what really matters is how we are doing compared with our international competitors' (DfE, 2010:6). The government's back to basics campaign saw an improvement in the TIMSS rankings in 2007 from 18th to 7th position (Brown, 2016); however, the UK dropped from 8th to 24th in PISA (DfE, 2010), which is a more problem-based test (Brown, 2016). This fall in global position fed into the ongoing mistrust and surveillance of teachers (Ball, 2021).

Pupils' mathematical literacy and their ability to problem solve in unfamiliar contexts is one of the areas where most countries significantly underperformed in PISA (OECD, 2013). One of the countries which has been consistently successful in the PISA ranking is the Netherlands, where they have developed Realistic Mathematics Education (RME). The RME pedagogy is firmly entrenched in the ideology of developing a relational understanding of the mathematics rather than a purely instrumental application. Instrumental (procedural) understanding is considered as teaching 'rules without reasons' and relational understanding is concerned with 'what to do and why' (Skemp 1978:20). Skemp (1978) asserts that these are effectively two completely different subjects being taught under the same name of mathematics. Foster (2014) argues that there is a wide consensus amongst mathematics educators that a classroom which focusses predominantly on the teaching of algorithms not only fails to offer pupils an authentic experience of mathematics, but it also actually hinders their mathematical development. Skemp (1978:23) describes 'what constitutes mathematics is not the subject matter, but a particular kind of knowledge about it' so a page of correct answers is not important but relational understanding itself is an educational goal. However, Maass et al. (2019) found that it is a significant challenge for teachers to change their classroom practice from being an instructor who attempts to directly teach procedures, to being a facilitator who supports pupils' conceptual understanding. This is partly due to mathematics being viewed by those teaching it as an exact, abstract, deductive discipline with unambiguous solutions and this belief is hard to challenge (Maass et al., 2019). Experienced teachers can find it hard to alter their practice as these personal beliefs are based in compelling evidence from their own daily classroom experiences (Brown, 2016).

Regardless of the Netherlands success, the political direction of mathematics education in the UK reverted to the traditional teaching of algorithms (Foster, 2014) under Gove. Policy often focuses on the perceived teacher weaknesses when there are low results in comparative studies and implement initiatives for professional development considering only that it is the teachers that needs to change and not the system (Krainer, 2014). In 2014, the government invested heavily in the mathematics teacher exchange programme (MTE) aimed at English teachers learning from the practice of Southeast Asian teachers who were performing well in PISA; to borrow a 'policy golden bullet from those deemed most successful' (Clapham and Vickers, 2018:788). Southeast Asian teaching differed from English teaching as it emphasises whole-class interactive teaching 'to develop conceptual understanding and procedural fluency, using carefully designed tasks and skilful questioning'; known as mastery teaching. (Boylan et al., 2019:15). The idea of international 'cherry picking' of education policy is not new (Noyes et al., 2013) but enforced changes to practice do not work 'when it is framed in terms of the transmission of knowledge from research or policy makers to teachers' (Maass et al., 2019:304).

Issues were evident in the implication of mastery teaching as it is immersed in a cultural context which could not simply be copied by another country (Huang, Huang and Bosch, 2021). The difference in cultural structures between England and Shanghai, such as assessment regimes, national curriculums, and workload, led to most schools adapting rather than adopting the mastery practice indiscriminately (Boylan et al. 2016) which resulted in mastery being misinterpreted and reinvented by most schools who use it in the UK (Clapham and Vickers, 2018).

2.1.3 Initial Teacher Education

The politicising of education, marketisation and introduction of performativity in schools had a significant effect on the way education was reframed in England. However, Biesta (2013:121) argues that the government were not satisfied with their 'strong grip on schools' through a combination of curriculum prescription, testing, inspections, measurement and league tables as discussed above, but redirected their focus on 'teacher education in order to establish total control over the education system' (Biesta, 2013:121).

The Changing Role of the University in Initial Teacher Education

The government's neoliberal agenda in education had a significant impact on Higher Education Institutions (HEIs) in a very similar way to schools. In 1944 the McNair report ensured that universities developed a 'school of education' who had the autonomy to deliver and assess teacher education programmes to produce qualified teachers (McNair, 1944). However, there were similar concerns with the quality of teachers being educated as the quality of learning in school at this time (Smith, 2000; Taylor, 2008) with headteachers and local education authorities demanding a reform to teacher education to 'prepare students more effectively for the reality of schools' (Murray and Passy, 2014:494). This led to a review of teacher education with the James report (1972) claiming that the theoretical knowledge learnt in universities was irrelevant if it was at the 'expense of adequate practical preparation' for their teaching experience (The James Report, 1972:67). HEI's focussed on the theory of education such as the mechanisms for understanding child development and child-centred approaches supported by research, as opposed to the instrumental focus being promoted (Murray and Passy, 2014). In 1984 the Council of Accreditation of Teacher Education was formed as a validating body and since then successive government policies have emphasised the need for initial teacher education (ITE) to become more practical in its application (Furlong and Lawn, 2011).

Thatcher's Conservative government increased the time that student-teachers spent in schools rather than in university in England (Furlong, 2013). The Secretary of State at the time claimed that eighty percent of initial teacher education should take part in schools (Evans et al., 1996), an increase from the two thirds that was legislated in the DFE Circular (DfE, 1992). Teachers were seen as the key resource in ensuring global competitiveness of the nation's state education service and so how they were selected and trained was an essential concern (Furlong, 2013). Although higher education institutes complied with re-designing programmes to be more practically based, they repeatedly argued against 'intellectually impoverished models' of initial teacher education that were not research informed and did not give adequate reflection time for students to develop a sense of criticality around teaching (Murray and Passy, 2014:496).

School and University Divide

In 1994, initial teacher education was reframed as initial teacher training, and student-teachers were referred to as trainee teachers (Ball, 2021; Brown, Rowley and Smith, 2015; Brown and McNamara, 2011; Jones and Sinkinson, 2000). This subtle change in the formal language used was a profound ideological shift in how teacher educators and student-teachers were re-configured (Brown and McNamara, 2011). The concept of student-teachers being educated with a certain amount of autonomy of their teaching subtly changed to trainee teachers being 'trained to comply with externally imposed teaching and assessment regimes' (Brown et al., 2014:283). Brown (2017) argues that these moves raised a fundamental question:

> Are they student teachers engaged in an *educative* process developing the ability to lead curriculum initiatives as they later become professional teachers? Or are the *trainees* fulfilling the requirements of *training*, working to the current models? (Brown, 2017:4)

The emphasis on practical experience in schools rather than teacher education in universities was designed, according to the secretary of state at the time, to 'break the stranglehold of the higher-education institutions on ITE' (Sweetman, 1993 cited in Evans et al., 1996). This was increasingly noticeable in the coalition government's reforms in 2010 (Mutton, Burn and Menter, 2017). These reforms supported the view that learning to be a teacher can only be done in the context of a classroom and highlighted a strongly held belief by policy makers that 'teaching is a craft and it is best learnt as an apprentice' (Gove, 2010). Biesta (2013) also argued that the move to training schools depicts teaching as a skill that can be picked up in practice, rather than a profession which requires education. The expectation that student-teachers will learn from in-service teachers suggests that knowledge about teaching is simply observed and replicated (Brown et al., 2014). This created a fundamental shift in how learning was conceptualised, where universities focusing on research-led subject pedagogy were undermined and devalued (Brown et al., 2014). What student-teachers need

to know to be a competent teacher was being repackaged as merely concerned with what teachers should be able to do (Biesta, 2013).

Universities were being depicted as the 'illegitimate elite' by the conservative government (Craske, 2021:279) with their reforms aiming to further discredit the contributions of universities and unite teachers against the 'common enemy', as Gove termed them (Craske, 2021). Gove (2013) spoke openly about placing the blame of the education system on academics and that this was his reason for 'moving teacher training away from university departments and into our best schools' and to reform the curriculum and exams to 'restore the rigour they abandoned.' (Gove, 2013). This narrative forms a clear divide between the theory of education developed in universities and the teachers who are delivering education in the classrooms. Woodhead (cited in Brookes, 2005:49) argues that 'school-based training can become an ideological trap for the profession' and that this will only be successful if 'underpinned by a sound and coherent philosophy of teacher education that relates theory and practice within the context of practice'.

The neoconservative ideology is evident from the emphasis by the government on an academic knowledge-based curriculum and the attempt to attract high quality applicants (Brown et al., 2015). Training models such as Teach First only accepted those with a first-class honours degree as an indicator of good subject knowledge (Ball, 2021). Bursaries were offered to trainee teachers on other routes in shortage subjects, but the amount was dependent on the classification of their award, with a 2:2 or lower having to cover their own cost of training (Furlong, 2013). In line with the government's neoconservative principles, no bursaries were available for those training to teach on vocational courses or the social sciences, regardless of the classification of their degree (Furlong, 2013). The schools minister, Nick Gibb, was reported to have told officials in the DfE that he would 'rather have a physics graduate from Oxbridge without a PGCE teaching in a school than a physics graduate from one of the rubbish universities with a PGCE' (The Guardian, 2010). This further supports the popular myth that by prioritising subject knowledge this suggests 'that there is little to know about teaching and schools, and what little there is can be easily picked up on the job' (Mutton, Burn and Menter 2017:12).

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2.2 Becoming a Teacher.

2.2.1 Student-teacher

Student-teacher Identity

The development of knowledge and skills expected of initial teacher education is only one aspect in the process of becoming a teacher; it is also important to consider the personal and transformative nature of teaching (Beauchamp and Thomas, 2009; Meijer et al., 2011; Flores, 2020). Flores (2020) argues that the development of a professional identity is a core aspect of the experience of becoming a teacher, such as focusing on beliefs and actions as well as the influence that the workplace has on developing their identity. Beauchamp and Thomas (2009) claim that student-teachers undergo a shift in identity as they progress through teacher education, which does not stop at the end of their training year but is constantly shifting throughout their career. Beijaard (2019) argues that through the actual process of learning to teach many personal aspects permeate the development of a teacher identity such as their own biography, aspirations, their previous school experiences, and their beliefs about education (Beijaard, 2019; Flores, 2020; Arslan et al., 2021). Thus, a focus on the student-teacher's perception of self is central to teacher education and a 'sense of professional identity becomes crucial if the process of becoming a teacher is to be fully understood' (Flores, 2020:146).

Student-teachers' sense of identity is shaped and reshaped within a professional context by the interpersonal relationships they encounter in their teacher education and larger sociocultural structures such as schools and universities (Beauchamp and Thomas, 2009; Liggett, 2011; Izadina, 2015). This means that schools, mentors, teachers, pupils and the university tutors all have a significant role in the development of the student-teachers' professional identity (Flores, 2020).

Identity is considered by some to be fluid and a site of struggle; student-teachers begin to 'shape their sense of agency through sites of tension, struggle and conflict in relation to their identity' (Liggett 2011:185). The use of tension to support student-teachers' development of identity sounds counter intuitive, however, Beauchamp and Thomas (2009) argue that there should be an emphasis in teacher education of placing student-teachers in teaching contexts that provoke conflict to allow them to question themselves and their beliefs. Anspal et al. (2019:681) concur that 'experiencing tensions may be essential for the development of student-teachers' professional identity', especially their ability to reflect and learn from various conflicts, which plays a pivotal role in teacher identity development (Anspal et al., 2019). Research into student-teachers developing identity found that student-teachers' expectations and beliefs were confronted during their ITE when they revisited their

own past experiences of education through the new perspective of being the classroom teacher (Flores, 2020). This gave them more awareness of the complexities of teaching than their 'taken for granted' simplistic ideas (Flores, 2020:150). Alsup (2006) considered three areas of tension which affect perspectives on identity: the tension of being a student at university and a teacher whilst on placement; the tension between personal convictions and the professional role expectation, and the tension between what is taught at university pedagogically and the practice experienced in schools. Flores' (2020) research found that a key moment for professional learning for student-teachers was when they participated in debates about teaching. The student-teachers in her research found that the process of learning to teach, as viewed through the lens of a teacher, led them to question their ideas and beliefs about teaching and enhanced their pedagogical voice to stimulate productive learning (Flores, 2020). This allowed them to explore their own views about teaching and express their points of view, which in some cases reinforced their own beliefs, and in others started them questioning their autonomy (Flores, 2020). Anspal et al. (2019) claim that tensions connecting the theory to practice divide are important in the context of teacher identity development and that it is crucial to reflect on these issues early on in their training. However, it is important to be aware that although tensions are helpful in terms of identity development, some tensions may be too complex to reconcile if they oppose teachers' deep-rooted values, beliefs and perceptions which can lead to student-teachers leaving the profession (Anspal et al., 2019). There are some irrefutable tensions and contradictions that are implicit in teacher education such as 'preparing for professional autonomy in a world of externally imposed educational policies' (Flores, 2020:155). The student-teachers' journey is therefore marked with tensions and contradictions, alongside aspirations and hope, which Flores (2020:155) terms the notion of 'feeling like a student but thinking like a teacher'.

School Practice versus University Theory

Bjerke and Solomon (2020) researched student-teachers' perceptions of being mathematics teachers. They found that student-teachers tended to prioritise the practice over the theory due to their reflection of experiences in school (Bjerke and Solomon, 2020). This was owing to the student-teachers in this study describing successful lessons as being engaging and fun rather than the focus being on pupils' learning the underlying mathematical concepts (Bjerke and Solomon, 2020). The student-teachers were relying on specific activities which they could deliver in practice, which they referred to as tips and tricks to be copied that were in abundance in the school placement but not the focus of university sessions (Bjerke and Solomon, 2020). Smith and Lev-Ari (2005) also found that student-teachers believed that teaching is best learnt in the classroom due to the feedback they receive from more experienced professionals. This was reinforced by Furlong (2000) whose research

found that student-teachers considered teaching to be a practical activity and therefore they were not able to develop their own body of practical experiences until they entered the classroom. Although research argues that students prioritised the school placement, there is recognition from student-teachers that it is not that simple and that there is value in the theoretical aspects of teacher education, such as subject matter, developing pedagogy and understanding and being equipped to support with issues around diversity in the classroom (Smith and Lev-Ari, 2005). Bjerke and Solomon (2020) also found that although student-teachers initially valued practice due to skills acquired during the placement, this began to change as they developed and were more able to connect theory and practice to be able to employ and value university input.

One of the issues student-teachers face is straddling and reconciling the two worlds of university and school (Solomon et al., 2017). The theory of teaching valued at the university often differs fundamentally from the practice that student-teachers observe in the real world of schools where they are being assessed (Gainsburg, 2012); the general principles of education learnt at universities are seen by some to be disconnected from the reality of the classroom (Solomon et al., 2017). Therefore, the theory of constructivist styles of teaching often promoted by universities is not easily applied to the lessons that student-teachers observe (Gainsburg, 2012; Nolan, 2012; Solomon et al., 2015). There is a perceived mismatch between the 'idealised views of teacher education versus the reality of the classroom' (Solomon et al., 2017:156). When tensions arise, such as the tension between instrumental as opposed to relational teaching, new teachers cope by 'aligning heavily with the school and placing less value on what they learnt at university' leading to little room for reflection on their practice (Solomon et al., 2017:145). This is partly because student-teachers prioritise the world of the employing school, leading student-teachers to de-value what they learn on the university course (Gainsburg, 2012:65).

Application of Theory into Practice

The debate surrounding the theory and practice divide is well documented (see Korthagen, 2007; Allen, 2009; Nolan, 2012; Gainsburg, 2012; Solomon et al., 2015). The literature, according to Allen and Wright (2014), suggests that there is a tenuous relationship between the theoretical knowledge of teachers and their developing practice during their initial teacher education year. Whilst debating the personalised idiosyncratic nature of teaching, Kothagen (2007:305) refers to an issue which he claims has been relatively neglected:

> It often appears as if external observers are amazed at the fact that teachers do not apply important research insights and translate them into specific behaviours, which from the standpoint of the outsider would be so "logical" to do.

Allen (2009:648) argues that there needs to be a paradigm shift away from traditional programmes of teacher education that are 'based on the assumption that theoretical underpinnings… will be automatically translated' by student-teachers into their practice in lessons. However, Gainsburg (2012) says that this uncertain relationship between student-teachers' beliefs and the uptake of teaching tools and theories does not mean that universities should abandon the attempt to instil productive beliefs, but that the abstract nature of the decontextualised university environment may have little effect on later practice. Barron (2016:331) stressed that student-teachers tend to view the connection between theory and practice as 'being about testing one against the other', seeing whether the theories learnt at university are borne out in practice. Where practice differs to theory, student-teachers need to consider if they are convinced by the theory and therefore determine if their practice needs to change (Barron, 2016). While the university attempts to challenge beliefs about teaching mathematics, the 'impact of the school placement can force a return to earlier embedded ideas particularly when assessment, testing and accountability are high on the agenda' (Bjerke et al., 2013:89). Teacher education has traditionally tried to influence teaching styles by challenging student-teachers' beliefs, but Smith (2005) argues that beliefs do not directly control behaviour. There are far more complex issues and tensions which play a role in student-teachers' limited use of theories learnt at university than merely their beliefs (Gainsburg, 2012).

According to Gainsburg (2012:366), most teachers perceive mathematics to be 'fixed, linear and best learnt by memorization and solitary practice' with the teacher role being to demonstrate and explain the procedures and correct pupils' work. There is a strong discourse evident in mathematics education that teaching is about the accumulation of factual knowledge and the transmission of this knowledge to pupils and so teachers who are exposed to enquiry-based teaching are not always able to implement change due to the need to conform to strong school cultures of procedural teaching (Furlong, 2000). Gainsburg (2012) reasoned that standardised testing has further suppressed innovation regardless of teachers' personal beliefs about teaching, and therefore the assumption that traditional teaching methods are the most effective route, with a focus on rote-learned algorithms and 'teaching to the test' being prioritised (Solomon et al., 2017).

Individual teachers often subscribe to reform-oriented teaching in theory, but it is the pressure from schools to measure pupils' progress in short time frames that makes these beliefs difficult to sustain (Solomon et al., 2017). Solomon et al. (2017) suggested the difference between the theory learnt at university and the practice seen in school has more to do with the culture of the school, or the historically embedded practice, than teachers' beliefs about teaching (Solomon et al., 2017). Arslan

et al. (2021) studied the developing teacher identity of mathematics student-teachers on a reform-orientated education program. They argued that student-teachers only developed reform-orientated teaching due to pre-existing beliefs alongside the school placement advocating this approach. Thus, highlighting that teacher education programmes should take account of student-teachers' pre-existing beliefs as they are unlikely to change their mathematical teaching identity over the course of a placement (Arslan et al., 2021).

Student-Teachers' Initial Focus

When student-teachers start their school-based teaching practice they have several initial concerns that dominate their focus. A significant concern is the need for acceptance, which for some students is acceptance as a person and as a learner, but for most students it is to be accepted as part of the teaching profession (Maynard, 2000). Student-teachers in Hobson's (2002) research claimed that they found it beneficial to immerse themselves in the school culture and to be given responsibility to behave and be treated as a normal teacher. Hobson (2002) found that student-teachers believed that to be seen as competent in the classroom meant not being seen as a learner, which was at times at the expense of developing a fuller understanding of teaching and learning (Hobson, 2002). Furlong (2000) argued that most student-teachers focus on developing their own performance as a teacher without any reflection on the differences between acting like a teacher and thinking like one. Younger et al. (2004) found that at the start of the placement student-teachers often lack a framework within which to understand pupils' learning and that they need time to understand the complexities of the classroom situation and the teacher's response. They need to be able to reflect on their own preconceptions and refine their own understandings as to how they learn as teachers to enable them to facilitate the learning of pupils (Younger et al., 2004). When asked about their perceptions of good teaching, the student-teachers in this study referred only to characteristics and attributes of teachers: student-teachers' accounts of effective classroom teaching did not really articulate how the teachers' lessons, or their own practice, contributed to pupil progress. Several students in the study by Furlong (2000:16) initially had 'strongly held but simplistic beliefs about the nature of teaching and learning' which had developed through their own experiences. This led to feelings of indignancy when asked to reassess these fundamental beliefs (Furlong, 2000:16). This is partly due to the belief that learning to teach is often conceptualised in terms of the accumulation of knowledge and skill, yet what student-teachers really need for their development is discussions focussed on what it means to teach (Meijer, deGraaf and Meirink, 2011). Smith (2005) argues that student-teachers defer the implementation of their personal beliefs about teaching during their training year, because there is insufficient time for them to be suitably competent in the classroom to feel confident to test their intentions in practice.

This results in their original beliefs about teaching remaining intact for their early career in teaching (Smith, 2005).

ITE programmes often offer a model lesson for student-teachers to recreate in their placement school. Furlong (2000) argues that student-teachers deliver these model lessons without an appreciation or understanding of the underlying principles, leading to it being ineffective. However, the same lesson plan may be delivered by an experienced teacher in rich and complex ways, bringing a sophisticated knowledge of how pupils learn, and a flexible understanding of the knowledge incorporated in it (Furlong, 2000). In discussions with student-teachers early on in their placement, Younger et al. (2004) found that they were not able to articulate the teaching and learning they observed, and were vague in their understanding of the issues, leading them to merely replicate the teaching strategies without secure reasoning. Student-teachers are initially concerned with the idea of surviving a lesson and therefore coping with a new way of behaving may be a question of aligning with the practices and behaviours that they observe of their mentors (Solomon et al., 2017) which can lead them to plateau in their development (Furlong, 2000). Hopper (2001:212) found that student-teachers were 'likely to model their teaching on their mentor's style in order to survive the classroom'. Furthermore, Solomon et al. (2017) found that mentors' tendency to take control over student-teachers' teaching is often driven by an anxiety about the quality of pupils' learning, due to the measures of performativity, specifically in mathematics. This emphasis on the performative nature of teaching and the neoliberal context of education can lead mentors to demand an alignment with school practices, which is hard for a student-teacher to resist or to find room to develop their own teaching styles (Solomon et al., 2017). There is a potential tension brought on by the student-teacher being afraid of failure, of a lack of acceptance by their mentor and pupils potentially misunderstanding their teaching (Hascher et al., 2004). In the search to be successful, student-teachers often orient themselves towards their mentors, they are eager to act like them and to do this 'they simply adopt their mentors' teaching methods' (Hascher et al., 2004:635). Smith (2005) argues that it is not realistic to expect student-teachers to divert from the well-established methods of teaching until they feel secure and safe in their teaching, 'or they can be convinced that the need for safety could be better addressed with a wider range of teaching approaches that engage pupils in the task at hand' (Smith, 2005:208). As such, Bjerke and Solomon (2020) found that the student-teachers in their research initially opted for copying the school mentors, but as they became more experienced they appreciated the opportunities to reflect on the connections between theory and practice, and drew on university input to reflect critically with their subject mentors and teachers in school.

2.2.2 Mentors

Mentor Relationships

The mentor-mentee relationship is central to the student-teachers' experience and a key factor in becoming a successful teacher (Maynard, 2000; Hobson, 2002; Izadinia, 2015) or even completing their ITE course (Hobson, 2002). One of the tensions student-teachers may feel is that they are simultaneously a teacher and a learner, and this is a complex scenario that student-teachers often need support to recognise (Hopper, 2001). This is also a difficult dynamic for the mentor to navigate, as their expertise is in teaching children and they can find it difficult to teach student-teachers without treating them as pupils (Hopper, 2001). Hobson's (2002) research discussed the value that student-teachers placed on having a supportive, reassuring mentor who makes time for them, offering practical advice and ideas relating to their teaching and providing constructive feedback. Where the relationship with the mentors was not productive, student-teachers claimed that this was not due to external issues such as finding time for the student-teacher or being inadequately trained, but rather what they referred to as personality clashes between themselves and the mentor (Hobson, 2002). This manifested itself in the mentors having a lack of trust in the student-teachers, undermining them in front of pupils and not being approachable for the student-teacher to discuss issues (Hobson, 2002). This research concluded that there needs to be a more effective matching of school mentors and student-teachers to avoid the personality clashes given the detrimental effect it can have on student-teachers' progress (Hobson, 2002). Hastings (2004) also found that when the personalities of the mentor, or other classroom teachers, and the student-teacher did not match the student-teachers were unable to develop sufficiently over the school placement. Maynard (2000) found that student-teachers valued their mentor as a source of cultural knowledge and that the relationship they formed with their mentor, contributed to the success of the placement (Maynard, 2000). When the relationship between the mentor and the student-teacher is unproductive or even destructive, due to the mentors having a narrow view of good practice or lacking understanding of the student-teachers' learning needs, then 'the consequences for students' sense of worth as a teacher, and as a person, appeared catastrophic' (Maynard, 2000:29).

The teaching placement is a very intense and complex environment for student-teachers, so it is almost certain that tensions will arise. These tensions are inevitable, and even healthy, and can encourage those involved to focus on the enriching potential of the challenging situation (Hopper, 2001). However, mentoring is an interpersonal process where personal attitudes and beliefs impact the development of the relationship (Maynard, 2000; Ambrosetti et al., 2017) and when this relationship "breaks down" it can result in student-teachers feeling like they have no other option but

to withdraw from the course (Hobson, 2002). Maynard (2000:26) concluded that student-teachers maintained that if they were to be successful in their teaching placement then they had to learn how to 'manage their mentor'. This includes asking specific questions during feedback, but also personal aspects such as ensuring that the mentor feels important and valued (Maynard, 2000). The managing of mentors was perceived as a predominant concern for some student-teachers but Maynard (2000:28) concluded that the students who were most successful in the placements were those 'who recognised that there was a game to play and who possessed the disposition or skills required to play it'.

Style of Mentoring

One way in which mentors can support student-teachers is to allow them to experiment in their teaching with constructive support and for them to learn by their mistakes and not to be deterred by initial failure (Solomon et al., 2017). However, Maynard (2000) found that many student-teachers did not want to be left to learn from their mistakes due to the public nature of their learning and their initial focus of convincing pupils that they were competent teachers. Constructive guidance from the mentor is required as overly positive or overly critical feedback does not help student-teachers to improve (Maynard, 2000; Solomon et al., 2017). The concept of student-teachers learning from experiences in the classroom and developing their own practical theories is an important part of teacher education. However, there is a delicate balance to negotiate in the degree of support student-teachers receive from their mentors, as student-teachers in Solomon et al.'s (2017) study were discontent with being given free reign over their lessons, while others were equally displeased by being given scripted lessons to merely follow. Boaler (2003, cited in Solomon et al., 2017:16) argues that the need to have a certain degree of freedom in their teaching with the rules prospective teachers need to follow is like performing a 'dance of agency'.

Most mentors are aware that their student-teachers have different needs at different stages, but Hopper (2001) found that some mentors have the expectation that the current student-teacher that they are working with will match the development of previous student-teachers with whom they have worked. Similarly, mentors who do not work regularly with student-teachers can be 'tempted to fall back on their own experiences' of being a student-teacher (Hopper, 2001:215) and therefore not respond to the specific needs. Mentors are crucially influential in their role developing skills, knowledge and understanding for their student-teachers. These are derived from the specific school experience that they themselves are immersed in, and although supporting in the specific school context is a real strength that the mentors have, it is also a limitation (Furlong, 2000).

The School's Role in Mentoring

Mentors are bound by the norms and competencies of the school in which they work which has consequences for the support that they can give student-teachers (Solomon et al., 2017). Ambrosetti et al. (2014) found that the relationship formed between the mentor and the student-teacher needs to take account of contextual factors such as the enculturation into the school setting, immersion into work behaviours and specific requirements of the classroom (Ambrosetti et al., 2014). Hopper (2001) asserted that schools are unique in their ethos, and it is important for school mentors to take account of student-teachers' well-being while they adjust to the cultural values and norms of the school which are 'taken for granted by the regular staff' (Hopper, 2001:212). Maynard (2000) highlighted that student-teachers attach great importance to being made to feel welcome into the school, both in terms of the school community and the broader community of the teaching profession. However, this can be difficult to successfully implement as teachers are often unaware of the idiosyncrasies of their particular school; they are unaware of factors which may make it significantly different to student-teachers' own experiences in schools and therefore fail to take into account these factors when enculturing the student-teachers into their environment (Hopper, 2001). Learning to teach in a new school environment is according to Maynard (2000:28) 'full of tension, conflict and contradictions'. Student-teachers want to be part of the school community and yet conversely are driven by a desire to be themselves and to develop their own teacher identity, they need to 'resolve the conflict between desiring inclusion and independence' (Maynard, 2000:28). Hopper (2001) asserts that this is where the role of the university tutor, who works in many different school contexts, is important in highlighting and raising issues that are particular to an individual school context.

2.2.3 University Tutors.

The Role of the University Tutor

School mentors have an important role to play in coaching student-teachers and modelling good practice however they are rooted in one particular context which can limit the breadth of educational understanding (Furlong, 2000). University tutors have a 'working knowledge of practice in a wide range of schools' as well as having different kinds of professional knowledge, derived from practice, research and theoretical analysis (Furlong, 2000:17). Hopper (2001:217) argues that they can therefore have a more 'objective and generic view of trainees' development because they are removed from the intensity of daily professional and social contact in school'. Higher education institutions can introduce educational theory away from the complexities of the classroom environment, model a variety of teaching strategies and draw on 'their broad professional knowledge to introduce student-teachers to many different forms of professional practice' (Furlong, 2000:16). One of the issues highlighted in research by Gainsburg (2012) was that student-teachers are often given the theory of education at the start of a course and then expected to apply this to practice.

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Gainsburg (2012:363) argues that student-teachers must 'do before they understand', contending that the natural order of teaching should be from the specific to the general, and so to apply this to teacher education would mean starting with the teaching practice and then developing an understanding of the theory. Solomon et al. (2017) also argues that starting with the theoretical principles which can be applied to practical situations does not take into account the impossibility of predicting what situations student-teachers will encounter in their placement school. Furlong (2000) found that, although student-teachers initially became proficient at replicating the surface structure of teaching strategies from their subject mentor, it was the role of the university tutor to provide external support to transition thinking to the pupils' learning rather than the student-teachers performance in the classroom. This is a transition that Furlong (2000) found was difficult for the student-teachers in his study. Hopper (2001) also argues that although schools are assuming a greater responsibility for teacher training and the university tutor's role is changing, they still have a crucial role in minimising the limitations and maximising the benefits of the professional school placements. The university tutor is vital in offering student-teachers the opportunity to reflect critically on their teaching in a broader sense of education in different settings.

University Tutor and School Mentor Relationship

The relationship between the university tutor and the school mentor is crucial when supporting student-teachers during their placements to move beyond demonstrating practical skills and to consider a more theoretical understanding of teaching (Hopper, 2001). However, classroom teachers and mentors in school may be anxious that their views on teaching may be 'at odds' with the university tutor and that there will be a judgement made about their interpretation of the criteria and grade allocation (Hastings, 2004:141). This is reinforced by Hopper (2001) who claims that some mentors can feel personally threatened by a university tutors' visit feeling that they themselves are being judged. However, there can be significant benefits of the school mentor and the university tutor observing lessons together and giving joint feedback, where discussions can serve as highly effective in supporting mentors, clarifying expectations from HEI's and supporting with the types of language to use when communicating with student-teachers about teaching (Hopper, 2001). Conversely, if the mentor views the university tutor as a theorist who knows nothing about the practicalities of the working classroom, this can also affect the student-teacher's view of the university tutor and the theories of education advocated during feedback (Hopper, 2001). However, some mentors may expect the university tutor to be an expert on everything to do with education and teaching, and this can also be an uncomfortable situation affecting the relationships between the school, the university and the student-teacher (Hopper, 2001).

2.3 Conclusion:

2.3.1 Neoliberalism and Performativity

Education has been highly politicised over the past three decades, with a shift to a neoliberal way of thinking based on measures of performativity, teacher accountability, competition and the privatisation of education with academisation and the introduction of MATs. The publication of league tables based on national testing and inspection regimes, along with the government's concern for the UK's global position with respect to PISA and TIMSS, has led to mathematics being central to education policy. These measures of performativity which aimed to encourage innovative teaching have conversely stifled teachers' propensity to be creative. This has led to teachers questioning their own beliefs about teaching mathematics and becoming cynically compliant to play the game. National testing in the UK prioritises technical fluency and knowledge recall leading teachers to focus on an instrumental understanding of mathematics opposed to a more relational understanding, regardless of the teachers' own beliefs. Mathematics pedagogy is hugely contested with little agreement amongst academics, or governments, on how it should be taught. The argument of whether to prioritise instrumental or relational understanding has been an on-going global debate for decades. The move to school-led teacher training has reconceptualised teaching as a craft to be learnt in practice, auditing a set of competencies. This further enforces limitations to the role that universities play in discussing the application of educational theories and developing student-teachers' mathematical pedagogy in contexts that differ from the practice observed in schools.

This has led to my consideration of how a neoliberal context, from the perspective of the school, teachers, and universities, shapes initial teacher education and the student-teacher experience. I am also interested in questioning whether this affects pedagogical tensions and conflicts that student-teachers experience when teaching mathematics and how are these navigated.

2.3.2 Becoming a Teacher.

Student-teachers' own beliefs about teaching are hard to challenge in the short time frame available on the PGCE. The tensions that student-teachers experience during their PGCE year play a pivotal role in the development of their teacher identity, which is constantly being reinvented and renegotiated. The difficulty for student-teachers is balancing their desire to be accepted as a competent teacher alongside their position of student-teachers and learning from their mentors. The mentors in school play a significant role in modelling good practice and there is a propensity for student-teachers to

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emulate and replicate this. The school mentors may also encourage the student-teachers to replicate their own practice due to the pressures of performativity, with mentors experiencing anxiety over the learning of mathematics for the pupils in their classrooms. This can mean that some student-teachers focus on presenting the appearance of a competent teacher without understanding or developing their pedagogy to focus on pupils' learning. University tutors have knowledge of educational and pedagogical matters across a wide range of schools, which alongside research, places them in a position to offer student-teachers the opportunity to reflect critically on experiences in a broader sense of education.

The discussion on the role that the school environment, the school mentor and the university tutor have in developing the student-teacher's self-efficacy and identity has led me to consider what effect the different relationships play in terms of the student-teachers' sense of becoming a professional. The potential conflict and tensions between the mathematical pedagogy advocated at the university and the practice that student-teachers observe and are expected to emulate led me to consider how these tensions are navigated by the student-teachers, with respect to their relationships.

2.3.3   Research Questions Generated from the Literature Review.

This discussion in this literature review has led me to consider the following research question:

2) How do student-teachers negotiate positions and relationships within a neoliberal context?

1a) What roles do relationships play in student-teachers' positioning as mathematics teachers?

1b) How does the way that student-teachers relate to the theory practice divide impact on how they position themselves as mathematics teachers; how do the conflicts and tensions shape the student-teachers' experiences?

3. Theoretical Framework.

The change in education, particularly teacher education predominantly being situated in schools, along with the measures of accountability dictating practice and affecting teacher autonomy in the mathematics classroom is a significant element in this research. However, this cultural aspect of the school was only one of the issues highlighted in the literature review. Student-teachers are immersed into the social world of the school, one that is personal to them from their viewpoint, where the social institutions they encounter are significant in developing their teacher identities. What I found myself interested in, whilst observing student-teachers, was the way a person's individuality, their past histories and beliefs, their individual agency and the cultural norms of both a school and the university interact in developing them as teachers. The environment that student-teachers find themselves in when they enter a school for teaching practice can be so constrained and rigorous, full of rules and procedures to follow and ways to act in the classroom, that I wondered how they might find any autonomy to develop into a teacher that they wanted to become. This therefore drew my attention to considering how the theory of figured worlds, as developed by Holland, Lachicotte, Skinner and Cain (1998), would enable me to consider the social *and* cultural constructs in education. Figured worlds links the development of people to the cultural forms and social positions they encounter in particular historical worlds. Holland et al. (1998) claim to answer the questions of how people become agentic, how they have a sense of themselves and how their subjectivity expands or reforms so that they can inhabit new worlds; these fundamental theories lent themselves to the research in this thesis.

3.1 Why Figured Worlds?

Holland et al. (1998), as anthropologists, were interested in the cultural influences affecting the way people behave. However, what they noticed was that 'accounts of culture that ignore the importance of social position surreptitiously participate in the silencing of those who lack privilege and power' (Holland et al., 1998:25). This felt important when considering the lack of privilege and power the student-teachers have when they enter a school on placement. It is therefore not sufficient to merely take account of the influence of culture, but that social forces have a significant impact, especially with respect to social positioning. Holland et al. (1998:5) combined cultural studies with feminist theories of identity to view people 'taking form in the flow of historically, socially, culturally and materially shaped lives'. Figured Worlds theory brings together the ideas of culturalism and constructivism and finds a way that not only bridges them but considers a path between them by bringing together aspects of Foucault, Bourdieu, Vygotsky and Bakhtin.

In this chapter I will consider the idea of figured worlds and how this relates to the school and university environments that student teachers find themselves in. This draws on the ideas of imaginative play and how people conceive themselves in social situations offered by Vygotsky. This will consider the idea of characters and how this links to student-teachers' figurative identity. Next, I will consider the student-teacher's position within these figured worlds in which Holland et al. draw on the work of Bourdieu and the concept that lived worlds being organised around positions of status and influence. This is a crucial aspect to consider for student-teachers going into schools. Bakhtin is also influential in the consideration of positionality with his concepts of dialogism. Holland et al. draw on Bakhtin's work on the use of discourse to communicate power and authority and therefore its use for positioning within a figured world. Student-teachers are immersed in school and universities where they are presented with multiple-people and multiple-voices. Holland et al. use Bakhtin to consider how these other people are important in our conception of ourselves and the idea that we are constantly addressing and answering voices, given that our identities are never complete and always being formed. The student-teachers orchestrating this cacophony of voices and considering which to give more authority to leads onto the final discussion of self-authoring. Student-teachers come to the PGCE with a notion of what they think makes a good teacher, and how they assimilate the advice and expectations they encounter to develop their identity is an important aspect to consider.

3.2 Figured Worlds

Holland et al. (1998:5) view identities as never complete, always changing, and they not only combine the personal world and experiences of the individual but importantly combine this with the 'collective space of cultural forms and social relationships'. Figured worlds are likened by Holland et al. (1998) to a virtual reality that you might experience in a computer game; a conceptual world, a virtual world but one which has been populated by other characters or actors. They draw here on Vygotsky's study of imaginative play. A figured world as conceptualised by Holland et al. (1998:51-52) is:

> peopled by figures, characters and types who carry out its tasks and who also have styles of interacting within, distinguishable perspectives on and orientations towards it.…By "figured world" then, we mean a socially and culturally constructed realm of interpretation in which particular characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others.

Although this is an 'imagined' world in one sense, it is very real as a lived experience. Participants are drawn to them, recruited to them and their identity takes shape through their participation in the activities organised by these figured worlds (Holland et al., 1998). In these figured worlds there are unwritten rules to be adhered to, the rules of play within the world, the way of behaving, of speaking, of being, that have been embodied by those continually participating in the figured world. '…what

counts in the identities of figured worlds, is the cultural relations, the "rules", that govern the movement of a game' (Holland et al., 1998:141). For instance, in relation to the student-teachers in my thesis, they enter the figured world of the university when they enrol to do a PGCE, however, they also enter the figured world of a school when they start their teaching experience. These figured worlds have very different ways of being and different rules to follow and the actors construct interpretations of actions that routinely take place within these worlds; it is the place where sense of self is fashioned. There is a university expectation of how student-teachers should behave on a professional course such as a PGCE that may be different to their undergraduate experiences with respect to attire, punctuality, attendance, engagement and the relationship they form with their peers and tutors. The figured world of the school has a different set of rules with respect to attire, engagement, professional identity and expectations of behaviour in the classrooms and around the building. Student-teacher identities are based on how they understand and view themselves but also how they perceive they are viewed by others; such as by the pupils, teachers, their subject mentor and the headteacher. Figured worlds draw attention to interpretations by these actors, and to the rituals of practice; for example, that children and teachers take on certain roles within the figured worlds that help to define who they are (Solomon, 2012). Entering each of these new figured worlds involves a new frame of understanding themselves, a reinterpretation of their identities within the confines and positions available to them in each specific figured world. In this sense, identities are always improvised both in the flow of activities within social situations and drawn from the cultural resources available (Holland et al., 1998). The student-teachers are caught between the tensions of their past histories, that have settled in them, and the present images and discourses in their particular context that attract or impinge on them in shaping their identity (Holland et al., 1998).

The ability to *sense* this 'imagined' world becomes possible over time (Holland et al., 1998). 'Players become ever more familiar with the happenings of a figured world... and learn to author their own [stories] and make them available to other participants' (Holland et al., 1998:53). Holland et al. (1998) build on the work of Bourdieu to argue that our past histories are brought into the present as habitus our history-in-person, but that we will also come across new circumstances for which we do not have a set response so we are compelled to improvise. It is these improvisations that lead to a change in subjectivity; improvisation from a cultural base and in response to the subject positions are in situ and can lead to an altered identity (Holland et al., 1998). Vygotsky's ideas on how we react when we are in a social situation, with respect to our improvisations and the cultural resources we draw on, led Holland et al. to discuss how people conceive themselves as agentic actors:

> Persons develop more or less conscious conceptions of themselves as actors in socially and culturally constructed worlds, and these senses of themselves, these identities, …permit these persons, through the kinds of semiotic mediation described by Vygotsky, at least a modicum of agency or control over their own behaviour (Holland et al., 1998:40).

What is important about Holland et al.'s interpretation of Vygotsky is their concept of situatedness of identity in collectively formed activities. They build on Bourdieu's concept of a "field" reframed as figured "as if worlds" to incorporate the ideas of rank, status, and hierarchy, since lived worlds are organised around positions of status and influence. This is exemplified when considering the lived worlds of schools where status and influence are explicitly labelled with roles such as "teacher", "head of department" and "headteacher" but also where more subtle negotiations of power and influence occur daily. This notion of power is absent from Vygotsky's discussion and yet is crucial to take account of. Bourdieu's fields allowed for the sense that figured worlds are contingent on other worlds, but also partly independent of them, and so the idea of the interconnectedness of figured worlds is important to consider. However, what is missing from Bourdieu's theory on fields is the cultural aspects of our lives that is significantly highlighted throughout Vygotsky's work. Figured worlds looks in more detail at the generic figures and figuring of a good mathematics teacher, a student-teacher, a university lecturer and their generic acts opposed to just the field of academia for example. What is important for the development of Holland et al.'s theory on figured worlds is combining all these elements into a concept; the cultural significance of Vygotsky, the positional dialogism and inner activity of Bakhtin, and the notion of power and status that Bourdieu and Foucault develop.

In Holland et al.'s theory the figures that populate figured worlds do not necessarily relate to physical people. They can be abstractions of significant figures in the participant's past, or even hypothetical, archetype, symbolic figures, for example those that exemplify to the individual an outstanding mathematics teacher or a student-teacher. Figured worlds have significance in our lives as they are not merely 'held "in mind" as some whole image…but from re-creating them by work with others.' (Holland et al., 1998:41). The figures that inhabit these worlds we encounter, these others, are significant in the development of an individual's identity. Holland et al. draw on Bakhtin, in his discussion on dialogism, to convey the importance of otherness in relation to consciousness. Holquist, discussing Bakhtin's work on dialogism, argues that 'consciousness is otherness…it is the differential relation between the centre and all that is not the centre' (Holquist, 2002:18). The important concept is that the self is made up of the relation between everything that is the self and everything that is not the self. Othering is therefore a way of considering or representing the self, the centre, by reflecting on what is not the self and using others to do this. Holquist (2002:28) claims that the view of others is important in Bakhtin's notion as

> …in order to see ourselves, we must appropriate the vision of others…. it is only the other's categories that will let me be an object for my own perception. I see myself as I conceive other might see it. In order to forge a self, I must do so from *outside.*

Holland et al. (1998:172) also discuss the importance that Bakhtin places on others in considering our own identity, as they say that we 'represent ourselves to ourselves from the vantage point (the words) of others, and that those are significant to our experiences of ourselves'. Bakhtin's view is that 'a single consciousness could not generate a sense of self' that there is a necessity for otherness to form this as 'only the awareness of another consciousness outside the self can produce that image' (Bakhtin et al., 1994:6).   Although we see ourselves through their vision, the position they hold within the figured world is crucial to consider how we figure and therefore position ourselves. A characteristic of a figured world is the social encounters in which 'participants' positions matter' (Holland et al., 1998:41). To summarise, figured worlds are socially organised and dependent on the interactions and relationships formed within this realm and peoples' identity and agency are formed dialectically and dialogically within this world (Holland et al., 1998).

3.2.1 The Figured Worlds Student-Teachers Experience.

To consider the figured worlds of both the school and the university is important for how student-teachers develop. The notions of hierarchy and status are different in each figured world they occupy, in terms of how the student-teachers position themselves and understand themselves in relation to those they encounter. There is a potential conflict for them to overcome in terms of seeing themselves as a university student, with the informal relationships and personas they adopt whilst in university sessions, and the professional persona they must adopt once in the school environment. The figured world of a school is embroiled with rules and expectations with respect to how the student-teachers figure themselves, dress, interact with pupils and other colleagues and follow the routines of the school. Student-teachers must very quickly learn the norms, values, attitudes and behaviours of the social group of the school that they find themselves in. These are not communicated explicitly and although there are commonalities, they also vary significantly between schools.

The cultural knowledge of being a teacher shared by those in the school may differ significantly from the cultural knowledge of being a teacher as perceived from outside the profession, including that of the student-teacher. Student-teachers come to the school with their history of education playing a significant role in the figures and concept of the teacher that they want to be. They come with their own view of what a 'good mathematics teacher' looks like. Although student-teachers might be in the same school the figured world they encounter can be experienced differently, depending on perspective and how they perceive they are positioned within it. There are multiple figured worlds

that are encountered in a school and multiple ways of being a teacher. Their teacher identities in the figured world of a school or the university 'must be constructed and its moral and aesthetic distinctions made into personal knowledge' (Holland et al., 1998:70). Student-teachers must learn the intentions and interpretations of events and experiences, the appropriate behaviours and values of a teacher and the appropriate placement of the student-teacher in the hierarchy of identities.

3.3 Positional Identity

There are two aspects of identity that are related to figured worlds: first is the figurative identity as discussed above; the way we story ourselves and how we draw on characters (real or abstract) to do this. The other is our social place and entitlement with respect to socially identified others, which Holland et al. (1998) term 'positional identities'. Holland et al. (1998) interchange the term positional identities with relational identities as this concept of identity is based on both our position and our relation to others. The term relational identities incorporates both our social relationships with others and how we identify our own position relative to others:

> The dialect we speak, the degree of formality we adopt in our speech, the deeds we do, the places we go, the emotions we express, and the clothes we wear are treated as indicators of claims to and identification with social categories and positions of privilege relative to those with whom we are interacting. (Holland et al., 1998:127)

These identities are not formed in isolation but are dependent on how we position ourselves and this is mediated through '…the way one feels comfortable or constrained…to speak to another, to command another, to enter into the space of another…to dress for another' (Holland et al., 1998:127). Simply put, 'positional identities are about acts that constitute relations of hierarchy, distance or perhaps affiliation' (Holland et al., 1998:128). Newcomers to a figured world, neophytes, need to learn through day-to-day interactions and encounters to identify what is required to fulfil a position/role and then identify their own position in relation to this. Student-teachers will be in positions that are provisionally imposed upon them and these positional identities are developed 'heuristically over time' (Holland et al., 1998:137). Holland et al. (1998:127) reiterate this by saying that positional identities 'have to do with the day-to-day and on-the-ground relations of power, deference and entitlement, social affiliation and distance'. Student-teachers position themselves in relation to the roles of others, but they will also be positioned by others, as socially constructed selves 'are subject to positioning by whatever powerful discourses they happen to encounter' (Holland et al., 1998:27). Holland et al.'s notion of a figured world is based on Vygotskian concepts of play incorporating Bourdieu's concept of field; where neophytes follow potentially arbitrary rules of the game until those rules seem natural and unquestionable, and therefore no longer need considering before acting (Nolan, 2012). Within

the figured world players are vying for better positions and therefore are positioning themselves against the other figures in that particular world.

Holland et al., also link together how speech encompasses our sense of value and position and the speaker's awareness of how the language they use, the genres or styles of speaking, may vary dependent on the social situation:

> …the habitual, out-of-awareness assessments one makes before and during conversation: judgements of the linguistic forms that are likely to be valued, of one's command over those linguistic resources, and of the social privilege (or lack thereof) that a person of one's relative position has to employ such resources. The assessment reveals itself in the way speech is marked, leading the speaker to be strained, self-conscious, "correct" speech or to effortless, unselfconscious speech; to comfort or to discomfort; to voice or to silence.' (Holland et al., 1998:128)

The way in which discourse is used to position people is a crucial way of understanding the speaker's view on their own position in relation to those that are present in the discussion. However, 'people "tell" each other who they claim to be in society in myriad ways' (Holland et al., 1998:138). This draws on the ideas of Bakhtin, for whom meaning only comes into existence when two or more voices come into contact (Wertsch, 1993 cited in Solomon, 2012). Bakhtin's position is that 'all meaning is relative' (Holquist, 2002:21) in that it only exists in relations 'between two bodies occupying simultaneous but different space' (Holquist, 2002:21). The bodies Bakhtin is referencing could be physical bodies, conceptional bodies or ideologies, however for Bakhtin reality is never just perceived but needs to be experienced from a particular position (Holquist, 2002). The idea of position is a crucial concept in dialogism in that 'everything is perceived from a unique position in existence…the meaning of whatever is observed is shaped by the place from which it is perceived' (Holquist, 2002:21). This means that although we may be experiencing the same event, situation or dialogue it is experienced differently dependent on the positions we occupy as 'nothing can be perceived except against the perspective of something else' (Holquist, 2002:22). Therefore, dialogue is a means of positioning the speaker from the perspective of that speaker, as well as positioning the listener, '…each time we talk, we literally enact values in our speech through the process of scripting our place and that of our listener in a culturally specific social scenario' (Holquist, 2002:63). These positional identities are specific to the figured worlds in which the dialogue is experienced.

3.3.1 Positional Identity of the Student-teacher.

Student-teachers, who are new to the figured world of the school, acquire positional identities that are initially imposed upon them. This is in an original form of 'a set of dispositions towards themselves in relation to where they can enter, what they can say, what emotions they can have, and what they can do in a given situation' (Holland et al., 1998:143). As they become embroiled in the figured worlds, they start to negotiate these positions. Neophytes may appropriate the position that they have been afforded if it marries with their own figurative identity, for example that of a good or outstanding student-teacher. However, they may resist or even reject the position that they feel they have been placed in: there 'is no guarantee that those upon whom they are imposed will not try to refuse the implicit positioning' (Holland et al., 1998:135). They may use the position of "student-teacher" to guide their behaviour in the figured worlds they encounter and develop their teacher identity; positioning themselves as someone willing to learn from those in a position of authority such as a subject mentor. However, others may reject the position of being a student and desire to be seen as a colleague, an equal to the teachers they are working alongside and even positioned more highly than other figures they encounter such as teaching assistants. Some student-teachers may fix on objectifications of themselves that they find unacceptable:

> These objectifications become the organising basis of resentment and often more active resistance. When individuals learn about figured worlds and come, in some sense, to identify themselves in those worlds, their participation may include reactions to the treatment they have received as occupants of the positions figured by the worlds (Holland et al., 1998:143).

Some may push against conforming to the model of the "outstanding" student-teacher as perceived by those in positions of authority in the figured worlds they encounter. Student-teachers may be entering these figured worlds having come from very different backgrounds, they bring with them their history-in-person. Lykes (as discussed in Holland et al., 1998:136) considers the different senses of self that individuals have when they enter a figured world:

> …senses of self being grounded in experiences of power, individuals have differential access to the positions of power that afford the experience. People develop different relational identities in different figured worlds because they are afforded different positions in those worlds.

Previous experiences may be ones in which they were in a different position of authority, and they invariably bring those notions of position into their school encounters. This requires a new negotiation of their positional identity within the figured worlds they now find themselves inhabiting.

3.3.2 History-in-Person

History-in-person is not merely a consideration of the persons' past experiences influencing the current shaping of their identity, although Holland and Lave (2001) simplify it to be the study of persons as being historically fashioned. Student-teachers bring a history to the present when they enter the figured world of a school or the university. This is a compilation of perspectives, some of which are developed into symbolised identities (Holland et al., 1998). The student-teachers start the profession with a sense of self which is grounded in their past experiences of being a pupil themselves, teachers they experienced and ideological views of what being a teacher is; these figurative identities along with their sense of self based on these experiences is their history-in-person. History-in-person is the sediment from past experiences which can be drawn upon when improvising and can then be the basis for reformed subjectivity (Holland et al., 1998). However, it is important to consider that 'history-in-person can in no way be confined to discrete persons' (Holland and Lave, 2001:18). The concept of dialogism as developed by Bakhtin is that we are always engaged in practice, always engaged in dialogue and we are always in a state of being addressed and in the process of answering and therefore are 'an unfinished character of history-in-person' (Holland and Lave, 2001:18). History-in-person is not confined to a discrete person because history is founded in social participations and the person is 'spread over the social environment, becoming in substance a collection point of socially situated and culturally interpreted experiences' (Holland and Lave, 2001:18). The sociocultural theory of figured worlds acknowledges that identities are always forming as they respond to social situations that they encounter locally or in their imagination; they are never fixed and they are lived through the practice of identification and may be contrasting depending on the social situation they are in. It is the accumulation of these 'multiple authored and positioned selves, identities, cultural forms' that given together in practice are 'bound up in making "history-in-person"' (Holland and Lave, 2001:30).

3.4 Self-Authoring:

When considering how student-teachers develop their identity once in the figured world of a school, positional identity plays a significant part. However, Figured Worlds theory considers how the individual also uses the characters and actors they encounter to story themselves. The opening line of Figured World theory states 'People tell others who they are, but even more important, they tell themselves and then try to act as though they are who they say they are' (Holland et al., 1998:3). What is important to emphasise is that the formation of this self-fashioning identity does not happen in isolation, even though the authoring comes from within. The sociocultural theory of figured worlds relies on the relation of the individual with others; we author the world and author ourselves within

it dependent on the other. The 'site at which this authoring occurs is a space defined by the interrelationship of differentiated "vocal" perspectives on the social world' (Holland et al., 1998:173). These vocal perspectives for Bakhtin were termed 'utterances' which could be written or verbal and were where language, which is evident in all diverse areas of human activity, was realised (Bakhtin, 1986). An utterance is 'drenched in social factors' due to its nature of taking place between speakers (Holquist, 2002:61). A central concept for this is 'visualising existence as an event…Existence is addressed to me as a riot of inchoate potential messages' (Holquist, 2002:47) which might be through language, non-verbal forms of communication or social expectations and ways of being. Holland et al. terms this as always being in a state of being addressed. Therefore, if we are always being addressed we are also in the process of answering,

> 'So long as I am in existence…[I] must respond to all these stimuli either by ignoring them or in a response that takes the form of making sense, of producing…meaning out of such utterances' (Holquist, 2002:47).

Words are a collective experience. They are embroiled with the context in which they are spoken, the styles, or genres, of speech dependent on the figured world, determined by the sphere of communication and they are populated by intentions (Holland et al., 1998). 'Afterall language enters life through concrete utterances…and life enters language through concrete utterances as well' (Bakhtin, 1986:63) meaning that we author the world and our lives using spoken or written words. These words reflect our vantage point on the world, our conception of our place within it and the meaning we make of it, but we draw on the words of others within our experience:

> Language is not a neutral medium that passes freely and easily into the private property of the speaker's intentions…The word in language is half someone else's. It becomes "one's own" only when the speaker populates it with his own intention…when he appropriates the word…Prior to this moment of appropriation the word does not exist in a neutral and impersonal language…but rather it exists in other people's mouths, in other people's contexts, serving other people's intentions. (Bakhtin, 1981:294)

Our world is informed through listening and then speaking, being addressed and then responding. Listening introduces new elements into the discourse, these are then tested out in the mouth of the speaker. This allows the speaker to get a feel for the word, to identify with it in their own way, to develop their own perception of the word, but still in relation to the listener as we perceive ourselves and the world through others. 'The self is a position from which meaning is made, a position that is "addressed" by and "answers" others (Holland et al., 1998:173). It is the process of answering where it authors itself as the self represents itself through collective language. Bakhtin talks about the self as being everything that is the centre, and that which is not the centre. To be perceptible to others we must view ourselves from the outside in terms of the other.

3.4.1 Inner Speech

Inner speech is a fundamental aspect of identity formation and is central to both Vygotsky's and Bakhtin's discussions on identity. Whilst acting in the figured world we take the words of others, the social speech that we experience, and we try it out for ourselves, we recite it. At some point this social speech permeates into our being to become the building blocks for our thoughts and feelings (Holland et al., 1998). It becomes part of our own internal dialogue of who we are and what we believe, 'speech begins for others and then is eventually directed towards oneself' (Holland et al., 1998:175). There is a potential conflict between inner speech and social speech in that the sense of the word from an individual's perspective may differ from the 'meaning' of the word for another depending on the context:

> There is always a gap between our own intentions and the words – which are always someone else's words – we speak to articulate them. The gap may be greater or smaller, however depending on the "fit" between what we believe and what we are saying (Bakhtin, 1981:424).

Central to Figured Worlds theory is Bakhtin's focus on the pragmatic aspects of language, how it is used, how it communicates power and authority, and how it is inextricably linked to status and influence. When considering self-authoring Bakhtin recognises the multiple voices of others, whose voices need to be organised and orchestrated in some way. These voices range from physical figures present to those of people from past history, significant figures both real and imagined, for example a parent or an influential teacher. The voices are not all equal and are present with different positions of authority depending on the individual's perception. This cacophony of different languages and perspectives, the heteroglossia, must be organised, categorised and orchestrated:

> Sorting out and orchestrating voices is much more than sorting out neutral perspectives in some rationalist's argument; the voices, after all, are associated with socially marked and ranked groups…and even particularly potent individuals (Holland et al., 1998:183).

The individual must either take on these perspectives at face value or develop an authorial stance '…a voice that over time speaks categorically and/or orchestrates the different voices in roughly comparable ways' (Holland et al., 1998:182). In order to develop an authorial stance however there needs to be the creation of internally persuasive discourse, which is external social speech or authoritative speech which has been married to their own. Holland and Lave (2001) discuss the several possibilities that Bakhtin conceived for persons drawing others into themselves and drawing on their words for the authoring of themselves in relation to others. They claim that Bakhtin did not picture persons as 'metaphorical recorders designed for faithful reproduction of the discourse' to which they were exposed but instead 'persons take an *active stance* towards others' (Holland and Lave, 2001:14), they internalise the social speech into inner speech in different ways.

3.4.2 Internally Persuasive Discourse

Internally persuasive discourse takes social speech and through addressing and answering the other makes it inner speech; these words being half someone else's and half their own (Holland et al., 1998). The speech that is directed towards the self begins by being spoken out loud but then becomes silent inner speech; it eventually becomes habitual and once there is not a conscious awareness of this inner speech it essentially becomes part of the characteristics of the person. As this becomes part of their feelings and thoughts the person can assimilate it, develop it and apply it to new contexts, new situations and 'it changes the nature of subjectification' (Holland et al., 1998:182). Internally persuasive discourse is not finite, it is continually being readdressed, it is constantly revealing new ways to mean as it is applied to new contexts. As we are constantly answering and addressing, constantly in dialogue with others and with the environment, then we are constantly developing our identities. Over time this internally persuasive discourse can develop within the figured world into an authorial stance.

Authoritative discourse is a key element in the heteroglossia that is experienced by people, this is privileged language that approaches us from outside; 'It has great power over us, but only while in power; if ever dethroned it immediately becomes a dead thing' (Bakhtin, 1981:424). Holland and Lave (2001:14) discuss the extremity of authoritative discourse where some words have an accepted authority which 'may be kept apart in inner speech, treated with reverence, repeated verbatim, never purposefully varied, never put into our own words and never treated as vulnerable to inspection or playful treatment'. Bakhtin recognised the contrast in how authoritative discourse may be perceived differently, and even used differently, between a neophyte and a person with greater experience within a figured world. The neophyte is more likely to be 'given over to a voice of authority' (Holland et al., 1998:183) whereas someone with more experience will begin to 'rearrange, reword, rephrase, re-orchestrate different voices' and it is this process which leads to the development of their own authorial stance:

> This process – experimenting by turning persuasive discourse into speaking persons –
> becomes especially important in those cases where a struggle against such images has
> already begun, where someone is striving to liberate himself from the influence of such
> an image and its discourse by means of objectification or is striving to expose the
> limitations of both image and discourse (Bakhtin, 1981:348).

The conflict for the neophyte is to not be bound by the expectation to be ventriloquated by one authoritative voice and then another and another. They must attempt to adopt a stance towards

these voices and consider how they orchestrate them. This is especially pertinent when the authoritative voices may conflict with their internally persuasive discourse or with each other. 'The importance of struggling with another's discourse, its influence in the history of an individual's coming to ideological consciousness, is enormous' (Bakhtin, 1981:183). The social situation profoundly shapes the experience from within of moving from inner speech to social speech and the task of answering to others is significant. A feature of inner speech is that it has a stabilised social audience, which comprises of specific figures, real or idealised and is the environment where 'reasons, motives, values and so on are fashioned' (Holland et al., 1998:189). All thoughts that come from existence have an orientation towards the individual's ideological system, governed by a set of internal laws, it is a figured world where an identity becomes habituated.

3.4.3 Rupture

Vygotsky used the term fossilisation to describe when the distinctiveness of behaviour becomes erased due to its automation, as discussed above. However, Holland et al. (1998) talked about a contrast to this, the moment when the mundane and automated behaviours are brought into sharp focus for a person. The sudden recognition by a person of the position they occupy, which they may want to resist or even reject, brings about a consciousness to author themselves differently. They have an awareness of the role that they are playing, and they need to find the room to negotiate that position, either accept it, resist it or reject it. This is what Holland et al. refer to as rupture. Rupture is the sudden insight of the person seeing themselves through another's gaze which can cause them to reflect and perceive themselves differently. Holland et al. (1998:141) say:

> Ruptures of the taken-for-granted can remove these aspects of positional identities from automatic performance and recognition to commentary and re-cognition…some signs of relational identity become objectified, and thus available to reflection and comment, in relation to the social category. Alternative figurings may be available for interpreting the everyday, and alternative ways of figuring systems of privilege may be developed in contestations over social arrangements.

Holland et al. (1998) refer to two ways of acting when there is a contested positioning of a person: acceptance or rejection. However, Goodley (2019) uses the work of Prior (2009) to explore a third option, that of resistance. When student-teachers bring their own agency to the moment, what Prior (2009:29) terms 'counter agency', there are three ways to respond: revision, resistance or rejection. Revision is when the student-teacher may feel conflicted but revises their action to produce the desired outcome and refusal is where they refuse to engage regardless of the consequences (Goodley, 2019). Prior (2009) argues that these are both passive modes of agency and that the most active mode is resistance. Resistance is the use of alternative strategies in response to

a situation to achieve different outcomes to those prescribed which could be overt or covert, such as appearing to accept the subject role whilst privately rejecting them and considering their own strategies for future implementation (Prior, 2009). Counter agency can be the appearance of conforming, however, 'appearing to conform does not necessarily mean conformity' (Goodley, 2019:50). This middle ground between appropriating and rejecting the subject positions, that of resisting, is a relevant aspect to consider in the shaping of the student teachers' identities, and their positioning within figured worlds.

3.4.4 Student-Teachers' Self Authoring

Student-teachers find themselves members in a multitude of figured worlds as they constantly construct a sense of their own identity. These figured worlds often overlap, they are not mutually exclusive. In the case of the student-teachers in this model of training, the university tutor's regular presence in the school, the presence of multiple student-teachers from the same tutor group collaborating and the theory that is developed at the university observed in lessons all contribute to the figured world of the university being brought into the figured world of the school. The student-teachers need to understand the authoritative discourses of both; they need to consider the position they play within these figured worlds in relation to other figures. With this comes multiple others and multiple voices that they must orchestrate, considering the different influences they encounter and use these to consider how they position themselves and others. The authoritative discourses that they encounter during the placements are often conflicting and come with varying degrees of authority dependent on what the student-teacher values. These voices may potentially be in conflict and therefore the student-teacher needs to assimilate and orchestrate these competing voices into their own inner speech, see how these fit with their own ideals and beliefs and then 'try it out' as social speech. Holland and Lave (2001) posit that to understand the implications of conflict and struggles on shaping identities we must take account of the student-teachers as historically produced agents. Their internally persuasive discourse and their history-in-person therefore play a significant part in shaping their teacher identity; how they navigate and orchestrate these competing discourses and how they develop their own agency.

> Agency lies in the improvisations that people create in response to particular situations,
> mediated by these senses and sensitivities. They opportunistically use whatever is at hand
> to affect their position in the cultural game…' (Holland et al., 1998:279)

A significant voice for the student-teachers in this thesis is the authoritative discourse that comes from the university tutor, in the case of this thesis that voice is my own. By working so collaboratively with both the student-teachers and the school, bringing the figured world of the university into the figured world of the school, I straddle both worlds. This authoritative discourse in some situations might

marry to the student-teacher's own ideology and therefore become part of their own internally persuasive discourse and support in shaping their teacher identity. However, there is also the consideration that it may not be considered authoritative discourse by the student-teachers depending on their perspective. They have agency in their orchestration of these voices and how they marry this to their internally persuasive discourse but there are considerations in how this positions them and how they position themselves.

3.5 Conclusion:

Figured words are socially and culturally constructed realms, similar to playing a virtual video game, which are populated by characters; real or imagined. There are unwritten rules within the figured worlds that need to be taken account of. The characters are important as how we are viewed by others is crucial for the development of our own identity; we view ourselves from the vantage point of others. Our identities are always forming as they respond to social situations. When we enter a figured world we bring a history to the present, a compilation of perspectives, an accumulation of multiple authored and positioned selves; our history-in-person. Figurative identity is one of the key aspects of Figured World theory; how we story ourselves based on these real or abstract characters. Positional identity is another key factor, our place in the figured world based on how we position ourselves with respect to the other actors, but also how we are positioned by them. Neophytes have positions imposed upon them as they enter the figured world of the school and they can either accept, resist or reject these positions. People use language to position themselves, and others, as utterances encompass our sense of value and the formality, tone and words used are varied depending on this positioning.

We are subjected to multiple perspectives on the world and multiple voices, which come with varying degrees of authority. These need to be orchestrated and assimilated into inner speech and tried out in social speech. Over time this inner speech becomes habitual and unconscious, it becomes part of how we see ourselves and our perspective on the world, our internally persuasive discourse. When our internally persuasive discourse is married to an authoritative discourse it can develop into an authorial stance. This is all part of our self-authoring, the stories we tell about ourselves and then our ability to act as if we are who we say we are.

3.5.1 Revised Research Questions:

After considering the lens that figured worlds gives me for analysing my data, I returned to the research questions that developed from my literature review. These remained questions to be

answered, however Figured Worlds theory has given a different way of conceptualising these. This study considers how student-teachers negotiate and find their place within these multiple figured worlds and how they orchestrate the multiple voices and multiple identities that they need to codevelop alongside. It also considers the concept of the university figured worlds alongside other figured worlds and whether this allows the neophytes to feel a sense of security within the figured world of the school and a sense of agency within the constraints they experience. I therefore revised my research question to incorporate a figured world stance on the thesis and the aspects that I wish to consider:

1) How do student-teachers develop authorial positions across the figured worlds of the school and university?

    a) How do figures, voices and authoritative discourses impact on how student-teachers author themselves as mathematics teachers?

    b) How do student-teachers develop an internally persuasive discourse in response to the theory and practice divide?

4. Methodology

In the previous chapters I have outlined the tensions that student-teachers face whilst on placement: navigating the relationships with university tutors and school mentors whilst working within the constraints imposed by neoliberalism and the pressures of performativity. I have also explored the theory of figured worlds which I will use to support my interpretation of the data.

In this chapter I describe the development of my research design and how it related to the development of my research questions. In my role as a USM tutor, I worked alongside the student-teachers in their placement schools for a year, observing weekly lessons, giving feedback and support in planning lessons. In so doing, I built professional relationships with them. This situation provided an opportunity to collect data on their development as I worked alongside them in school contexts. In this chapter I will discuss the issues of my position in relation to the student-teachers, the role this plays in the data and how I have addressed this in my analysis. In particular, I discuss the implications of being part of the figured world of the school and the university myself and therefore being one of the 'figures' within the data. This has significant implications for data analysis in addition to ethical implications for the study as a whole. I will also describe the data collection through the use of focus groups, semi-structured individual interviews, student-teachers' weekly lesson observations and their weekly reflections, and how these various methods were designed to create opportunities for different voices and opinions to be heard. The theoretical framework of figured worlds gave me a variety of tools for analysis and how I will also explain how I utilised these. I will then conclude by discussing the ethical considerations of this research.

4.1 Research Design

My research design and focus shifted somewhat during the earlier part of this project, and this had an impact on my decisions about data collection and the final analysis. A significant component of the University School Model (USM) was the role of the university tutor being in the placement school weekly. My original thesis aimed to develop an account of my perceptions of teaching mathematics and consider how the encounters with students and the ecology of relationships informs who I am and influences student-teachers developing teacher identities. The thesis was intended to be an exploration of the assumptions that underpin assertions such as "what makes a good mathematics lesson" from different perspectives and the impact this has on practice (Appendices A-D). To consider these issues I designed a variety of data collection activities throughout the year to understand how the student-teachers were working together, how I was working with them and how this was experienced by them in their particular school context (Appendix A). I anticipated that the model of training would be the focus of my research; however, the nature of the school became a dominant focus for the student-teachers. The emergence of this theme from the data made me reconsider the

direction of my research. Student-teachers are immersed into the social world of the school, one that is personal to them from their viewpoint, where the social institutions they encountered were influential in developing their identities. This led to a realisation that figured worlds were central to this process.

Being incorporated into the day-to-day experiences of the school, as the university tutor, meant that I had created a figured world inside a figured world. The figured world of the university had been brought inside the figured world of the school and I was a significant figure within both. Figured worlds was not the original theory that I had considered for my thesis; however, its relevance was strongly evident in the data. I realised that figured worlds would help me to make sense of what the student-teachers were experiencing. Therefore, I changed my focus to be considering what these figured worlds were doing, what the student-teachers were experiencing with respect to these figured worlds and how these were impacting the student-teachers' development of their teacher identity over the course of their PGCE.

4.2 Methods and Data Overview

The data were collected from twelve student teachers across the course of an academic year whilst on the PGCE course. This provided opportunities for different voices and opinions to be heard at different points in their training. The data collected comprised of three focus groups, two in November and one in March, individual semi-structured interviews at the end of the course, students' written reflections throughout the year, as well as my own observational notes on their lessons. Table 4.2.1 lists the data collected, highlighting the role of the four key participants who appear in this thesis. I explain how these four students were selected in section 4.4.2

4.2.1 Table of Data

Date	Research participants	Additional Participants	Data Collected
16th November 2017	Jake	4	Focus group 1: What makes a good lesson
24th November 2017	Niamh, Kate and Jake	4	Focus Group 2: Collaboration
12th December 2017	Niamh	2	Taught Tesselation lesson: group discussion/feedback with student-teachers present
11th January 2018	Niamh, Kate & Jake	8	Student-teacher's end of placement reflections
5th March 2018	Niamh, Jake, Kate and Caroline	6	Focus Group3: Tesselation lesson
21st June 2018	Niamh, Kate, Caroline and Jake	6	Semi structured Interviews: End of course
Weekly	Niamh, Kate, Caroline and Jake	6	Formal Student teacher lesson observations
Weekly	Niamh, Kate, Caroline and Jake	6	Student teachers weekly reflections

4.2.2 Focus Groups

Three focus groups took place across the year, firstly, on what makes a good mathematics lesson; secondly, on their thoughts and experiences of working collaboratively in trios; and finally on a video of a lesson that I taught, and they later observed.

What makes a good mathematics lesson?

This focus group took place in November 2017 in the student-teachers' planning room within the school during their first placement. There was a group of five student-teachers for this focus group, only one of whom became part of the data for this thesis. There were two questions:

1) What makes a 'good' mathematics lesson? When you are planning a 'good' mathematics lesson what do you think needs to be in there?

2) When I am observing you teach, what do you think that 'I' am looking for, for it to be a good mathematics lesson?

The discussion was voice recorded, transferred onto an encrypted laptop, and later transcribed (Appendix H).

Collaboration

The second focus group also took place in November 2017, in the university building during one of my weekly tutor group sessions. Seven of the twelve students were present, including Jake, Kate and Niamh, and they had been given an article to read on collaborative teaching (see Peters and Armstrong, 1998). They were asked to consider just one question – 'collaborative teaching – your thoughts?' - drawing on the article and their own experiences.

The discussion was voice recorded, transferred onto an encrypted laptop, and later transcribed (Appendix I).

Discussion of a lesson video

The final focus group was later in the year during their second teaching placement, taking place in March during my tutor group session at the university. This centred around a video recording of me delivering a lesson. Six students (including Niamh and Kate) had collaborated and designed a lesson in the light of feedback they had received from a previous lesson observation. My aim was to record a real teacher, with real pupils, in a real school situation, in a lesson designed by the student-teachers rather than myself. The lesson recording was played to the tutor group, and they were asked to note down anything interesting that they wanted to discuss. The video was edited as I did not want the focus group to experience 'viewer boredom' (Jaworski, 1990) but counter to that it needed to be authentic and for them to see what led to certain decisions that were made. It was important therefore not to cut these parts or cherry-pick certain situations. After watching the video, the student-teachers were asked to comment on anything that they noticed. This open question allowed

them to control the discussion based on their thoughts and experiences; the video's purpose was to prompt these discussions. The focus group discussion was voice recorded and transferred onto an encrypted laptop and later transcribed (Appendix J).

4.2.3 Semi-Structured Interviews

The interviews took place at the end of the course, in June 2018, at the university, after the student-teachers had completed their final review with me and successfully completed all the academic elements of the course. They focused on five central questions:

1) Describe your experiences of working in the university schools' model with the trios. What has been significant for you and what has your experience been?

2) Rate yourself one to ten on how good you think you are at working collaboratively and why did you give yourself that score?

3) How were you able to develop as a teacher over the whole year and what have the challenges and tensions been?

4) I know you have become the teacher you want to be, have you become the teacher I want you to be?

5) What advice would you give someone who is going to be in my tutor group next year and is starting the university school model.

These semi-structured interviews took the form of a conversation with the student-teachers where these were the prompts for the discussions but allowed exploration of the stories that students wanted to share. The openness of the questions allowed the student-teachers to share their wider experiences which could then be analysed. (Appendix K).

4.2.4 Weekly Reflections

As part of the PGCE the student-teachers were encouraged to write a reflection using a form provided by the university (Appendix C) or just as a written reflection in a word document without the constraints of a particular format or a suggested length; I sought consent at the start of the course for this to be included in my research data (Appendix A & Appendix C). I encouraged my student-teachers to reflect weekly on any aspects they felt were significant. They were able to comment on any aspect of the course, their placement, or their teaching that they felt was significant to them that week.

4.2.5 Additional Data

Lesson observation forms/reviews

As part of the PGCE course, student-teachers are regularly observed in schools by their subject mentor and university tutor. There is a university observation form that is filled in during the lesson being observed (Appendix F). The lesson is then discussed with the student-teacher, and they receive written feedback. My written observation notes, as shared with the student-teachers, have formed

part of the data collected. Their final reviews were also part of the formal proformas of the PGCE year and were part of their portfolios they shared at the end of the course.

Student-teachers' e-mails

The student-teachers in my tutor group often communicated to me via e-mail throughout the PGCE course if there was an issue that they wanted to raise or if they wanted advice or a response to a specific situation. These e-mails were not part of the data specifically analysed. However, once the primary data were analysed and the themes were identified, some of the e-mails between myself and one of the student-teachers, Caroline, were relevant to give context to the situation. These have been included where relevant in the data discussions. These were not covered in the original consent ([Appendix B](#) & [Appendix C](#)) as I had not realised their potential significance. Once Caroline had successfully completed the course and the semi-structured interview had been completed, I sought consent to use the e-mails that related to her experiences in her placement school, which she gave.

4.3 Methodological Implications of the Figured Worlds Framework.

The ontological nature of my research, where social properties are generated as outcomes of the interactions between individuals, and experiences are not separated from those involved in constructing them entails a qualitative approach which enables the researcher to generate an understanding of the social world by considering how participants interpret it (Bryman, 2016). Bloomer argued that 'qualitative enquiry is the appropriate means for understanding how individuals see, understand and interpret their world' (cited in Liamputtong, 2011:17). Understanding the use of discourse is crucial for considering the role language plays in authoring the self. Both Vygotsky and Bakhtin regarded social speech as cultivating inner speech which in turn brings aspects of day-to-day existence into an individual's history-in-person (Holland et al., 1998). Recognising the importance of how figures, voices, and authoritative discourses impact on how student-teachers author themselves, it is important to capture this process by creating opportunities for them to recount their experiences from their unique viewpoint, in their own words: the 'site at which this authoring occurs is a space defined by the interrelationship of differentiated "vocal" perspectives on the social world' (Holland et al., 1998:173). The emphasis on dialogue, utterances, vocal perspectives, social speech leading to inner speech, and its role in the creation of internally persuasive discourse has methodological implications in both data collection and analysis.

4.3.1 Figured Worlds as a Methodological Approach

My aim of understanding my student-teachers' experiences through the lens of figured worlds has critically guided my methodological approach. Braathe and Solomon (2015) argue that the theory of figured worlds has clear methodological implications in terms of the role of addressivity and dialogism. While my research was built on research questions arising from the literature, these were reconceptualised on the basis of a figured worlds approach, which directed the design and approach, and also the analysis of data.

I had originally considered a variety of methodologies. The USM model meant that I worked inside the schools with the student-teachers and was therefore aware of the complexities concerned with policy discourses, as well as the authoritative discourses that were present. I originally considered discourse analysis as a methodological approach, but my engagement with figured worlds led to an understanding that, while discourse was clearly crucial to consider with respect to the narratives that student-teachers shared, theory also made it clear that discourse was not determinist; how someone was going to be was not predetermined by discourse. What is crucial in figured worlds is Vygotsky's emphasis on the role of imagination and what this means for the ways the student-teachers imagine who they are now, how they change over time, but also how they imagine their futures. Hence there were elements of discourse analysis in my methodological approach, for example when considering authoritative discourse and internally persuasive discourse I considered in depth what people said, down to considering the individual words they used, where contradictions were present, the presence of intertextuality and the policy discourses. However, the lens of figured worlds also focuses the researcher on issues of appropriation, resistance and rejection, along with the presence of alternative voices; it highlights where internally persuasive discourse arises and the influence of other figures and other voices. It also considers participants' positionality, the storying of self and the role of imagination and the possibility of figuring it otherwise (Holland et al, 1998). In this sense, figured worlds guided my methodological approach to consider more than discourse analysis.

A significant consideration in Figured World theory is the stories people share which are indicative of their identity. Holland et al.'s (1998:3) opening line states that 'People tell others who they are, but even more important, they tell themselves and then try to act as though they are who they say they are'. Figured Worlds theory considers how individuals use characters and actors that they encounter in order to author themselves (Holland et al., 1998). In this sense, the personal story is a 'vehicle for identity formation' and an important part of self-understanding (Holland et al., 1998:71). I therefore considered whether a narrative enquiry approach would be beneficial as the underpinning methodology in this thesis. Narrative enquiry covers a large and diverse range of approaches which gather narratives in any form, for example written, verbal and visual, and focusses on the meaning

that individuals give to their experiences and provides insights into the complexities of their lives (Stephens, 2017). Holland et al. (1998:53) note that figured worlds 'could also be called 'narrativized or dramatized worlds', where 'elements of the world relate to another in the form of a story, a standard plot, against which narratives of usual events are told'. Narrative enquiry considers what it is like to live through a certain experience and how the participants have developed or transformed over a period of time (Zimmerman and Kim, 2017). However, Clandinin and Connelly (2000:42) argue that the methodology of narrative enquiry 'is not theoretical enough on its own' and that the significance of the stories shared need to be explained employing a theory. Foucault (cited in Ball, 2000:5) reflected that 'Each time I have attempted to do theoretical work, it has been on the basis of elements from my experience'. Kim (2016:39) builds on Foucault's point to argue that 'theory requires our experiences derived from practice, and our experiences require theorizing through which we make sense of our lives, experiences, and practices'. Stories are therefore not devoid of theory and the meaning of a story can be elucidated by theory in ways that matter (Kim, 2016). Cohen et al. (2018:455) also argue that 'actors making meaning of their situation through narrative' entails that these stories need to be closely interrogated and analysed in their social context.

These arguments underline the role of Figured Worlds as theory in understanding and interpreting my student-teachers' narratives. As Goodson (2017) argues, it is not sufficient to say "I wanted to listen to people telling their stories and to capture their voices". A far more active collaboration which is sensitive to context is required. For example, Zimmerman and Kim (2017) argue that exploring narratives requires researchers to immerse themselves as deeply as possible into the stories of their participants, even to the point of living their stories alongside them. Holland et al. were themselves anthropologists and as such observed and tracked participants' lives over time by participating themselves in their cultural worlds (Coffey and Street, 2008). This kind of immersion was made possible in this research through the USM in which, as I have argued above, the figured world of the university entered inside the figured world of the school. Although figured worlds are imagined in one sense, they are very real lived experiences and student-teachers' identities take shape through their participation in these figured worlds (Holland et al., 1998). However figured worlds do not emerge through participation in particular common experiences or shared events, 'so much as at the level of what participants say about them and how the narratives are individually and collectively shared' (Coffey and Street, 2008:455). This is a reality in which multiple voices and perspectives coexist and perpetually generate new interpretations of the stories being told (Bakhtin, 1981). The theory of Figured Worlds underlines that research needs to rest on more than simply telling a story. Of central importance to Holland et al. (1998) is the role of agency, and the ways in which people can improvise

within constraints. Their theory thus incorporates Bakhtin's recognition of heteroglossia and its effects in human existence, going beyond a simple narrative approach.

As chapter 3 shows, figured worlds utilises Foucault's ideas of power and relationships, but also captures imaginations and improvisations as considered by Vygotsky. It also incorporates a recognition of the role of struggle and ideology which was highlighted by Bakhtin along with the notion of otherness and positionality, incorporating Bourdieu's concept that lived worlds are organised around positions of status and influence. Holland et al. (1998) aimed to consider how people are not solely determined by discourse and the nature of human agency, ideas which are central in this research. Alongside narrative, figured worlds also considers elements of position, and how positions cuts across worlds. So, although Figured Worlds theory suggests the usefulness of elements of discourse analysis and narrative enquiry, these on their own were not sufficient to fully design and conduct the research to answer my research question, or to explore the data given the complexities of the concepts developed by the theory. In the next section I illustrate how the concepts of figured worlds guided the analysis of my data.

4.3.2 Analytic Framework: Employing Concepts from Figured Worlds

I was conscious that qualitative methodologies often advocate the use of coding or thematic analysis; however, this method of analysis was not appropriate for my research. Zimmerman and Kim (2017) argue that several methods of qualitative research such as thematic coding can obscure the uniqueness and significance of the context being investigated. Figured worlds' emphasis on worlds and the role of significant actors and actions within them requires context to be maintained as part of the analysis. Furthermore, a narrative account frequently tells a chronological story in which time is important, but using analytical techniques such as thematic coding can fragment the text when it is important to keep the text and its position within the content together (Cohen et al., 2018). Together with the emphasis on voice, resistance and appropriation as discussed above, these considerations were crucial in deciding against thematic analysis. Instead, I evolved a framework for analysis which was based on operationalising key concepts from figure worlds as described in Table 4.3.2.1.

The table below shows the concepts from figured worlds that were utilised in my data collection and data analysis (Appendix L). I will discuss the relevance of these concepts with respect to data collection in this section and then how they were operationalised in the analysis of my data in section 4.4.

Table 4.3.2.1 showing the figured world concepts utilised in this thesis and how they were operationalised in the data analysis

Concepts from Figured Worlds	How the theory was operationalised
Figured Worlds	References to the figured worlds of the schools, its figures, significant acts and rules.
Figures	References to real people as well as abstractions of significant people both past and present, and hypothetical, archetypal or symbolic figures.
History-in-person	References to how informants have 'always' done something, to beliefs, to significant events and their effect. References to sediments of past experiences that appeared to be guiding their current beliefs about teaching.
Authoring the self	Participants' references to 'who they are', their 'core' self, and to themselves as a particular kind of teacher or person. Considering the stories they shared about themselves and their self-positioning. References to appropriating, resisting or rejecting rules, norms and voices. References to them highlighting differences between themselves and others and for contradictions and inconsistencies in the narrative, whether commented on or not by the participant.
Positionality	References to rank or position, both amongst the trio as well as in accordance with significant figures within the figured world of university and school.
Internally persuasive discourse	References to beliefs, their personal values on considering how things should be done especially through the tensions they encountered. Instances where they may have been trying out their ideas in social speech to see how convinced they were of their beliefs and if these were sustained over time. Instances of them contradicted themselves, where they were testing out their ideas and thoughts then appropriating or changing them.
Authoritative Discourse	References to policy approaches to how things should be done, presented as if there was no room for negotiation. Ventriloquising normative statements with a sense that these were unquestionable.
Heteroglossia	Instances of multiple voices within the same reflection, interview or focus group, evidenced through mimicry, choice of words or direct repetition,

	for example echoing a mentor's voice or tutor's voice through their selection of words.

4.3.3 Using Focus Group Data

Focus groups are in essence an informal discussion or a collective conversation amongst a group of individuals (Liamputtong, 2011), in this instance my tutor group. They are called focus groups because they focus on issues with the use of a collective activity that forms the focus of the discussion (Kitzinger and Barbour, 1999). Cohen et al. (2018) claim that focus groups yield a collective rather than an individual view on the topic that is being discussed. Although this is true in some respects, I think it simplifies some of the more sophisticated dynamics that take place with respect to dialogism. Focus groups provide settings where participants can engage in a dynamic discussion but there is no emphasis to reach a consensus on ideas (Liamputtong, 2011). Focus groups therefore encourage a range of responses which provide greater understanding of the individual attitudes, behaviours, and opinions, including contrasting opinions within the group (Liamputtong, 2011). Debating issues also gives insight into the lengths to which participants are prepared to go to defend their views in a specific context (Barbour and Schostak, 2005).

The nature of focus groups encourages a group voice of opinions to elicit attitudes and values which may encourage individuals to share their thoughts who may not be as confident in other qualitative methods (Cohen et al., 2018). This is a particular consideration with insider-researchers as participants may not feel confident voicing their individual thoughts in a semi-structured interview if their views or positions contrasted with the researcher's. Focus groups, therefore, ensure that participants are not individuals acting in isolation but are part of a social group interacting with each other (Liamputtong, 2011). Focus groups can access elements that other methods may not be able to reach, including aspects of understanding that often remain hidden in more conventional in-depth interviews (Liamputtong, 2011). They are, therefore, a good way to explore how points of view are constructed and expressed (Kitzinger and Barbour, 1999). The social situation may influence the language the participants use, which both Bourdieu and Bakhtin focussed on when considering how speech encompasses our sense of value and position in a particular situation. The words people use to discuss their thoughts, arguments and their encounters come from the collective experience, they are words already articulated by others (Holland et al., 1998). One of the benefits that encouraged me to consider using focus groups for my research was that it allows the participants to discover for themselves which stories they consider important, which experiences to share and to consider the situation from their own point of view in their own words (Liamputtong, 2011). The student-teachers' experiences are meaningful 'but the meaning is implicit, and it only becomes explicit in our narratives

or stories' (Gill and Goodson, 2011:158). Focus groups are therefore 'invaluable for examining how knowledge, ideas, storytelling, self-presentation and linguistic exchanges operate within a given cultural context' (Kitzinger and Barbour, 1999:5). To create a collaborative discussion in a focus group, where student-teachers can discuss and debate issues around their own experiences of teaching allows opportunities for discussing the impact that the encountered authoritative discourses had on them, as well as other factors that influenced their internally persuasive discourse and ultimately their identities as teachers.

4.3.4 Using Semi-Structured Interviews

I wanted to create the opportunity for my participants to share their thoughts in a one-to-one interview as well as in the focus groups. The nature of focus groups meant that the data I collected was a socially constructed view of the situations discussed and may have prevented the student-teachers from sharing their own insights into the issues discussed. Focus groups have been 'criticised for only offering a shallower understanding of an issue than those obtained from individual interviews' (Liamputtong, 2011:8). There is a different power dynamic in an interview than in a focus group. An interview is not a completely open discussion between egalitarian partners, and although there is an interchange of views between the two people, it has a structure and a purpose and the researcher controls the situation, listening and responding to what the interviewee is saying (Kvale and Brinkmann, 2015). Flick (2023) asserts that viewpoints are more likely to be discussed and expressed in a semi-structured interview as opposed to a more standardised interview, with the purpose to be eliciting what the interviewee's experiences are and what they view as important in relation to the questions.

Internally persuasive discourse can be understood in different ways, one being that it is a personal deep conviction, and so internal to the individual (Matusov and VonDuyke, 2009). However, another understanding, which is aligned with Bakhtin's notion of dialogue, is that participants use dialogue to test their ideas in a given social situation, for future imagined practice and test their own boundaries of the 'personally-vested truth' (Matusov and VonDuyke, 2009:174). The use of individual interviews allowed the student-teachers to further test their beliefs in a more personal setting, allowing them to become 'familiar with historically, culturally and socially important voices, and learn how to address these voices, and to develop responsible replies to them' (Matusov and VonDuyke, 2009:179). A consideration when conducting the semi-structured interview is the way this one-on-one discussion positions the interviewee by how they respond and the discussions they choose to share. As the methods of collecting data varied so did my role and my relationship to the interviewee. There is a 'dialogic and fluid nature' to how the 'researcher's identity is constructed, co-constructed and deconstructed throughout the research process' (McGinty, 2012:770). How I chose to act, react and

engage with the perceptions of my identity may have impacted on the way the interview developed (McGinty, 2012). These are important considerations when analysing the data collected from the semi-structured interviews.

4.3.5 Using Student-teachers' Reflections

Although the student-teachers' reflections were part of the PGCE course, I sought permission to collect this as data (Appendix C). The student-teachers were encouraged to either use the MMU proforma for their weekly reflection (Appendix E) or to engage in free-writing in a word document. Both structured writing and free writing have their advantages. Using a proforma can guide individuals to reflect on key learning moments or themes, whereas free writing might lead to deeper more personal insights (Boud, Keogh and Walker, 1985). Brookfield (2017) claims that giving student-teachers the opportunity to reflect personally and directly about their experiences encourages their authentic voices. This is important to try to capture when considering the student-teachers' identities; hence, the inclusion of their personal reflections in the research design. However, I am also aware that it is not possible to truly capture this authentic voice due to the power relationship that will have pervaded all interactions between myself and the student-teachers. Brookfield (2017:16) discusses that any assumption of being able to remove the structures of authority by being informal, approachable, or even friendly and sincere is naïve as within the 'strongly hierarchical culture of higher education' there is a clear structure of authority and a clear demarcation of roles and boundaries which dominates the tutor's position in the interactions. The student-teachers wrote their reflections for a specific audience, which in this case was me as their university tutor. Within figured worlds there are unwritten rules to interactions, to ways of behaving, of speaking and of being viewed and in turn viewing themselves (Holland et al., 1998) and these constraints will be present in their written reflections. There is also a need to consider my own interpretation of the reflection in this thesis, as dialogism explores the notion that even though people may experience the same situation or dialogue, in this case a written reflection, they will experience it differently dependent on the position they occupy (Holquist, 2002). When the student-teachers submitted their reflections, they chose which stories from the week to share as well as how this was written to inform me of how they want to be seen and positioned. The reflections that the student-teachers sent to me were not only a means of positioning themselves from their own perspective, but they are also positioned by the reader in a culturally specific social scenario (Holquist, 2002). This is also important to consider when analysing these reflective accounts of their week.

4.3.6 My Position as an Insider and an Outsider

One of the arguments that I made in the literature review was with respect to the perceived gap between the theory developed in universities and the practice observed in schools. There is a methodological dichotomy that has been central to the debate of education research about whether knowledge for teaching should be predominantly outside-in i.e generated at the university and then used in schools or grounded in teacher research from the inside (Cochran-Smith and Lytle, 1992; McGinty, 2012). Given that my research is concerned with the relationships and tensions that student-teachers encounter, one argument is that only a neutral outsider could achieve an objective account due to an appropriate degree of distance and detachment from the subjects (Cochran-Smith and Lytle, 1992; Mercer, 2007; McGinty, 2012). However, Mercer (2007) opposes this, arguing that an outsider has a structurally imposed incapacity to understand the group. Thomson and Gunter (2011) argue that outsider-researchers have the advantage of having 'fresh eyes' but could misinterpret local meanings and practices, which are crucial when considering the contexts that student-teachers are experiencing and the idiosyncrasies of schools. Insider-researchers have knowledge of the schools' systems, policies, and structures, experiencing how they are interpreted in the school's context and therefore have a more 'thorough insight into the more subtle nuances of relationships and agency' (McGinty, 2012:763). Conversely, insiders can have a lack of distance and perspective on the every-day taken-for-granted tasks that may be viewed as too familiar. They are too emotionally involved, leading to shared experiences not being discussed or assumptions being unchallenged due to a lack of awareness of them (Mercer, 2007; Thomas and Gunter, 2011; McGinty, 2012; Flick, 2023). However, these two positions of outsider or insider researchers are not mutually exclusive. The binary implied insider/outsider research seeks to freeze positionalities in place inferring that they are fixed attributes (Mullings, 1999). The researcher's position can be simultaneously inside and outside at different times in the research (Mercer, 2007; McGinty, 2012). Therefore, outsider-research will naturally impact all insider-research and Mullings (1999:340) argues that 'No individual can consistently remain an insider and few ever remain complete outsiders.'

My own context as a researcher and my position throughout this research is very much on a continuum and fluid in terms of insider or outsider. My role as a university lecturer researching the experiences of student-teachers in schools could be seen as outsider-researcher. I am not a member of staff at the school where the research was conducted, and my research was not directly relating to my own practice. However, the participants of this study are my own university tutor group and so I had a professional relationship with them. I was a constant figure in their school placements and university sessions throughout the year. I could therefore be considered an insider-researcher due to this on-going relationship.

4.3.7 Theoretical Underpinnings of Insider and Outsider Research

Floyd and Arthur (2012) define being an insider as being embedded in a shared setting and emotionally connected to the research participants. The USM ensured that I was embedded into their school's setting and had a 'feel for the game and hidden rules' (Bourdieu 1988 cited in Floyd and Arthur 2012:173). The theory of figured worlds focusses on considering how people live in a world that is co-constructed with others. The student-teachers involved in my research were working on their identity in practice within their changing contexts in relation to others, what Holland et al. (1998) refer to as self-authoring. I would argue that my position as an insider-researcher allowed me to be a co-constructor in the multiple figured worlds they experienced. Further to this, the insider-researcher is ideally placed when considering dialogism. Dialogism, as developed by Bakhtin, discusses the idea that the words we use are not neutral; we each draw on authoritative discourse and we make our utterances based on utterances we hear (Bakhtin, 1986). Holquist (2002) also discusses the importance of the stimuli around us for making meaning, that what we say and the meaning that we make is in response to stimuli in a particular place and in a particular time. Therefore, for me to consider these aspects of the student-teachers experiences I needed to be immersed in the same cultural experiences and stimuli. This enabled me to understand the authoritative discourses that influenced the student-teachers' experiences, my own authoritative discourse included.

I was however an outsider to the school at the same time with respect to how the teachers and school staff members positioned me, in my role as the university tutor. When student-teachers discussed their experiences with me, I had insider knowledge of the relationships and situations, yet I was not a colleague of the school's teachers or aligned with the school's policies and procedures and therefore these could be discussed with a more outsider perspective. This also resonates with Bakhtin's dialogism which considers outsideness to be fundamental in our perception of others (Holquist, 2002). The status of a being an outsider positioned me in a very complex way due to my own beliefs about mathematics, the relationship I had with my tutor group, but also my professional relationship with the school and the staff and maintaining this professional discourse throughout.

A crucial issue to consider when reflecting on my insider-outsider research position was how this potentially affected the interactions when collecting data. My voice was already authoritative given their position as neophytes and my role and presence in both their figured world of the school and the figured world of the university (Holland et al., 1998). One of the benefits of a focus group, for example, is that its methodology may reduce the imbalance in power relationships between the researcher and the participants; the control of the interaction is given to the participants rather than the researcher (Liamputtong, 2011). The majority of the data collected aimed to encounter thoughts

and personal experiences which were shared in order to encourage a less hierarchical relationship. Although the method of collecting data (such as focus groups) can encourage the transformation of the researcher-researched relationships, it would be naïve to presume that the power differentials are removed entirely (Kitzinger and Barbour, 1999). Simply acknowledging the relationship power plays, with respect to positionality for example, does not negate the affects that this has on the data collected. All lived worlds incorporate the idea of rank, status and hierarchy and yet these are different in each figured world the student-teachers experience (Holland et al., 1998) so it would be impossible for this not to be an influence in any data collected. It was, therefore, important in my analysis that I look for the influence of this and for the contradictions in what participants expressed in different situations. Having worked alongside the participants in their schools I could look for these contradictions and consider what this told me about how the student-teachers positioned themselves with respect to what they rejected, resisted, or appropriated. In dialogism everything is perceived from a unique position and therefore whatever I have observed or analysed is shaped by the place from which it is perceived (Holquist, 2002). Thus, I am conscious that there cannot be a single absolute account of social reality, or truths about the social worlds and that complete objectivity within my research was impossible (Bryman, 2016). However, those who conduct research on the interpreted world, the social world, are attempting to make 'better sense of whatever is being studied' and to 'interpret and then re-present an aspect of the world' (Sikes and Goodson, 2017:66). Therefore, my interpretation and re-presentation of the lived experiences of my participants is an important contribution to the universal sum of knowledge (Sikes and Goodson, 2017).

4.4 Data Analysis
4.4.1 Data Analysis Process

I was conscious of my weekly involvement in the student-teachers placement and did not want to influence the reflections, focus groups or interviews by identifying topics to focus on or choosing potential participants during the data collection period. I therefore waited until the end of the PGCE programme to analyse the data that I had collected throughout the academic year. This however meant that there was a significant amount of data to consider. I started by transcribing the discussions from the three focus groups and transcribing the interviews from the ten student-teachers who completed the course. I then worked through the audio and transcripts several times, interpreting them with the theoretical concepts of figured worlds. I made notes on specific passages and incidents and cross referenced these with their interviews and the focus group discussions. At this point I could not easily identify clear topics of interest, threads or participants to focus on as I still did not have the full picture of the student-teachers' experiences and the stories they were choosing to share. A crucial

part of the data collection process transpired to be their weekly reflection in which the student-teachers had complete autonomy over what they chose to share. The reflections were a rich source of accounts about the student-teachers' journey towards becoming a teacher and the tensions and challenges they had encountered. Their recollections of these in the interviews at the end of the course did not encapsulate them in the same way as their weekly reflections, which were written at the time of their tensions and struggles. These captured their initial thoughts and feeling about incidents such as their relationships within the school, their ruptures and their resistance and rejections. Re-reading these in conjunction with the transcribed data and the figured world lens gave me new insights into what the student-teachers were sharing about themselves; with respect to storying themselves, positioning themselves, positioning others, figuring themselves, uncovering ruptures, contradictions and heteroglossia.

There were over 300 reflections, but these crucially told the student-teachers' stories in a chronological order and could be cross referenced to other student-teachers experiences during the same period. These reflections were central to considering similar and contrasting events that the student-teachers had during the year, as well as where changes occurred, and contradictions appeared. I read through all the reflections making notes on the broad situations that the student-teachers were discussing (Appendix L). I then went through them again and highlighted parts that referred to aspects of my research questions, for example any references to pedagogy or theory and practice, and references to positioning or of significant figures or beliefs about teaching. I highlighted any contradictions that I came across, any tensions or struggles that they discussed, any references to preconceived notions of how things should be and anywhere that I thought considered competing discourses (Appendix L.1). I then went back through all ten student-teachers' reflections and summarised in broad terms what each weekly reflection was discussing (Appendix L.2). This allowed me to consider them in chronological order, and contrast experiences across different teachers. This also helped me to locate significant events when I was analysing the data. This process led me to consider six student teachers, including Kate, Niamh, Caroline and Jake. I then pulled together the data from the weekly reflections, the focus groups and the semi-structured interviews to put their experiences in order and to look for similar and contrasting experiences and to look for the tensions and conflicts that they discussed in their data (Appendix L.3). I considered these with respect to my research questions. There was significant overlap between some of the student-teachers encounters and I was eager to consider only four student-teachers in depth. There were similarities for example in all six student teachers being asked to emulate their mentors, however within this constraint these four participants responding in contrasting ways. There were similarities with them being positioned by the schools, by their peers and by an authoritative discourse, and yet all four had contrasting

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experiences on negotiating these positions. I was interested in considering how similar experiences were negotiated differently with respect to the journey through appropriation, resistance and rejection during their PGCE year. This led to the decision to focus on Niamh, Kate, Caroline and Jake, for the reasons I outline in more detail in 4.4.2.

Once the four participants were identified I went through each individual story in more depth and outlined more specifically what the story of their data was telling me and what specific concepts from figured worlds could be utilised to analyse these (Appendix L.5) Following this, I pulled together all the concepts from figured worlds that would allow me to explore the complexities of all four student-teachers experiences (see table 4.3.2 and Appendix L.5). I then returned to the data having asked myself some specific questions about the stories they were sharing using figured worlds concepts as a lens to analyse the data (Appendix L.4). For example, I had highlighted that I felt Kate sometimes "humoured me" in her data due to contradictions and so I highlighted questions to focus my analysis based on this assertion. For example, looking at the way she talks, noticing intertextuality, questioning if she is referring to aspects I have encouraged and how she constructs her discourse with me as an audience (Appendix L.4). I engaged in similar, specific questioning for all four participants. This led me to go back through the data looking for more subtle aspects of Figured World theory that were being uncovered, for example the figured world of the school or university, the significant figures, a sense of developing an internally persuasive discourse or authorial stance, and where there might be tensions between the authoritative discourse and their own internally persuasive discourse and how they orchestrated the voices in order to address them. It was important to consider how these are developed chronologically and over a period of time. In order to complete my analysis I focussed specifically on my research questions, together with the literature, the theory of figured worlds and my data and I looked at these holistically (Appendix L.6). This allowed me to analyse their experiences with respect to my research questions and the literature through the figured world lens and this discussion is explored in chapter 8.

4.4.2 Identifying Key Participants
The table below shows the information about the four participants I chose to discuss in this research.

Table showing participants details

Pseudonym	Age	Degree	Qualification at MMU	Length in tutor group
Kate	28	Mathematics	PGCE	1 year
Caroline	37	Mathematics	PGCE	1 year
Naimh	25	Dance	MEC + PGCE	2 years
Jake	23	History	MEC + PGCE	2 years

The initial key concepts from Figured Worlds theory that I considered when reflecting on my participants were linked to my research questions. I looked for discussions on pedagogy, theory and practice as well as references to positioning, significant figures, beliefs about teaching, tensions and competing discourses especially their response to authoritative discourses. This guided me to consider a number of participants, including Kate, Niamh, Jake and Caroline.

Kate positioned herself in terms of her peers, the teachers in school and the university tutor, and this was a significant aspect throughout her data. She brought a strong sense of her history-in-person to discussions and in her consideration of pedagogy. She was forthright with her beliefs about the pedagogy advocated at university. Therefore, how she developed her internally persuasive discourse with respect to authoritative discourses was an aspect that I wanted to explore in more detail. For Kate, being asked to work collaboratively with her peers and the impact this had on her own development and positionality became the main site of struggle for me to consider.

Caroline's data was very strongly guided by her tension with orchestrating the voices and authoritative discourses that she experienced. Her sense of positionality was full of contradictions during her journey through the PGCE year, as was her journey with appropriating, resisting and finally rejecting the authoritative discourses that she encountered. Her decision to leave the course and the moment of rupture she experienced were so closely linked to both my research questions and the literature review that I wanted to explore the tensions she experienced in more detail. For Caroline, the school became her overarching site of struggle and one I wished to consider.

Both Niamh and Kate had strongly developed opposing beliefs about teaching, and the contrast between their experiences was one I wished to analyse further. Niamh was also similar to Caroline in that her approach to teaching contrasted to the school's pedagogy. Niamh and Kate both worked with trainees who were failing in the first placement and then worked with each other in the final placement, and so how they used the conflicts and tensions to develop their authorial positions in different ways was one I felt important to consider. They were exposed to the same rules and routines, the same discourses throughout the placements, yet the contrast in how they used these to self-author, develop an internally persuasive discourse with respect to theory and practice and develop their authorial position as a teacher was intriguing; one presenting as monoglossic and the other as heteroglossic. For Niamh, her collaboration with her peers also became a site of struggle, but one which she embraced differently to Kate.

Jake clearly positioned himself throughout his data with respect to his peers, the teachers and me, as the university tutor. I was initially drawn to Jake due to his strong positional claims with people in positions of authority, such as the head of mathematics and myself. Jake had a strong sense of the teacher he wanted to be based on figures from his past and I was interested in how he developed his authorial position with this being central to his beliefs and therefore how the figures, voices and authoritative discourses impacted his ability to author himself. I was interested that Jake rarely considered his pedagogy in his data but that he was more concerned with the attributes and characteristics of what he considered to be an outstanding teacher and how these developed throughout his PGCE year. This was in contrast to the other three participants where pedagogy had been a crucial consideration. For Jake, positionality itself became a site of struggle and so it felt important to explore this.

These were the reasons for the decision to focus on these four participants. Once I had identified these as my participants, I then applied the concepts offered by figured worlds to analyse the complexities in their data, with respect to my research questions. These will be discussed in the data and discussion chapters.

4.5 Ethical Considerations

Ethical decision-making is an iterative process of assessing and reassessing as situations arise and therefore needs to be actively deliberated throughout the research process (BERA, 2018). I sought the advice and support of my supervisors throughout the data collection as well as the data analysing aspects of my research.

Prior to initiating this study, I ensured that I complied with the institution's own ethical approval systems. This involved considering the risks to the participants and the placement schools (these are outlined in Appendix A). One of the main considerations was obtaining voluntary informed consent from the participants and ensuring their right to withdraw that consent at any time without the need for a reason (Hammersley and Traianoue, 2012). This was a particular concern given that the participants may not be in a 'social position vis-à-vis the researcher that enables them to give unrestrained informed consent' (BERA, 2018:14) due to me being their university lecturer. The power relationships are pertinent in this research due to the insider/outsider dynamic as well as the student-teachers viewing me as an authority figure judging their performance over the year. The student-teachers' perceptions of me and my position was an ethical issue for me to take account of. In order to explore the student teacher's experiences and analyse their stories I was conscious of using participants who had completed the PGCE course successfully and confidently; how they positioned themselves in terms of becoming a teacher. I did not feel it was ethical to discuss the experiences of

student-teachers who were at risk of failing, as this was not the context of my research. It would also complicate the collection of data as a different relationship and power dynamic would be present; given my role in the outcome of them qualifying. I was acutely aware that the relationship of power between the researcher and the participants, especially due positioning myself as both an insider and outsider, influenced the way that knowledge was constructed (Milligan, 2016). My identity throughout this research was what Thomas and Gunter (2011:26) referred to as a 'liquid identity' where the boundaries between the role of university tutor and researcher are 'messily blurred in particular times and places'. I was aware of considering how I presented myself to the student-teachers during the data collection process as suggested by Perryman (2011); for example, wearing suits when collecting data in school to align with the cultural expectations of the school that the student-teachers were subjected to in order to establish being held to the same set of rules and expectations. I wore less formal wear in university to present myself as a researcher rather than a teacher or university academic tutor judging their progress. It is important to consider that participants being faced with the issue of consenting to providing access to their data 'are not operating in a social vacuum as sovereign individuals' (Hammersley and Traianoue, 2012:20). I addressed this with my tutor group in our first informal meeting when I discussed the research I was undertaking and made it explicit in the consent form that they signed. However, I was aware that this would not alleviate this issue completely and if they wanted to withdraw consent, they may have felt it would impact their course outcomes. They were reminded of their right to withdraw at each data collection point as well as the process of either informing myself, or my supervisors if they felt more comfortable doing this, and contact details were made available. I also did not analyse any of the data with respect to my research until their completion of the course. The final interview was undertaken after they had confirmation of having passed the course and all paperwork being completed.

My research design took measures to be ethical by attempting to avoid making excessive demands on the participants, especially as this was a year-long study with their repeated involvement. All focus groups were during university or school-based sessions to avoid increasing their workload. The reflections were either on the form they were required to do for the course, or in an informal manner to replace the form. The final interviews were at a time convenient to the student-teachers in the university whilst they were present for other sessions and were limited to a maximum of twenty minutes, as in the guidance from BERA (2018). I was conscious of my duty of care to minimise distress or discomfort throughout the focus groups and interviews to not cause emotional harm. As my research was partly reflective on my own practice, I was aware of my dual role as researcher and lecturer which according to BERA (2018) may introduce explicit tensions. I therefore incorporated the

advice from BERA (2018) of always making the data collection points explicit to the participants and that my role was as a researcher during these sessions.

All social sciences should respect the privacy, autonomy, diversity, values and dignity of individuals, groups and communities (BERA, 2018:4). I have ensured the confidentiality and anonymous treatment of my participants' data throughout the process, affording them the rights they are entitled to. They were re-assured of this throughout the data collection process. I have changed the names of the participants throughout the data as well as the names of colleagues in schools who they interacted with and may have been part of the data. The data has been kept securely on a password encrypted computer and backed up on one-drive which is also password protected. Any sharing of data with my supervision team has been done through one-drive to prevent the possibility of external hacking of the data (BERA, 2018). Participants were informed that their interviews would be voice recorded and transcribed, and once analysis was completed the voice recordings would be deleted. They were also informed how their data would be stored in line with the data protection act of 1998 and the more recent GDPR guidelines (BERA, 2018). They were assured that they have access to their personal data that is stored and relates to them at any time.

The final conclusions of my research project will be made available to the participants as outlined in the consent form, and the full thesis will be made available on request.

4.6 Conclusion

In this chapter I have outlined my plan to conduct research into the experiences of four student-teachers and explore the research question that I have posed. I have raised and discussed the ethical concerns relating to my position as the university tutor as well as the researcher and the participants being members of my tutor group. This put me in the position of being both an insider and outsider researcher. I have explained how the tools from Holland et al.'s theory of figured worlds have been operationalised in the collection and analysis of the data. I have also shown how Bakhtin's work on dialogism has been crucial for collecting the qualitative data and my position in the discourse. The importance of using different collection methods throughout the year to elicit different voices and perspectives has also been discussed, such as focus groups, semi-structured interviews and personal reflections. Finally, I considered the ethical implications for conducting this research and ensuring the student-teachers were not in any detriment being participants in this study.

5. Data Analysis: Collaboration as a Site of Struggle.

This chapter considers the journey of two student-teachers, who were placed in the same two schools during their PGCE year, Kate and Niamh. It draws on data collected from their weekly written reflections to the university tutor (Reflection), their semi-structured interview at the end of the course (Interview) and the focus group on collaboration (FG:collaboration), as well as some formal lesson observations by the university tutor (LO) and their final review (Review). Throughout the year there were similarities and contrasts in their experience of working collaboratively. This chapter will focus on how they positioned themselves within their trio and how they authored themselves as they learnt to teach mathematics in two schools. The chapter begins by considering their experiences in Block A working in different trios and then how they worked together in Block B. In Block A, both Kate and Niamh were in a trio with a student-teacher who was at risk of failing the placement. I highlight how they used this experience to position themselves figuratively and relationally. During their block B placement they encountered conflicts with each other, in terms of how they wanted to teach and with the authority figures they were working with. I argue that working collaboratively is not as simplistic as sharing ideas and working together in a classroom; this is disrupted by student-teachers bringing different cultural models, different histories-in-person, and/or different figurative identities as mathematics teachers to the situation. Working in this model made them aware of different views on teaching, which contrasted to their own views, as well as those of their mentors and class teachers. In this chapter I will consider how Kate and Niamh described what affordances and challenges there were in their placement schools and how they orchestrated competing discourses to shape their teacher identities.

5.1 Niamh's Story: Block A

5.1.1 Niamh: "Feels more like a duo with someone else to think about"

During their first placement, Kate and Niamh were in different trios within the same school. Niamh was placed in a trio with two student-teachers, Danielle and Richard. Richard was identified early in the placement, by both Danielle and Niamh, as being less effective at working in their trio:

> I felt one member of the group didn't really put a lot of suggestions out their [sic], allowing us to think up ideas. Then when it came time to writing the plan it became a bit frustrating because the same person was not pulling their weight in writing the plan…And I had to ask them 3 or 4 times before they contributed. I later suggested when we plan a lesson we should sit down, write a proper story board of the lesson and each go away and do different sections…Then by rotating these jobs we will all be equal pulling our weight, I think this will really help and stop me getting frustrated in the future. (Reflection:12/10)

Niamh used her description of the situation with Richard to position herself as fair by ensuring that the workload was shared equally in the group. However, in putting forward the suggestion of how

they would do this she positioned herself in the trio as being the one in control of arranging how they would work. She found a solution for the problem to allow her to work more effectively in the collaborative model and so authored herself as a person who actively looked for solutions to solve problems. When raising issues such as Richard's lack of lesson planning, being off-task while planning or having few ideas to offer, Niamh justified it by saying 'I feel they are getting very overwhelmed with their individual class so not managing our trio class well' (Reflection:30/11). This was a key consideration for Niamh as when reflecting on Block A in the end of course interview on her experience of working with Richard she said:

> …but in fairness their single teacher [the teacher of Richard's solo class] was very hard, very, very hard and she demanded a lot so they got refocused on that. But because the other two, me and the other one [Danielle] were there to kind of pick up the slack, it was left and that was the way it was. I don't know that's just the way it happened really because we were there to pick it up but I think if you were in a situation where it demands you to do more, then you have to because you have to pull your finger out don't you? (Interview)

Niamh storied herself as supportive, considerate, and amenable to finding solutions to problems that arose. She posits Richard was conflicted between spending his time working on the trio's lessons and the pressure he was under from the mentor of his solo class, and she described taking on his workload. Niamh focused on the group being responsible for the delivery of good lessons and that she could learn from this experience to develop herself. She was using her interpretation of Richard to author herself as hard working and one who will do what is needed to succeed; she showed that she understood her position as a student-teacher.

Although Niamh was sympathetic to Richard's situation, she was also clear that there were limits to her support. After a group lesson which had not been successful, Richard became 'very worked up and frustrated' which Niamh said was 'understandable' and that she empathised saying that they would all feel frustrated at times but said to Richard 'you need to learn to let it go.' (Reflection:19/10). However, she went on to say that 'I just felt we had to talk him down a lot, which I don't mind doing every now and again as part of a team but I can't do it every time something doesn't go his way' (Reflection:19/10). She very much authored herself as a team leader even whilst finding the situation frustrating but that her sympathetic appreciation of his situation had limits. She also positioned herself against Richard as someone who was flexible and did not allow her emotion to get in the way of her teaching as opposed to Richard who was storied by Niamh as quite self-absorbed and over-emotional.

Her reflection near the end of the first placement discussed a time when Richard had not read the lesson plan prior to the lesson and therefore had delivered it incorrectly. During feedback with the class teacher Niamh highlighted this issue with the subject mentor, who told them not to blame one person. She reflected:

> I also felt like this grouped us together in this fault which I don't think was fair…Feels more like a duo with someone else to think about… this is very frustrating, and I know we aren't being judged as a trio but when trying to deliver a lesson it is difficult. (Reflection:16/11)

When reflecting on the whole placement she said 'I do understand that we were judged individually but this made it no less frustrating and difficult when working in a trio' (Reflection:19/12). Even when Niamh did not agree that the feedback that they received was applicable to her, she still did not distance herself from the trio, but just shared her concern and frustration. However, Niamh was confident in her own position within the trio and was not concerned about how this feedback positioned her individually. In her final reflection she related back to this as being 'very frustrating that it falls back on us to pick up the pieces' (Reflection:07/12) but she also reflected at the end of the placement that these experiences with Richard and the negative feedback did help her to develop into the teacher that she wanted to be. This again positioned her in relation to Richard, but she used this conflict and tension to author herself as someone who can learn from these experiences and develop as a teacher and as a leader, being organised and professional; the binary opposite to how she authors Richard.

5.1.2 Niamh: "I am becoming more myself rather than the typical teacher."

When asked, Niamh said 'At the start of this block I am not sure what teacher I wanted to be, as I observed a few classes I started to get an idea' (Reflection:11/01). Niamh went on to discuss how she used the difficult experiences with one of her mentors to consider what she was comfortable with as a teacher:

> Sometimes however I found this difficult with the teachers I worked with, one teacher was very rigid in how he worked and liked routine. He liked his classes to work in a certain way and was quite unwilling to change his pattern. This was difficult when we wanted to push the boundaries and try new things with this class … However, these experiences did teach me what kind of teacher I wanted to become myself, some of the behaviour management techniques the class teacher used are not the ones I would use in my own class. At times the teacher would suggest I use them, and it taught me what is comfortable for me, so this was a good learning experience for me. (Reflection:11/01)

Niamh recognised the authoritative discourse of the teacher and positioned herself as a student-teacher throughout this reflection. She was aware she was there to learn from the class teacher, even

though she disagreed with what was being asked of her and as such she positioned herself as a student who was amenable to trying different methods. She highlighted her unease at working within tight parameters and that she was therefore someone who would like more freedom to experiment with her teaching styles, which again she used to story herself as actively learning through experiences. When conflict arose with how Niamh wanted to teach, she authored herself as someone who was developing her beliefs about teaching and used this to question the authoritative discourse; in this case allowing the trio to try new ways of teaching. Her reflections mentioned activities and games that they had planned to deliver but were discouraged from doing so. Through this, Niamh was telling me that she wanted to be creative in her teaching and that this was important to her. She was using her mentor in this reflection to figuratively position herself by discussing the teacher that she does not want to become. In her final reflection she said 'I want to be a teacher that stays away from the lessons of worksheets and teacher led. I feel not only is this boring for the pupils, it is boring for me as a teacher' (Reflection:19/12). The class teacher had encouraged Niamh to use the behaviour management techniques that he himself used, but this differed from the teacher that Niamh wanted to be. However, she did not reject these strategies, but used this conflict to consider the aspects of behaviour management that were important to her by trialling these techniques and critically reflecting on them for her own personal development. She reflected at the end of the course that 'I want to be a teacher that as much as possible focuses on the positive behaviour and through this builds a strong mutual relationship with all pupils in my classes and outside the classroom' (Reflection:19/12). Niamh recognised at the end of the placement that she developed as the teacher she wanted to become due to these contested experiences of working with Richard and this class teacher. However, she also had positive role models to learn from. When reflecting on her experiences on block A she said:

> One of my other class teachers, was really helpful in focusing on certain things to work on in a lesson… My year 10 teacher really let us experiment with different activities, she was also very good at not stepping in when the lesson wasn't going to plan. Both of these really helped me to grow into the teacher I want to be. (Reflection:11/01)

Niamh acknowledged that she learnt as much from experiencing how she did not want to teach, as she did from working with teachers who supported her in developing her teaching style. This teacher not only allowed an exploration of different teaching strategies and activities but allowed the student-teachers to learn from their own mistakes by not 'stepping in'. This was an important aspect that Niamh highlighted when discussing this teacher and emphasises it as significant in Niamh's development. Mistakes are a part of the process of becoming for Niamh, she used these to learn. When discussing feedback that she received from the first teacher, she said:

> In terms of our feedback I do feel we are getting a lot of 15's [negative comments] from … [class teacher] and after thoughts on the good points.   As much as the improvements help and is very much needed to develop as a teacher, I would like to know what I am doing well in order to continue doing this when I am teaching.   Though generally I can tell this by the reaction of the class, e.g. how long they take to be quiet etc. (Reflection:02/11)

She clearly recognised that a balance of both strengths and targets are useful for developing over the course of the placement.   Her internally persuasive discourse on teaching was evident in her discussions and when asked about her current teaching identity near the end of the placement she said:

> I feel a lot more confident now about standing in front of a class and I do feel like I am making progress and becoming more myself.   Instead of trying to be that typical teacher, which works better for me delivering lessons and my relationships with the pupils. (Reflection:23/11)

In a later reflection she stated 'I started with being what I would expect a teacher to be but by the end I moved more to being the teacher I would want to be' (Reflection:19/12).   In the figured world of the school there are figurative identities of mathematics teachers that Niamh drew upon to shape her identities as a mathematics teacher.   She has not drawn on her past experiences of education to develop this figurative identity but has used the actors within this figured world to shape herself. Niamh suggested that she played the role of a teacher in the classroom rather than being herself and through doing this she was able to try different styles, different techniques, and act in different ways. She was able to mediate the contrasting discourses she experienced.   Identities are ever changing and are always improvised, and this was highlighted throughout Niamh's placement; her story was one of becoming, of being on a journey.   Niamh was aware of the competing voices she experienced throughout the placement with respect to teaching, the heteroglossia, and orchestrated these to find the space to author herself as the teacher that she aspired to become. By the end of the placement she had developed a strong internally persuasive discourse on her mathematics pedagogy and on teaching.

5.1.3 Niamh: Block A Overview

The important aspect that Niamh highlighted throughout her reflections was the ability to learn from negative experiences.   Her experiences with Richard, as well as one teacher, were used to develop and shape her teacher identities, specifically her figurative identity.   Niamh was able to navigate the tensions she experienced and use these to author herself as a student-teacher who was actively learning through the placement how to be a good teacher.   She used these experiences to story herself as hard working, a team player and that she could be flexible in her teaching approaches to learn from her negative feedback, as well as developing her strengths.   Holland et al. (1998:211) talk about self-

understanding as having no real integrity, but that there are 'degrees of relatedness amongst the partial selves that respond to sets of our associates, our multiple others'. Niamh was able to orchestrate the heteroglossia, weighing up competing voices from her own perspective and used her internally persuasive discourse to shape who she was becoming as a teacher.

5.2 Kate's Story: Block A

5.2.1 Kate: "I certainly don't want to be carrying someone through their placement."

In the first placement Kate was in a trio with Lily and Sofia; the group had similar dynamics to Niamh's trio in that Lily was identified as a weak student-teacher early in the placement. Kate embraced working as part of a trio during the first induction weeks in school. The beginning of her first reflection referred to them as a group:

> 'We seem to of [sic] fitted in nicely. The starter went well and we received good feedback as a trio. We have some good lessons prepared for next week so I am looking forward to teaching them' (Reflection:12/10).

She referred to the trio as 'we' suggesting that she viewed herself as part of a team, working together. This reflection was written for me to read, and as the university tutor I actively promoted working collaboratively. The start of this reflection showed an appreciation of this with Kate positioning herself as a team player who was supportive of this model and someone who had made a successful start to the placement whilst working in a trio. However, her unease in this group dynamic started to become apparent in her next paragraph where she talked about a difficult year 10 class that the trio were taking on saying 'so I think they are going to be my/our biggest challenge' (Reflection:12/10). Her language started to move towards her own individual challenges, which by extension would be challenges for the trio. Teaching collaboratively as part of a group did not sit entirely comfortably with Kate though and her reflection quickly turned away from reflections on their collective achievements to her concerns with working with one particular member of her trio, Lily:

> As much as this week has been hugely positive there has been one bug bearer [sic] that I want to highlight so that it doesn't fester! One member of the trio hasn't really pulled their weight this week with all the planning that has started to be done… As I was the trio member communicating with the class teacher I felt it particularly reflected on me. (Reflection:12/10)

There are contradictions within this reflection with respect to how Kate storied herself. Although at the beginning of the reflection she supported the idea of working collaboratively and used the term 'we' to show this, she moved away from 'we' to focus on 'I' when she wished to raise a concern. The change in pronouns highlights that Kate had a desire to be seen as an individual. This was an important moment for Kate in her self-authoring as this reflection was very early on in the course and yet she

was strongly positioning herself with respect to her peer. Her focus on how she was perceived by those in authority with her reference to the perspective of the class teacher was an important consideration; that she does not want someone else's contrasting work ethic and values to influence how she was seen and ultimately positioned. Her desire to be seen as a competent individual whilst also being seen as a supportive member of the trio were competing discourses that Kate tried to orchestrate. She did not explicitly say how she wanted to be seen by these authority figures, but she was saying very clearly how she did not want to be perceived, that she was not someone who was not 'pull[ing] their weight'. She figured herself against her peer in a way that not only positioned Kate as having certain values, but positioned Lily as someone who did not meet these values. This conflict in the competing discourses continued throughout her reflection as she went on to say:

> … We have planned together and then split the work load up fairly. I ended up working until 1am on Thursday redoing a year 10 starter they were tasked with as the presentation wasn't up to scratch … I'm also not satisfied with the presentation on the PowerPoint they have produced for one of our year 7 lessons but am not sure how to tackle this without coming across as though I am taking over? I have absolutely no issue helping somebody if they are struggling – we are a trio, a team and would hope their support would be there for me if I needed it but I have felt this week like it has been an attempt on their part to get away with doing as little as possible and I certainly don't want to be carrying somebody through their placement. Their input during planning has been great; they have some fantastic ideas which have been invaluable I just hope as we progress they get better at the other side of planning! (Reflection:12/10)

Kate started with 'we' (working together as a three), then moved to 'I' (an individual working with others), and finally in this paragraph to 'they' which distanced herself from the other members of the trio. In voicing her dissatisfaction, she used this reflection as a mediating device, a cultural artifact, through which to claim her relational identity. She used this to story herself, to me, as someone who was a team player by referring to the work being split up fairly, explicitly saying that they were a team, and she was open to supporting them and also positioning herself as the leader of the group; the one fixing the issue. Her positive comments on Lily's input also positioned her as a team player in one respect, but also subtly implied that her own opinion of these ideas was important and that these good ideas did not make up for the unsatisfactory standard of the resources she produced, or the limited effort that Kate feels Lily exerted. Kate's figurative identity that she shared was that of an extremely hard-working individual who worked unacceptable hours to produce work that met a particular standard, not only contrasting this to her figuring of Lily, but highlighting that it is because of Lily. However, the contradictions and overall tone of her reflection told a different story. Kate was telling me that she was doing a good job of producing resources and lessons that were of the required standard under the difficult circumstances of working with others; there is a sense that she was doing

this under sufferance. She also made sure that I was aware that there were limits for her tolerance of what she deems as unacceptable behaviour. She was informing me that she was not happy working collaboratively and she feared it would reflect negatively on her if others did not meet her standards. She figured herself against Lily, and to some extent Sofia, to position herself as the leader of this trio and as being the strongest teacher out of the three.

In making me aware of her dissatisfaction she did not mention the name of the student-teacher. She referred to them as 'one member of the trio' or just as 'they'. This implies that Kate was mindful of the authoritative position of the audience of her reflection and did not want to author herself as being unprofessional. However, there was a kind of euphemism, where through not naming Lily, she made me aware of an issue, without telling me explicitly, and positioned herself to do this. She demonstrated her knowledge of the rules of the game in this figured world, that she should not personalise complaints, but she found a way around this. By not naming her she did not raise the specific issues relating to Lily as a person; moreover, these were not characteristics that she herself possessed. She othered Lily to position herself. By anonymising her she referenced the contrast between these standards and her own, distancing herself from these qualities rather than labelling them as concerns with a specific person. This reflection was addressed to me, who actively supported working collaboratively, so there may have been a degree of verbalising her initial thoughts to develop her own standpoint on the issue of working collaboratively and articulating this position to me. There was an insinuation of her playing a role in the collaborative model until she found her own voice on how she authored herself as a teacher in this trio.

5.2.2 Kate: "All three of us were being tarred with the same brush".

As Kate progressed through the placement, her dissatisfaction with working as part of a trio continued. By the second week in the placement, Kate was more vocal about Lily:

> I've found this week really frustrating and at times embarrassing. I don't want another person's actions to reflect on myself when I am putting 110% in. (Reflection:19/10).

This again highlighted the importance placed on being considered a hard worker with high standards which was brought into question by Lily's contributions; she was positioning herself against Lily to emphasis this. Despite reassurance by her university tutor that student-teachers were seen as individuals in this model, Kate was still concerned with how she was being perceived. Kate figured herself as an individual and positioned herself as a better teacher than Lily, and she made me aware

of this position. During the focus group discussions on working collaboratively, Kate raised her desire to be seen individually and her frustration with not being in control of the quality of the lessons.

> I think if stuff goes wrong that's out of your control it's a reflection on you and that's frustrating … I just think that it's not all 110% your work … Like I am quite OCD and anal about certain things and then if other people aren't and that gets picked up on and then it's like 'well if that had just been me then that wouldn't have happened.' … They judge us like a whole and I think if I was on my own that would never have been an issue. (FG:Collaboration)

Kate used this experience to story herself as a particular kind of teacher. She was not concerned with learning from, or developing herself, through supporting others; she was focussed on how working with others affected how she was perceived as an individual teacher. By referring to her 'OCD' in this way she utilised it as a cultural model, almost medicalising her desire not to be part of this group and in doing so removed some of her responsibility of negotiating how she worked in this trio. Kate storied herself as someone who was meticulous and can't help but be so and what's more, that she would make more progress on her own.

There was a subtle shift in this reflection for Kate as the emphasis focussed on judgement. Her reference to 'they' when considering who was judging her is vague and could refer to the subject mentor or to the university tutor. One of my roles was to observe lessons and give feedback, so this could be highlighting the issue to me, as an assessor, to ensure my awareness of this desire to be positioned differently to her trio. Kate was eager to exhibit the qualities of the teacher she was trying to emulate, and her frustration was evident when this was not recognised. She did not see the feedback as highlighting areas to consider and develop, even if it reaffirmed the decisions she would have made, but this judgement positioned her negatively; her figurative identity as a good mathematics teacher was also brought into question. Kate did not accept the feedback as reflecting on her; she distanced herself from feedback and therefore distanced herself from the group.

Kate progressed to discuss how she carefully planned some lessons, but as they were delivered by Lily, she still did not get the recognition for her ability:

> And then, you'd be in class and all this work that you'd done would unravel before your very eyes. And it was just such a frustrating situation to be in. … And then things that were done were done incorrectly so then you had to correct them. (FG:Collaboration)

This again highlighted that she was working hard to be viewed individually and to be recognised as a good teacher. Her awareness of the mistakes of others does not present opportunities to learn but

reflects a concern of being judged by others' behaviours and not her own. She vocalised this in a focus group which Lily was absent from, as she had established an internally persuasive discourse on the issue of working with others, specifically Lily, and was now confident to turn this into social speech. I was part of her audience for this discourse in which she publicly positioned herself as a good teacher whose work could have been seen in a derogatory light due to the contribution of others.   She also reflected on this during her interview at the end of the academic year:

> It just felt like I was doing a load of work and none of it was being recognised, it was all really negative… it felt like as if all three of us were being tarred with the same brush and it was only one person's brush [laughter]. And no matter what we did it was wrong, even if really it was right. (Interview)

The idea that they are all being 'tarred by the same brush' and the implication that it was Lily's brush clearly positioned Kate as a good teacher who was being brought down by Lily. There was a strong sense of Kate's position in this trio, as being the one who planned and corrected or re-did Lily's plans so that they were of a standard approved by Kate. It was not sufficient for Kate to identify the kind of teacher she wanted to be, she had to other Lily to do this; she used the contrast to Lily to give a clear sense of who she was as a teacher. By the fourth week into her teaching practice, Kate fully rejected working collaboratively and had developed a hard-won standpoint on the issue:

> Our trio is definitely not working and not beneficial to my training to be a teacher… If I was a quitter this is the week I would of [sic] quit because I have felt that all my hard work and effort has been for nothing. (Reflection:09/11)

Kate finally reached the limits of her acceptance of working alongside others and her ability to fabricate working collaboratively with her trio. She escalated to explicitly telling me that she did not want to teach with others and that her success, her hard work and all her efforts had been tarnished through this experience. She rejected the authoritative discourse of the university, that working collaboratively would be beneficial to her development, and challenged this directly, asserting her own agency into her teaching practice. People's behaviour is guided by self-understandings and Kate's behaviour changed significantly towards Lily once she had established her stance on being unable to work with her. There was a breakdown in her professional relationship with Lily to the extent that Kate no longer felt the need to be professional when discussing her and even went on to raise serious concerns about her directly; 'There has [sic] been occasions we have been working in the staff room and Lily has been asleep in a chair!' (Reflection:09/11). Kate moved away from refraining from using Lily's name and verbalised strong opinions on Lily's supposed lack of professionalism and how Lily's behavior was in stark contrast to her own. The reference to sleeping in a chair is related to a story I told the tutor group at the start of the year about a student-teacher who fell asleep in school and the situation that unfolded led to his removal from the course due to issues of professionalism. It was

therefore interesting that this was the situation that Kate chose to share about Lily's unprofessional behaviour as a way of positioning her in relation to a student-teacher who was deemed unfit to teach. She continued to other Lily as a way of authoring herself and rejecting the positions that had been made available to her by working with people who had a derogatory effect on how she was being perceived as a teacher. However, her assertion that she was not a quitter makes a strong claim that she authored herself as a strong and resilient teacher and that she would continue to progress through the placement despite the tensions, conflicts, and confinements that she was working with; one of which was the model of collaborative teaching.

5.2.3 Kate: "he had the same ideas and values as a teacher that I possess myself."

Not long after Kate's reflection, I took the decision to remove Lily from working with Kate and Sofia. This was partly due to the breakdown in the working relationship with her peers, and the refusal from Kate to work with Lily, along with Lily's lack of sufficient development towards the teaching standards. Kate had used Lily to position herself both figuratively and relationally throughout the course, in the sense that Lily was everything that Kate was not. Now that Lily was not present she looked for other figures to identify and position herself against. When reflecting on her placement she discussed her admiration of her subject mentor:

> I was very lucky to be placed with a great mentor in this class teacher – he had the same ideas and values as a teacher [that] I possess myself … Going into teaching I had a clear vision of the sort of teacher I wanted to be as I was heavily influenced by certain teachers whilst I was at school and I don't believe my time at [school name] changed this. (Reflection:15/12)

This was a bold statement from Kate about how she authored herself and her position as a teacher. She used this statement to present herself as a strong teacher, not aligning herself to her mentor, but aligning her mentor to her own ideals and values. As a mentor, he was an authority figure in Kate's placement; however, she positioned herself as being equal. Kate had a clear sense of the teacher she wanted to be starting the PGCE, based on a figurative identity of an outstanding teacher, her own experience of teachers and her history-in-person. However, she made a powerful claim that the placement experiences had not altered that perception, suggesting that she saw herself as already established with her teacher persona before starting the placement. This was a strong positional claim that she perceived herself to be a good mathematics teacher as opposed to being a student-teacher who was there to learn from those she encountered due to the authoritative discourse of her mentor strongly aligning with her own internally persuasive discourse.

Kate told the story of her desire to be seen as an equal to the qualified experienced teachers throughout her placement, rather than being positioned by them as a student-teacher. On many occasions she vocalised her differences compared to Lily and her similarities to her mentor. Kate resisted the position of being seen as a student-teacher and when conflict arose regarding her professionality with a member of staff, she reflected by saying:

> Some members of staff treat and speak to us like pupils - we may be training teachers but we are not pupils. They don't speak/treat colleagues in a certain way and we certainly couldn't behave like that towards them so I'm not sure why it's acceptable to do to us? (Reflection:09/11)

Kate strongly desired to be seen as an equal and was offended by the way this teacher positioned her whilst reprimanding her. She could have refrained from mentioning the issue in her reflection, but she chose to discuss it from the perspective of how she felt mistreated. She refused to take ownership of her own responsibility for the incident (not attending a meeting) or reflect upon what she had learnt from the experience to ensure it didn't reoccur. This highlighted the depth of Kate's desire to position herself as an equal to the teachers, a position that she was eager to occupy even as a neophyte to the figured world of the school.

Whilst reflecting on the placement as a whole Kate commented on the support she received from one of her teachers:

> One of my class teachers was a massive help when planning lessons and their advice certainly improved my lessons. I don't think their behaviour management was the greatest example and so if I had observed them with a different class, I think my initial perception would have been very different. I ended up coming away with a lot of invaluable hints and tips'. (Reflection:15/12)

The tone of this reflection suggested that Kate had a strong sense of the audience for her writing. She was eager to show respect for this teacher and the support that he gave, but she took the opportunity to also give her judgement of the teacher. She sandwiched her negative comment about his behaviour management between his positive influence on her development. This was another example of her positioning herself with respect to qualified teachers. She was eager to occupy a position at least equal to that of qualified teachers and was confident enough to judge others by the qualities which she felt were important. The discussion on his behaviour management influencing her perception of his teaching advice again was a positional claim that she was able to make; she did not perceive herself to be a student-teacher who was there to learn.

5.2.4 Kate: Block A Overview

Kate and Niamh were exposed to the same teachers in Block A and yet it is clear to see that these figures have been perceived differently according to their unique perspectives. The orchestration of the authoritative discourse that Kate experienced was evident through this journey. The authoritative discourse from the university that working with Lily would positively impact her teaching was rejected as she became confident in her beliefs about teaching. However, there was also the authoritative discourse of the school which was not positioning her in a way that she could accept. These contradictions illustrated how she tested out her ideas in different social situations to different audiences and changed and adapted these as they became internalised and aligned with her internally persuasive discourse. Holland et al. (1998) discuss that self-authoring often happens at the site of struggle and often manifests itself as contested spaces or utterances that are considered contradictions. The orchestration of these competing voices gave Kate opportunities for self-authoring.

Kate came onto the PGCE with a strong figurative identity of the teacher that she wanted to be, based on her history-in-person. By aligning the subject mentor to her beliefs and morals about teaching and positioning herself as an equal to the qualified teachers she encountered, her figurative identity was not challenged. Her internally persuasive discourse was closely aligned to the authoritative discourse of teachers in the school. However, positioning herself as an equal meant that she did not see herself as a student-teacher who was there to be educated in teaching, but a training teacher who was able to learn and develop by doing the job.

5.3 Coming Together: Block B

During Block B Kate, Niamh and Danielle were placed together in a school as a trio. The reason for encouraging Kate and Niamh to work together was that they both had difficult experiences in the first placement with a student-teacher who needed support. All three were hard working, organised and had finished their placements on track to be 'outstanding' by the end of their second placement, as defined by the teaching standards. In their final Block A reflections, all three shared the same overall desire to teach engaging lessons with the pupils' learning at the centre of their delivery. Considering the similarities in these approaches, they were placed together to ensure that they were not faced with the same tensions during Block B. However, Kate and Niamh were very different in their pedagogical development, and this became evident and the source of conflict on the second placement.

5.3.1 "We have to try and come to an agreement together on how we are going to teach."

The student-teachers attended the university for two weeks in January before starting a second placement in a different school. This phase is called the consolidation phase. University sessions covered topics such as pedagogy, the theory of education and developing their understanding of issues such as lesson planning and assessment strategies. Kate's reflection on this university phase was that:

> Some sessions have felt like they have just been there to fill time and so I think the Consolidation Phase only really needs to be one weeklong … I am definitely looking forward to getting back into school. (Reflection-Kate:18/01).

Kate's eagerness to return to school and lack of learning from the university sessions supported her strong figurative and positional identity as a mathematics teacher opposed to a student-teacher. In contrast, Niamh had developed her teacher identity as a student-teacher who was there to learn and her reflection on these same sessions said:

> Overall I felt that these two weeks were very helpful in my progression as a teacher. I feel that the sessions came at the right time as we have now had the experience in schools and know which way we are leaning in terms of teaching styles and schools. (Reflection-Niamh:18/01)

However, there was one session about which Kate did speak positively: the lesson planning session. Even though Kate said that she had been doing this 'to a certain degree on my block A placement' she felt that:

> completing a medium-term plan with our trio members gave us an opportunity to work together and get to know how each individual works before getting into school - a very effective session (Reflection-Kate:18/01).

At the start of the second placement there was a sense of camaraderie between the three student-teachers. Each commented positively on the opportunity to work together in university sessions before their placement started. However, early in the placement tensions arose for Niamh when contrasting pedagogical ideas became apparent. Niamh started Block B with a very clear idea of the pedagogy she wished to develop: '…introducing subjects in a relatable and fun way is something I will try to bring more into my classroom in block B' (Reflection-Niamh:18/01). The mentors in their second school encouraged the student-teachers to try different ideas in their lessons. Kate commented 'I think we will have a lot more freedom on this placement to be the sort of teacher we want to be' (Reflection-Kate:28/01). There was greater emphasis placed on solo teaching during the block B placement, with only one class being shared, leading to the contrast of their teaching in these

collaborative lessons being more apparent. The student-teachers were encouraged to take risks in the shared lesson as there were colleagues there to support. This was where the conflict with respect to their practice first appeared:

> I am hoping we get a bit more adventurous with our year 9 classes as that is the time to try new things. Currently I feel the other two are less willing to try new ideas, but I am hoping/think as we become more comfortable with the class this will change. I think the new challenge is that we are all developing our own teaching styles and we have to try and come to an agreement together on how we are going to teach a topic' (Reflection-Niamh:08/02)

Niamh raised concerns early in this second placement and recognised that this might be due to the new environment as they were not yet comfortable with their classes. Niamh positioned herself against Kate and Danielle as being the one who tried to lead the group with respect to being more adventurous and develop their teaching. Niamh had previously authored herself as someone who learnt from the conflicting spaces she encountered and this desire to teach new ideas may have been an extension of her desire to take risks, to make mistakes and then learn from these. Niamh was aware of the audience for this reflection, as her university tutor actively supported the taking of risks in the collaborative lesson; it was the main justifications for them teaching in this model. Niamh had previous experience of the university tutor encouraging the teaching of engaging lessons during the first placement reflecting:

> I felt our university tutor was very helpful and pushed us out of our comfort zone when taking classes. Giving us ideas to make our classes more engaging and enjoyable for the pupils. She was very supportive and always willing to talk things through if we needed. (Reflection-Niamh:18/01).

Although Niamh positioned herself in the trio as the teacher interested in taking risks during the lessons, she recognised that they each had different styles and that these all needed to be taken account of. She recognised that there are different ways of becoming a teacher. My authoritative discourse, as the university tutor, was evident in the way Niamh discussed this pedagogy as she termed them 'engaging' lessons which was the term I frequently used to encourage innovative practice.

5.3.2 "…just give them the formula."

Despite Niamh's vocal desire to take more risks in her teaching, the lessons continued to be taught in a manner that did not reflect Niamh's pedagogy. This culminated in my observation of a lesson where the feedback had centred on the lack of engagement and understanding from the class during the lesson. The lesson had been planned and predominantly delivered by Kate and was very procedural in its delivery. The feedback was a moment of rupture for Kate and Niamh, but in completely different

ways. For Niamh there was a moment of realisation that she did not want to be authored as a teacher who encouraged procedural methods in her teaching; it caused her to really reflect on the teacher she was being positioned as by delivering lessons in this way, compared to the teacher that she wanted to become. It was the moment that encouraged Niamh to be more vocal about the lesson planning and ensuring that her voice was heard. She reflected on the feedback saying:

> Year 9's I am finding the planning side a bit difficult…a certain member of the group can be quite stubborn. Which means that if the lesson plan is questioned, the ideas aren't taken on board. However, I feel that due to the feedback on Friday that this will change, and we will be able openly discuss and challenge the maths in each lesson. (Reflection-Niamh:16/03)

There was hope in this reflection from Niamh that the trio could resolve and overcome these pedagogical challenges. Niamh authored herself as flexible and open to change; she wanted to challenge the procedural teaching that was advocated by Kate. She used the authoritative discourse from the university tutor which aligned with her own her internally persuasive discourse on mathematics teaching to position herself as better than Kate. Niamh was exposed to a range of competing voices: the university tutor, Kate and Danielle's views on teaching, as well as the class teacher and subject mentor. She orchestrated these voices to develop her stance on teaching and drew on some discourses as having more authority than others. She othered Kate as being very inflexible in her teaching which suggests that Kate positioned herself as the leader of the group in that she did not listen to or take on the ideas that Niamh offered. She referred to 'we' when talking about challenging the maths in the lesson, which positioned her as being part of a team where she wanted her voice heard. Niamh was saying that she felt she could learn from working with Danielle and Kate, but importantly that they could learn from working with her as well. Niamh is dialogic in her ability to orchestrate the multiple voices to find a sense of agency in her teaching.

The negative feedback was a moment of rupture for Kate in a different way. This was a moment of realisation for Kate of her figurative identity as a mathematics teacher. Kate rejected the authoritative discourse from the university and instead used the feedback to position herself with respect to her subject mentor, who also advocated for the use of teaching procedurally. Kate did not refer to the feedback or subsequent discussions in any of her reflections and this absence is poignant; it is a rejection of the positioning of Kate from the university tutor's perspective. Kate's subject mentor was supportive of Kate's teaching style and so this gave Kate a voice to maintain her development of teaching in this manner. The targets from the university tutor, with respect to teaching procedurally and developing pupils understanding, continued throughout her placement, and were rejected. My

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formal lesson observations (LO's) highlighted issues such as the pupils 'needed more understanding' (LO-SigFig:19/04), and in the section which asked if previous targets had been met I had put 'Link the procedural to understanding – still something to think about in your lessons' (LO-SigFig:19/04) which highlighted that this had been an ongoing request. The target for this lesson stipulated 'Try to link the procedures to conceptual understanding so it is not just rules, especially if the rules are contradictory in places.' (LO-SigFig:19/04). Her subsequent lesson feedback on vectors also said 'this is confusing without a concrete example' (LO-Vectors:19/04) with her target being 'Try not to confuse pupils with your examples and notes for them to copy' (LO-Vectors:19/04). In her final review targets at the end of the course, I specifically highlighted 'Promote a love of learning by developing understanding within lessons rather than teaching a method.' (Review). Kate also rejected the authoritative discourse of the university with respect to working collaboratively after the moment of rupture, similar to in the first placement. Kate used subtle language in her reflections to show this move away from working collaboratively when she referred to the joint class the following week as 'My lesson with year 9 this week…' (Reflection-Kate:25/03). There was a strong emphasis here on her individuality with this class and a rejection of teaching collaboratively.

The trio continued to struggle to work collaboratively, and the subject mentor in the school suggested they plan the lessons collaboratively but they take turns to deliver the lessons. Kate found this model allowed her to develop her style of teaching as she had more control over the lessons she taught saying 'It has definitely been a lot more effective taking the teaching in turns as our teaching styles are so different but I really enjoy having the extra support in class' (Reflection-Kate:27/04). Kate recognised the difference in their teaching pedagogies but negates its impact on her own style of teaching. There was no sense that collaboration supported her development of teaching. Although Kate was in a trio who were all due to complete the course as outstanding student-teachers, she still desired to be positioned as an individual and in this reflection she claimed that she was able to do this with the altered model. The other two being referred to as extra support in class distanced her further from the collaborative teaching and positioned her as an already confident teacher who planned and delivered lessons without support, she was teaching these lessons as the teacher she wanted to be. Although both Kate and Niamh were outstanding student-teachers there is a sense of competitiveness with both vying to be the leader in the trio. However, with Kate labelling Niamh as 'support' she is unwilling to invest in codeveloping or sharing the position of leader and has therefore made her positioning of Niamh, and more importantly herself, plain.

Niamh found working in this new model did not give her opportunities to share ideas in the planning stage. This was highlighted in her explanation of a lesson which became quite a critical one for Niamh, as discussed at length in her final interview.

> So, there was one that was to do with circumferences of circles and I…said I would quite like to do the string across and around, and the two people I was with kinda said just give them the formula… So, they said just give them the formula, we had the formula in school, and I think because one of them wasn't on the skills enhancement course they didn't really have that [pause] basis that we had of having the knowledge behind it. (Interview-Niamh)

This insight gave some awareness of how Kate was positioned by Niamh. Although in reality there is heteroglossia, Kate presents a monoglossic facade in that she had a strong internally persuasive discourse which she could align with the authoritative discourse of the school. She taught in the way she was taught and was not open to questioning this, hence just giving pupils the formula for circles. Niamh however started to position herself against Kate in this discourse by mentioning that Kate had not experienced the mathematics enhancement course. Niamh authored herself here as a teacher who was exploring the mathematics behind the concepts that they were teaching rather than teaching the class procedurally. She appropriated the authoritative discourse of the university, received via the mathematics enhancement course, and turned this into inner dialogue and then social speech. It became part of her strong beliefs about what it is to be a teacher; she presented to me as having a strong internally persuasive discourse on mathematics teaching. The importance of teaching in context and developing a deeper knowledge of the concepts had, over time, become a hard-won standpoint for Niamh and become her authorial stance on teaching.

5.3.3 "the people that you have a bit more difficulty with you'll learn a lot more"

Niamh used this conflict and the negative space she encountered to consider what was important to her and her development. Rather than saying 'well if it had just be me that wouldn't have happened' (FG:Collaboration-Kate), Niamh used it to reflect on her own thoughts about future teaching saying:

> It definitely made me realise what I would do and what I wouldn't do. And actually its quite good to stand at the back of the class and watch a lesson that I wouldn't teach it that way and be like ok I understand why I wouldn't teach it that way. (Interview-Niamh).

This shows that even nearing the end of the course Niamh positioned herself as a student still able to learn from her peers and used this to position herself against these peers. When further reflecting on the circle lesson, there was a sense from Niamh that Kate thought they should just teach the rule quickly so that they could spend the time applying it. However, Niamh commented that the pupils 'could just not realise the difference between the area and the circumference…Where we spent three lessons trying to teach them the difference and they just weren't getting it' (Interview-Niamh). Niamh

attempted to positively reflect on this lack of learning. However, it was clear that she positioned Kate as a certain type of teacher, one who was not successful in teaching pupils procedurally. Niamh framed this as an opportunity for herself to learn, reflect and inform her future practice saying '…So it was good to see it, and see it almost fail in a way to then see how I can do it better next year by myself. So, I think it was definitely a bonus…' (Interview-Niamh). Niamh was mediating the voices that she encountered and used the experiences of different teaching approaches to decide what she would appropriate, resist, or reject. Although she developed an internally persuasive discourse, this is never complete; it is always changing based on our experiences and the discourses we encounter. Niamh positioned herself not as judgemental in the sense that she knew it wouldn't work prior to the lesson, but as reflective on what worked and what didn't afterwards. She was open to noticing when strategies that conflicted with her style of teaching were successful as well saying '…but where you go I wouldn't have taught it like that but actually I do see it and I do see why that works. So I think on that the development side of it you see both sides of it' (Interview-Niamh). Niamh was open to the heteroglossia. She was aware of different approaches and that one style does not necessarily fit every occasion, and she could use her personal views as just one voice amongst the many and orchestrate them in different scenarios. I would argue that Niamh developed an authorial stance on how she wanted to develop as a teacher because of the conflict and tension she experienced in the placement. When asked about advice you would give student-teachers in this model, Niamh said:

> I think even if it is not going as well as you would have hoped, or you find someone a bit difficult to work with, you will probably learn a lot more from them than you will with the people that you get on with and see eye to eye with and plan a lesson with…But the people that you kinda have a bit more difficulty with you'll learn a lot more. One how to deal with it professionally and two how to compromise and see someone else's point of view. ... Which makes you realise that what either they will teach you something that you didn't realise or how you would do something. There's two ways to it. (Interview-Niamh)

Niamh welcomed these sites of struggle; she viewed them as places to self-author to try out her social speech and develop her internally persuasive discourse thus developing an authorial stance on mathematics teaching. She was able to find her sense of agency amongst these competing discourses.

When Kate was asked at the end of the course to reflect on the tensions in the different style of teaching that Niamh encouraged in their lessons, she replied that 'I think certain things it doesn't work for and that's why I don't use it all the time' (Interview-Kate). Kate had developed a strong figurative identity as a mathematics teacher, one who was a strong mathematician and when asked if teaching for understanding made you a good mathematics teacher she simply replied 'I don't think so or I would have done it more [laughter]' (Interview-Kate). When asked about the video of the university tutor

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teaching the lesson for the focus group, Kate said 'I didn't personally find it useful' (Interview-Kate). She went on to say: 'it was your personality and that came across and that's how I expected you to be in a classroom. So, I don't think I learned anything from it' (Interview-Kate). Kate's only reflection in the lesson was observation on how the tutor acted in the classroom, referring only to her personality rather than the pedagogy that was the focus of the lesson. The lesson explored understanding and the rules were derived from the pupils not from the teacher; it showcased relational as opposed to instrumental teaching. This highlighted that Kate was presenting a monoglossic account of teaching and internalised only the voices that affirm the position of a good mathematics teacher that she perceived from her perspective. The other voices and positioning, relationally or figuratively, were rejected.

5.4 Conclusion

Niamh and Kate authored themselves very differently throughout their experiences. Niamh portrayed herself as a student-teacher, developing her understanding of how to teach and learning from a variety of experiences. Her story was very much about becoming a teacher through experiencing the figured world of the schools and the university. Niamh developed her ability to mediate the voices and the discourse that she encountered in these figured worlds; she understood the heteroglossia and orchestrated these to develop her internally persuasive discourse. She positioned herself as a student-teacher who was still learning and would continue to develop and shape her teaching identities in the following years. Niamh authored herself as a student-teacher who understood that mathematical concepts can be difficult for pupils and as such understands the pedagogy behind teaching conceptually.

Kate came onto the course with a strong view of the teacher she wanted to be and was not influenced by the experiences on the PGCE; she presents an impression of monoglossia. Kate storied herself as the leader in both trio groups, but Niamh started to push against that and re-position herself as both were vying for leadership. Whereas Niamh was open to learning from different styles of teaching, Kate found a script to follow; she followed the standard plot of a mathematics teacher, one where the mathematics is what matters and procedural teaching is uncontested. Kate already viewed herself on the same level as the qualified teachers in her placement schools and found this difficult when she was not positioned this way.

Overall Niamh presented herself as figuring out the teacher she wanted to be throughout the placements and shaped her teacher identities over time; there was a definite sense of the continual development of these identities. However, Kate authored herself as already knowing the teacher she would become and her teacher identities were less open to improvisation. Nonetheless, what is interesting is the similarities in their stories. They were both learning to be the teacher that they do not want to be from observing and working with each other. They both had a sense of how they would teach next year based on their experiences of working together. There were challenges for both working collaboratively in this model and they had played a role until they found their voice on their issues; Kate with collaborative teaching and Niamh in copying the teacher. They encountered different ways of figuring themselves based on the people they encountered and their history-in-person. Kate used this to affirm her figurative identity, whereas Niamh mediated voices to develop her figurative identity over time based on the actors and figures she encountered. Kate came to the course with a strong figurative identity based on her history-in-person and presented as monoglossic in her consideration of this, only internalising one specific discourse. Niamh embraced the heteroglossia and at times struggled to orchestrate the competing discourses she encountered; however, this allowed her to develop a strong internally persuasive discourse on her teaching. These sites of struggle were embraced differently by Kate and Niamh. Although they used similar ways to position themselves, Kate presented herself as complete and already formed as a mathematics teacher and Niamh talks about becoming a mathematics teacher, highlighting differences both epistemologically and ontologically which they applied to their teaching.

6. Data Analysis: The Figured World of the School as a Site of Struggle

This chapter considers the journey of Caroline and starts by briefly presenting her story over the first placement, to contextualise her journey, but predominantly focuses on her final placement. Like Kate and Niamh, Caroline was placed in a trio with a strong student-teacher, Sofia, and a failing student-teacher. However, the story that unfolds in her reflections and interviews focuses on the tension and conflicts she encountered with the school and the teachers as opposed to her peers. The chapter focuses on how she attempted to orchestrate the competing authoritative discourses from the school and the university, and how she used this to develop her authorial stance on teaching. I explore how she attempted to mediate the encouraged pedagogical strategies into her lessons and how this supported her development of a strong internally persuasive discourse on mathematics teaching. I will discuss the moment of rupture for Caroline which caused her to question her positional and figurative identity as a teacher. In this chapter I will consider, through Caroline's stories of her experiences, how she firstly appropriated, then resisted and finally rejected the positions that were made available to her and how the figures, voices and authoritative discourses impacted how she authored herself as a student-teacher.

6.1 Block A

6.1.1 "I can learn from every professional that I meet".

At the start of the PGCE course, Caroline authored herself as a student-teacher who was open and willing to learn from the experiences she would encounter over the PGCE year. She reflected after her first week in school:

> This week I've noticed that there are as many different approaches to teaching as there are teachers and that it is important that I maintain a state of humility such that I can learn from every professional I meet. Every teacher will have something to offer and the more perspectives I can take on board the more I will improve my own professional practice. I hope to always have this attitude in my career and never get to a place where I think I 'know' (Reflection:06/10).

Importantly, this early reflection showed that Caroline was very aware of the complexities of teaching and the multitude of approaches; she positioned herself as someone willing to embrace these multiple perspectives, the heteroglossia, and use it to develop her own teaching practice. She authored herself as a learner and to be flexible and open to evolving. She went on to contrast the teacher's approaches that she had observed in this first week to the theory learnt at university, saying:

> In addition to this I am beginning to notice that there will be a distinct challenge in trying to apply the attitudes and approaches described in the research that we have been reading. The easier way is to stand in front of a class and "teach" and explain. Much more difficult will be creating an environment where students are willing to explore and ask

questions, assisting students to develop meaningful understanding of mathematics. This is important to me because I want to really try and contribute to the shift in culture in the school system. (Reflection:06/10)

Caroline attempted to reconcile these issues by considering her own vision of the teacher that she wanted to become 'which is whereby the onus of the learning is on the students, they develop a love for the subject and I am the facilitator of that' (Reflection:06/10). There was a realisation that this idealised teacher might be in conflict with the school's approach to teaching and that she needed to be adaptable in her stance towards teaching:

> To ensure this happens, and I continue to develop into the kind of teacher I see myself as, I will have to select the methods and approaches that seem to be useful in the classroom and ask myself if they are appropriate for being used in the environment that I am committed to creating classrooms in which I am the teacher [sic]. If they are, irrespective of how I feel about it, disregarding my own personal likes and dislikes, I will adopt those ways. (Reflection:06/10)

She accepted the need to adjust her views to teach in the way expected regardless of her personal beliefs and understood that she might have to fabricate and play the game to align with the school's approaches. Acknowledging that every teacher has a different approach there was also a sense that this fabrication may be different for each classroom she encountered. Caroline recognised that she would need to adapt and be professional with the teachers she encountered. Caroline used this first reflection to strongly position herself figuratively; as a mathematics teacher who strives to develop pupils' understanding, but also as a student-teacher eager to learn from other professionals and adapt this figurative identity if needed.

After the first week of planning and delivering lessons, Caroline reflected that 'I'm already feeling the pressure of having to plan lessons that are meaningful in a reasonable amount of time' (Reflection:13/10). This led her to considering her earlier beliefs about teaching saying that 'It really is easier to teach by method in Maths and I really do not want to do this but I can see why teachers have and still do adopt this approach' (Reflection:13/10). This was the beginning of the debate for Caroline, linking the theory learnt at university to the practice seen in schools, critically reflecting on procedural teaching versus relational teaching. Caroline clearly had an internally persuasive discourse on mathematics teaching, but she showed that she understood why others may choose to teach procedurally due to the pressure of delivering "good quality lessons" and the associated time constraints. This continued through her placement and was still a focus for her reflection much later:

I'm glad that we have chosen to stick to our guns about the kind of teachers we want to be. It's not easy in the face of seeing methods that could perhaps make our lives easier but would actually make the student's lives quite dull. It's very much a process I think of filtering out the useful/objective from the subjective when it comes to feedback while maintaining a humble posture of learning. Not an easy internal balance to strike, but possible with conscious effort. (Reflection:03/11)

This reflection highlights the divide between the practice seen in schools and maintaining her vision for the teacher that she wanted to become. The feedback she received from the subject mentors, along with the lessons the student-teachers were observing, championed a procedural approach to teaching, which appealed to Caroline for its simplicity in planning and delivery. However, she rejected this position that she was being encouraged to take within this figured world, that of a procedural teacher, as it conflicted with maintaining her desire to develop her own pedagogy and her pupils' understanding of mathematics. This reflection suggests that her trio had the same view of teaching and so this was not presented as a personal view where she might be deemed to be negatively positioning qualified teachers in the school, but as a collective view that released her from some of the ownership and accountability for sharing this positioning. Although she mentioned explicitly the desire to stay humble there is a negative feel to her reflection on the teachers whom she observed and there is a strong internally persuasive discourse developing. Her opinion that the feedback needed to be filtered to distinguish the objective from the subjective positioned Caroline as someone who maybe was not there to learn from every professional, or at least not without reflecting on whether the voices married to her own strong internally persuasive discourse on teaching.

6.1.2 "At the moment, I'm willing still to try".

Near the end of Caroline's first placement, she found herself in a position where she needed to reflect on situations that had occurred which had culminated in her considering her future as a teacher. Caroline was aware of the audience that she was writing this reflection for and started by saying

This week I've had to consider carefully exactly what I would like to write here. Shall I be honest? Shall I select the nice bits? Shall I say what's really in my heart? ... I've decided to be truthful at last because I feel this is becoming the only portal left where it is welcome. (Reflection:24/11)

How we are viewed by others is essential as we see ourselves from their vantage point, and we could not have a sense of self without them (Holquist, 2002). Caroline storied herself through her telling of the situation which occurred and her truth from her unique vantage point. How she was viewed through this reflection was important to her and this was evident from this opening line. She also positioned me in this reflection, her university tutor, as someone who would listen to her, believe her,

maybe even empathise with her and that I welcomed reflections about their experiences; in contrast she perceived that she was no longer able to voice her concerns elsewhere. Her reflection then outlined her view of education prior to starting the course and her original aim for her future:

> Before I started this course, I thought I will contribute wholeheartedly to the education of young people in state schools, (a goal I've been working towards for over a decade) stack up enough capital to get out of the intensity and politics of public sector education and serve the society in a different way. For a brief few weeks, my attitude started to change. I started to feel that I could do more, I could give more than a meagre few years of an 80-year life and what's more I should. This week I've come full circle. It's been a week of deeply unpleasant "professional" experiences and my soul feels sick as a result of nearly every one of them. (Reflection:24/11)

Caroline authored herself as very public spirited, having joined the profession for altruistic reasons and wanting to use the experiences in the long term to better society, a common reason people give for joining the profession (Perryman and Calvert, 2020). However, what is interesting in her discussion of this is that she already had an understanding that she was entering a profession that was a very intense environment and constricted by politics, but that this detrimental aspect of teaching had not deterred her from her humanitarian goal. The authoritative discourse from the school, which was in a very deprived area of Manchester serving an area of high socio-economic deprivation, had potentially started to filter into Caroline's inner speech, changing her view on the how being a teacher could fulfil her long-term desire. She was starting to author herself as a teacher who perceived the job as a profession to make a difference to society. However, whatever transpired that week was significant enough to make her question this position. Her highlighting of "professional" signalled that she was questioning the professionalism of some of those with whom she had an encounter, and her use of emotive language showed her feelings and how strongly this affected her. However, she did not give any insights into what these experiences were, she just used them to reflect on how these shaped her own identity and her own positioning within the figured world of this school:

> For my own part, I'm accustomed to speaking with people as equals, regardless of the "position" they hold in an organisation and I'm also accustomed to transparency and a culture of feeling free to ask questions and offer ones thoughts in an atmosphere of genuine enquiry. From what I have experienced this week, this is most definitely not welcome in the sector I thought just last week I would dedicate more than a brief time of my life to. (Reflection:24/11).

Caroline positioned herself at the start of the course as a student-teacher, yet this was a discussion of being seen as an equal. The way Caroline self-authored in this reflection feels different to Kate positioning herself as an equal, there is a sense that Caroline feels that all people should be talked to equally regardless of their position, that there should be a certain level of mutual respect. It is unclear

what positions those involved in this discussion held, whether it was peers, teachers, senior leaders, or even pupils. Her lack of discussion on the specifics of this implies that the idea of equality is not aimed necessarily at those in power but is a moral precept she holds. However, Caroline did talk about her questioning of aspects and offering her own thoughts which had clearly not been perceived by those involved in this discourse in the way Caroline intended them to be seen. The idea that we see ourselves through the eyes of others is important in our self-authoring and this had clearly been a point of reflection for Caroline. There was a sense that the outcome of this encounter had positioned Caroline in a way that she rejected and she extrapolated this to be the rules within the figured world of education, rather than just the figured world of this school:

> …I don't understand the rules of conduct amongst other professionals in the school environment and have realized that I need to learn them. I feel ultimately these rules will leave me feeling compromised and I will leave the sector…I feel sad about this. (Reflection:24/11)

Caroline understood that there were unwritten rules within the social environment that she found herself in. Caroline questioned her understanding of these rules and how they differed from the rules of discourse she had encountered in other aspects of her life. Her figurative identity, based on her history-in-person, was being brought into question by the requirement for her to be positioned in a particular way by the school, an expectation to behave in a particular way, to talk in a particular way depending on who she was talking to and to be positioned in a particular way as a student-teacher. However, this moment of tension caused her to consider how she had been seen from an outside position, and she said:

> I need to reflect more on my own attitudes during those conversations…I need to consider deeply my motive for asking and saying the things I did. My sense is that it may not have been as pure as I may have myself believe it was. (Reflection:24/11)

The words we speak are never neutral; we draw on the words of others to form own thoughts and feelings, we use our words to position ourselves and others (Holland et al., 1998). There was a realisation from Caroline that her discourse may have conveyed more than the physical words were saying, and that there was more being expressed than she may have consciously realised at the time. She used this to reaffirm her figurative identity though, finishing the reflection by saying, 'As I'm writing this, I'm starting to sense that I just need to try harder to uphold the ideals of truthfulness, kindness, loving consideration and encouragement of and for others and abstaining from backbiting.' (Reflection:24/11). These almost religious attributes are the desire that Caroline has for how she wants to be viewed by others, she recognises that she doesn't always project these values, but they are the core morals of her identities.

Caroline found herself in new situations during that week that she had no set response for; she had not experienced dealing with these conflicts whilst navigating the unwritten rules of ways of behaving in the figured world of the school. These improvisations are in response to the subject positions and can lead to a change in subjectivity and an altered identity (Holland et al., 1998). Caroline's ability to recognise how this positioned her within this figured world allowed her to have a sense of agency, even if that meant rejecting this position and considering leaving the profession. Caroline recognised the competing discourses that she was exposed to and the different positions that she was able to take in response to these within the socially constructed figured world when she concluded her reflection saying:

> Yes, the social environment is full of destructive forces but it is equally full of constructive ones, and I need to orientate myself towards the latter and strive to be more refined in my own conduct. Maybe in this way I will be able to stay in public education. At the moment, I'm willing still to try. (Reflection:24/11)

Caroline showed that she believed she had agency, that she had some control over her own behaviour and that she could use the situation to be more aware of how she positioned herself and who she aligned herself to. She showed how she might start to orchestrate some of these voices to position herself in a way which aligned to her internally persuasive discourse and her figurative identity.

6.2 Block B
6.2.1 "initial impression that I wasn't in a "real" school"
Caroline's second placement was in a newly formed multi-academy trust school as part of a trio with Sofia. Caroline's first reflection in the new school opened with her thoughts about the school:

> I was a little taken aback by being told about several Math's lessons being taught by non-specialists. I felt really sorry for the kids. We did observe one of these lessons and although the teacher did his best, it was clear he didn't really know what he was talking about. The same teacher told me, he has been teaching three other subjects that are not his own. It left me with an initial impression that I wasn't in a "real' school. There were other times, during the two days I was able to go in, that left me with a surreal feeling that I was in a place that was pretending to be a school. (Reflection:25/01)

The fact that this was the opening line to her reflection for this first week highlights what an issue this was for Caroline. This clearly jarred with her preconceptions of what a school should be. Caroline had previously developed a strong internally persuasive discourse on her views of mathematics teaching and the fact that these lessons were not being delivered by a mathematics teacher had raised questions for her about more than just the pedagogy she was observing. There was a feeling from Caroline in this reflection that this was a fundamental aspect of education. Her feeling 'sorry for the kids' links into her previously mentioned

philanthropic desire that teaching should focus on the betterment of society, so the fact these pupils were not being taught by a specialist teacher was a real concern for her; to the extent of questioning the validity of the school. She positioned herself with respect to this non-specialist teacher when discussing the lessons she observed and her judgement of his lack of confidence in what he was teaching. The fact that Caroline judged his lesson as ineffective and showed empathy for the pupils shows that she positioned this qualified teacher in a certain way; in doing this she has positioned herself as a 'mathematics' teacher.

When discussing some of the tensions and challenges that Caroline had faced over the course of the PGCE she commented on the conflict that she had felt about the school. In her final interview she said, 'That was the biggest challenge for me when I was being told what to do by individuals that I knew were not getting their ideas from anything that was to do with actual research' (Interview). When asked to give a concrete example of what she meant she discussed an incident in a staff meeting that she had attended where the headteacher was leading the discussion:

> …and the Headteacher stood at the front and just the way she spoke to the staff I thought one this is horrendous…we are in another teacher's class, and she looked over and went "what is that on the wall". And it was this beautiful display of the students' homework and she went "that needs to come off. Students work shouldn't be on the school wall. I'll tell you why. One it's never marked and two it's always wrong." Honest to God and I was shocked I just thought, like is that actually based on anything. Like I don't think it is, I think that is just your personal preference about how your school should look. That was just one example and I thought… and you are the Headteacher. (Interview)

In this discussion Caroline showed an appreciation that the headteacher was the most senior member and the most authoritative voice in the school and therefore in the position to make decisions about her school. However, the fact that this was the situation Caroline chose to discuss when asked about tensions in the school, shows that for her this was a critical issue, filtered from the most senior member of staff to those below. Caroline had previously discussed how she felt everyone should be spoken to as equals regardless of their position in the school, and it feels that this fundamental belief was highlighted in this data. Caroline used emotive phrases such as 'horrendous' and 'honest to God' showing how this conflicted with her personal beliefs about how people should be treated. Subjectivity was raised a few times in Caroline's reflections with an emphasis on her feeling that decisions should be based on something concrete and not just personal whims; one of the key issues for Caroline is that these decisions should be based on research.

6.2.2 "It's literally putting me off being a teacher".

As the placement progressed Caroline's view of the school did not improve. Caroline found herself later reflecting on her thoughts on the school, saying:

> I have searched and reflected, in depth and daily, to try and progress in my attitudes to the school I've been placed in. I've diligently identified my own shortcomings, made allowance for the changes taking place in the school, but still, I am left with the conclusion that this is probably one of the most toxic environments I have ever worked in. I am skilled at turning a situation around in my mind to see only the good, but, being here has stretched that ability to its limit, and borders on living in complete denial of reality. (Reflection:01/03)

Similar to highlighting her concern in Block A, Caroline does not actually discuss what has happened to elicit this reflection on the school. The reference to making allowances for the changes taking place was due to it becoming a multi-academy trust. This meant that staff were being asked to implement new behaviour policies, new lessons structures and classroom routines were being unified across the whole school. Referring to this as the 'school she had been placed in' shows that Caroline distanced herself from the school and their ideals. She has suggested that she was there through sufferance and not through choice. This started to become a personal conflict for Caroline, as she went on to say:

> I never for a second thought that my days of training to be a teacher would be a daily struggle to maintain my integrity in a place that is full of backbiting, faultfinding, hypocrisy, fear and favoritism, and having multiple faces depending on who one is speaking to, or how that person can bring some benefit to oneself/one's own progress. It might not even be about progress, just a base instinct that the culture has brought out in the staff to survive. It's literally putting me off being a teacher. (Reflection:01/03)

Caroline's integrity was clearly important to her and a fundamental aspect of her efficacy as a teacher. However, she was not only discussing her own conflict in the school in this reflection, but strongly suggests that other staff were affected in the culture that she perceives to have been developed. The labels she uses that are significant in this are 'hypocrisy', 'fear' and 'favouritism'. These are strong emotive words to show both the power imbalance and the positioning that is evident in her assessment of the school. The notion of fear goes beyond disagreeing with a school's pedagogy or ideology, to a perceived detrimental effect, potentially to careers, if people did not conform to the policies being implemented. It is unclear whether Caroline herself is fearful or this is her perception of how other people are feeling. The fact that she has highlighted favouritism suggests that she is aware that she herself is not in a favoured position, as a student-teacher whose lessons are not necessarily aligned to the department's pedagogy (as discussed later in this chapter). However, she highlights that there is a culture in the school of prioritising certain people who are perceived more favourably.

These words not only position Caroline and intimate her feelings of being powerless, but also her perception that significant figures in the school hold the authority over others. Caroline was aware of multiple figures and multiple ways of being in this social world, the figured word of the school, and that she needed to be aware of the voice she used depending on the audience. There was an understanding that people are not just one voice, one identity, one discourse, but that we are orchestrations and arrangements of the voices we encounter. The idea that people's behaviour in the school is based on survival is a strong claim to them not buying into the culture of the school and potentially fabricating to maintain their position, indeed to maintain their job.

6.2.3 "It's much better for all concerned that a teacher's approach is in harmony with the approach of a school."

Regardless of her initial perceptions of the school, Caroline was positive about working in the mathematics department at the start of the placement. When talking about her subject mentor she said 'I am really looking forward to working with her. She seems cheerful and professional and also a good teacher from the lessons I have observed' (Reflection:25/01). When discussing another teacher in the mathematics department she described her as 'passionate' and that she 'seems excited to be able to impart the knowledge she has' (Reflection:08/02). Once Caroline started taking her own classes, she was given the autonomy to design her own lessons. Caroline continued to plan lessons that focused on developing the pupils' relational understanding of mathematics but recognised that there was also a tension with formalising a procedural method in the pupils' books, which was an expectation in the school:

> I want to strengthen my ability to assist students to formalize their learning. At the moment, I seem to be able to create an environment and choose activities where a conceptual understanding of a given topic can unfold, and likewise, I believe I have become better at modelling formal methods that [pupils] can then use. The bridge between the two, really needs to be worked on. At the moment they seem to be operating as two separate entities. (Reflection:15/02)

Caroline was maintaining her figurative identity as a teacher who focused on developing pupils' understanding of mathematics as opposed to teaching them procedurally. She was also positioning herself as a student-teacher who was fulfilling the school's needs of formal mathematics being evidenced in pupils' books and had developed and improved this aspect of her teaching. The formalisation of mathematics is important when teaching conceptually so that the pupils can apply the concepts to different contexts. The reference to these operating as different entities by Caroline is reminiscent of Skemp (1978) discussing procedural and relational mathematics as being two different subjects taught under the same name of mathematics. What Caroline attempted was to find a way of linking these two aspects into a lesson which maintained her own style of teaching, the

school's expectations and supported the pupils' learning. Caroline was authoring herself as a student-teacher who wanted to learn how to bridge these two in order to become an all-round better teacher.

However, the very next day Caroline sent an e-mail to ask if I 'could come in on one of the days that…the class teacher is in' (e-mail:16/02). The fact that she wanted me to observe when her subject mentor was in highlighted that she was not comfortable with the feedback she was getting and that she wanted joint feedback. This one phrase positioned me as an authoritative voice for Caroline in the figured world of the school. She went on to describe the lesson she had delivered that day and the feedback she had been given:

> I had an observation today…the kids I think were really engaged…I feel like their conceptual understanding advanced but I kind of ran out of time to get on to paper. The class teacher was really positive about the start of the lesson…At the end of the class, we reflected about the collaborative element and exploratory approach to the lesson. I mentioned I could have reduced the activity to fewer questions to then have time to formalize the learning…I don't think she's convinced about my approach to teaching the class. And of the three lessons I've planned and taught, I get the impression she thinks the kids haven't learned anything as each time she has given an extra lesson to the same topic. (e-mail:16/02)

Caroline positioned her subject mentor as someone whose approach to teaching was different to the approach that Caroline was trying to develop; there was a contrast between their styles. Caroline was developing her pedagogy based on the theory that had been advocated at university and by the university tutor's presence in school, and so the practice-theory divide was evident in this e-mail. She recognised that she did not formalise the learning due to prioritising the conceptual understanding, but by reflecting on this she had considered strategies to ensure this would not happen in future. There was a willingness to learn from the mistake she made with her time management to maintain the required balance in her lessons. Caroline's perception of this discussion with the subject mentor however, was that this was not sufficient as the subject mentor questioned the learning of the pupils and Caroline's whole approach to teaching.

Caroline clearly tried to justify her approach to teaching as she went on to say 'We chatted about the whole approach and she said "I know the idea is to be innovative but…I've talked to other teachers and they told me to teach in this way to manage the class" (e-mail:16/02). The school's authoritative discourse is evident in the advice that the subject mentor gave to Caroline. She herself had been told to teach in a certain manner and that shaped the feedback she gave Caroline. The subject mentor was a recently qualified teacher (RQT) in her second year of teaching. Caroline has positioned the subject mentor as inexperienced, drawing on the advice she had received from other teachers. This position

was substantiated by Caroline saying the subject mentor was going to seek further advice from a more experienced teacher and she wanted me, as the university tutor, to be present for this discussion:

> She wants to talk to about it, but I'm wondering if you would be able to meet with her as well. I think she's really worried about their [pupils'] progress anyway and mentioned they're behind on the syllabus so probably feels a heavy responsibility to make sure they learn the rules and methods in preparation for next year. (e-mail:16/02)

Caroline positioned her subject mentor as one who was feeling the pressure of performativity and that this pressure was being communicated and passed down to Caroline. This had led Caroline to speculate that this was the reason that she was being encouraged to teach rules and procedures so that they could work at a faster pace and cover the syllabus in a timely manner. Terming this a 'heavy responsibility' for the subject mentor suggests this discourse on teaching rules and methods was dominant in the mathematics department. The fact that the subject mentor talked to the head of mathematics, Kath, about this issue shows that it was a bigger issue than just the subject mentor's beliefs about teaching, but that there was an authoritative discourse that the department were expected to appropriate. Caroline did not reject this discourse but tried to find a way to mediate these competing voices. However, she found it hard to align these when the procedural teaching took precedence over the pupils' understanding:

> At the moment I feel like I'm doing a half job of any approach. I do believe I need to strengthen my capacity as a teacher to ensure the kids are learning the methods, procedures and rules and understand the value of the students having formal methods and procedures, and of course I want them to develop these skills, but I'm convinced after everything we've been taught at uni. that these things are the means to understanding Maths and not an end in itself. (e-mail:16/02)

Caroline tried reconciling, even justifying, the use of formal methods and procedures in mathematics lessons and attempted to find space to have autonomy and to shape her teacher identity in a manner that did not compromise her own beliefs but also aligned with the subject mentor's expectations. She finally reflected that 'Every school will have a particular culture and a particular pedagogy they ascribe to…It's much better for all concerned that a teacher's approach is in harmony with the approach of a school, whatever that approach is (Reflection:15/02). She does not feel that the school's approach is wrong, just that it differs to her own views on teaching. This final thought became more poignant as the placement continued.

6.2.4 Ratio: "It started to become a little bit like a political game."

Realising the growing tension in the relationship Caroline had with the department, I met with her to talk through some of the pedagogical issues and she discussed a lesson that she wanted to deliver on ratio. Caroline had researched the topic and had some literature on different approaches to teaching

ratio. She focused on a particular article which talked about making mathematics concrete by using real-life examples that the students could relate to. This was based on the 'realistic mathematics education' material which is actively used and researched at the university. Caroline had printed off the articles and the ideas from the research were used to plan a lesson together that would be suitable for her class. The lesson involved making smoothies with real fruit in the food technology room and she had discussed the feasibility of this with the technology teacher. The idea was that pupils could physically multiply up and down in a ratio to alter the amount of smoothie made, but it also allowed for ideas such as half a banana, or quarter of an apple. There was a very physical, practical, realisable element to cutting up fruit. However, when she e-mailed the lesson plan to her subject mentor, a tension arose. When she reflected on this lesson at the end of the course she said:

> …I wanted to teach a lesson on ratios using fruits and bananas and so that the kids could learn proportion. So if I have two bananas for one person… how many would I have for three? ... So I sent an e-mail to the class teacher [subject mentor] who then replied and cc'd in Kath [Head of department]. So it started to become a little bit like a political game. (Interview)

There was already a sense from Caroline that the subject mentor needed the support of the head of department when discussing Caroline's pedagogy to align with the expectations of the department's teaching. The fact that the subject mentor cc'd the head of mathematics into the reply made Caroline consider how she was positioned with respect to the subject mentor, but also more importantly with respect to the head of department and her place in the mathematics department. It also highlighted the presence of an authoritative discourse in the department. The subject mentor asked to have a meeting with Caroline about this lesson, with the head of mathematics being present:

> …and so I asked about this and then when we sat down, they sat down and they actually had a meeting with me about it, yeah. And they said we are not really happy about this. We are not really happy about this but what you can do is you can use fruit juice instead. Now pedagogically…that's not going to work because using fruit juice is not the same thing as being able to see a separate thing. Like you cant…it becomes more complicated right at that level…And it was just a fight and in the end I thought, ok, fine ok whatever I am just not going to do it. (Interview)

Caroline in reflecting on this meeting refers to 'them' and 'we think'; there is a collective feel to her not being allowed to teach this lesson, it is not simply one person's opinion. She had planned the lesson based on research and literature with the support of the university tutor, so it was a lesson that had been carefully considered for its pedagogical implications, from the perspective of the university. The subject mentor was conscious of this when offering fruit juice to model ratio so as not to dismiss it completely. The use of fruit juice is a commonly used lesson idea for ratio in making cordial to different ratios and scaling up to see if they taste the same. This was a compromise to the lesson that

Caroline wanted to deliver from the point of view of the mathematics department. However, this did not bring in the physical concrete nature of ratios that Caroline wanted to focus on, or the identifying of separate components and fractional amounts. To Caroline it was simply pedagogically different, and that they had not understood her purpose for the lesson or understood the theory behind it. This lesson was a point of rupture for Caroline as it made her consider her own teacher identities in that moment, how she was being positioned by the teachers in the mathematics department and the role that she was being asked to play. This caused her to not just relinquish teaching that lesson but brought into question teaching as a career. She e-mailed me to say 'It's with a heavy heart but a clear mind and unburdened spirit with which I write. I cannot continue with the PGCE. The reasons are complex…The decision for me at this stage of my life is irreversible' (e-mail:07/03). She explained her reasons in her final interview saying:

> Yeah because it was intolerable.' And I feel like I can tolerate a lot, I can put up with a lot…But I'll tell you what made it worse. It was such a compromise on my integrity and what I believe to be right I just couldn't tolerate it anymore. I just thought it's actually becoming a question of my own integrity and to stay here would just be wrong. (Interview)

Caroline had a hard-won-standpoint on what teaching mathematics should look like, what a mathematics teacher should look like, and what a school should look like. She had developed a strong internally persuasive discourse on the teacher that she wanted to become by trying to navigate the tensions she experienced. Her end of course interview focused on this saying 'That was the biggest challenge for me when I was being told what to do by individuals that I knew were not getting their ideas from anything that was to do with actual research and the way maths education should look' (Interview). Caroline appropriated the authority of academic literature to answer other people's claims against her (Holland et al., 1998). Teaching based on theory became a key element in shaping Caroline's teaching identity. When the ratio lesson was discouraged by the mathematics department, Caroline decided she was not willing to compromise her integrity to play the game anymore. She said in her final interview:

> I think the point is that I felt in the beginning like I had to play the game. Like this person wants this so I'll do that for them. But then after a while I started to be able to filter out what it was that… I think I just refused, I just stopped saying to myself you need to play the game. I thought I'm not here to play a game I am here to become a teacher and I am here to become a good one (Interview).

This recognition of her playing a game links to Hollands et al.'s (1998) concept of neophytes following the unwritten rules of the game in particular figured worlds, as well as Prior's (2009) discussion on counter-agency. Caroline started by appropriating some of the ideals of the mathematics department

and revising her actions to be in line with the school's expectations. She tried to mediate by incorporating different aspects such as written rules and formal methods into her lessons alongside developing the conceptual understanding. However, when this was unsuccessful there was a resistance to this tension, the idea of playing the game, of fabricating to meet the expectations whilst figuring her own identities as a mathematics teacher. However, this fabrication was not sustainable for Caroline, who finally rejected the positions available to her, regardless of the negative consequences. She felt she had no option but to leave the PGCE course.

6.3 "You can't be trained to be a teacher in that environment".

Although Caroline claimed that her decision to leave the PGCE was irreversible, I persuaded her to complete her final placement in a different school, one which was more aligned with her pedagogy. Caroline was placed in a mathematics department that taught 'realistic mathematics education' and worked closely with the university developing teachers' pedagogy. When reflecting on the two placements, she said if 'you're just stuck in a school like [school name] for example, it's going to be hell. You can't be trained to be a teacher in that environment' (Interview). When asked about the role of research in teaching she said 'And I felt like everything that we had studied at university, like we are not being given this research for fun. It's because it works, you know' (Interview). She went on to use the role of research in teaching to justify comparing the teaching in the two different schools she experienced, saying:

> I've seen the two different schools Fiona…I've been in a school that makes decisions based on their personal whims and I feel like this on this day. And it just, it just wipes me out. And actually now I've come into this school that doesn't do that, that does draw on research…They are actually sending their staff out, out to these institutions like [university] and saying this is the research, read it apply it, read it, apply it, and this is new research you know. What a difference, what a difference. Yeah there's a place for it, and I think anyone who tried to separate it is off their head. (Interview)

Being placed in a school which aligned with her beliefs about teaching meant that Caroline could develop into the teacher she wanted to be. Caroline thrived in this environment, one where implementing research into lessons was expected and this authoritative discourse was filtered down through the senior leadership team. Her final reflection on the role of research in developing student-teachers and the effect of the atmosphere created in a school said:

> This school that we are sitting in… great if you get into a school like this, if you are getting into a department like this… that is actually sending all of their teachers on the training courses at [university] and so all of that research and knowledge is filtered down into the

department. If you get into a school like this one you are very lucky…you'll be great, your training is going to be great… (Interview)

Caroline strongly aligned herself to developing her teaching based on literature and research and when she found a school that fostered this environment she was able to grow into the teacher that she had wanted to be. She found a school where their ideology and pedagogy married to her own internally persuasive discourse on teaching, and this helped her to develop her authorial stance on teaching and the teacher that she wanted to become.

6.4 Conclusion

Caroline started the PGCE saying that she was open to learning from the professionals that she would encounter over the course of the PGCE. She talked early on about the challenges of applying the theory learnt at university to the lessons they were observing in schools and considered the reasons for the difference in approaches, with one being easier and quicker to plan and deliver. Although she said she was open to change to meet expectations, she also had a strong idea of the teacher that she wanted to be and the classroom that she wanted to develop. When tensions arose in respect to the culture in the school as well as the theory and practice divide (instrumental versus relational teaching), Caroline tried to negotiate a way to author herself within these constraints. She attempted to teach the lessons for conceptual understanding whilst focusing on formal procedures being copied into books. However, the authoritative discourse from the school could not be appropriated by Caroline, and even resistance was not sustainable. This led to Caroline rejecting the positions made available to her in the figured world of the school and led to her considering leaving the profession. The tensions that Caroline experienced in the school allowed her to develop her ideas, to try alternative teaching ideas and to focus on what was important to her. Her integrity in teaching was crucial and when she saw how she was being positioned by others, there was a moment of rupture; a realisation that she needed to make a change and she thought her only option was to leave. The tensions Caroline experienced significantly shaped her teaching identities and developed her hard-won standpoint on how to teach. The final placement that supported her pedagogy allowed her to explore this and develop a strong authorial stance based on her actual experiences of her identities as a mathematics teacher.

7. Data Analysis: Positionality as a Site of Struggle

This chapter follows the journey of Jake, mainly through his first placement. Jake was placed with only one other student, Rhiannon, rather than a trio due to numbers of students on the course. This chapter considers how Jake positioned himself in relation to Rhiannon, a strong student-teacher, throughout the placement. His story also considers how he was positioned by the subject mentor with respect to Rhiannon and how he challenged the expectation for him to masquerade as the teacher that the subject mentor wanted him to be. Jake experienced conflict with both the subject mentor and the head of department regarding the teaching persona he was trying to develop, and this chapter explores how he authored himself with respect to this tension. The chapter also considers Jake's discourse during the focus group on the tessellation lesson (FG:video), taught by the university tutor. Jake used the authority of the tutor in the video to answer other people's claims against him. This chapter will consider how he used this experience to position himself with respect to the university tutor as an authority figure in the figured world of both the school and the university, and how this helped to shape his teacher identity.

7.1 Block A

7.1.1 It is not "meet in the middle" it is more "eighty-twenty".

In his first two weeks of the placement, Jake reflected on the mathematics lessons he had observed, mainly focusing on behaviour management strategies. After delivering his first lesson, which had been scripted by the university, he received feedback from the class teacher, Miss Jones. One of his targets was to '[keep] them in a routine on behaviour management' and his explanation for this feedback was 'as I used the 5,4,3,2,1 approach where Miss Jones doesn't use that approach with the students' (Reflection:05/10). The school's focus on maintaining and unifying classroom routines and methods across departments was evident in the following week's reflection when Jake commented on the benefits of observing lessons prior to starting teaching:

> [observing] has been very helpful, allowing myself to see the methods and procedures that are used in the school as to keep the students on the same routine throughout their time and the teaching. This is being vital in the school to keep them in a routine and to make sure they stick to it, having seen several of the teachers keeping to the routine, I feel it would be wise to do the same. (Reflection:12/10)

Jake suggested here that some teachers may not have adhered to the routines throughout the lessons that he observed but that there was value to these being applied consistently. The authoritative discourse of the school is evident in Jake's reflection; the vitality of keeping to the routines gives a strong emphasis of the expectation and his feeling that he had some agency in this, but that he felt a strong conviction that he should conform.

Jake's reflection regularly focused on the behaviour management including his discussion of his targets:

> Being sterner, was something our PM [professional mentor] picked up on as we let the noise level get too loud and didn't control the class to the extreme, even though they did do most of the work set, it was maybe not as a productive environment as I had hoped. (Reflection:19/10)

There was judgement evident in Jake's language in this reflection when he talked about not controlling the class to the 'extreme'. This suggested an almost authoritarian atmosphere that was required in the classroom. He had shared this as his target for the week, although there was a sense that he did not completely agree with this feedback. The noise level, according to Jake, had not prevented the pupils from completing the work therefore justifying that the extreme control of the class may not have been in line with his own beliefs about teaching. The idea that this was not as productive a lesson as Jake had hoped suggests that he was disappointed with the feedback; the issue with the noise level was not in line with the expectations for this class and this positioned Jake in a way that was not favourable. There is no discussion of the teacher commenting on the learning of the pupils who completed the work set or the pedagogy developed in the lesson, just behavioural management issues.

Jake's reflections whilst focussing on behaviour management often directly linked this to the perceived success of a lesson:

> The lesson for me felt like a bit of a disaster but wasn't too bad looking back. The main reason was due to low-level disruption which I allowed at the start of the lesson accepting a student's answer through them shouting out instead of not accepting the answer because of the shouting. Then from that point, low-level disruption started to occur in pockets around the class, i.e; talking when I was talking, shouting at [sic], looking around and not focusing. This is a big target I need to work on. (Reflection:09/11)

Jake was able to analyse his lesson to identify where the subject mentor perceived errors occurred, then consider how the pupils had escalated their disruptions from that moment. The expectation of the school comes through in this reflection with his acknowledgment that he should not have accepted the answer that was shouted out regardless of whether it was correct or not. He authored himself as reflective and adaptable, considering how to improve from this feedback in future lessons. This was a lesson that Jake taught without Rhiannon as she was absent due to illness. He had therefore tried to implement his own behaviour strategy in this lesson and had allowed the class a certain amount of leeway by not focusing on the routines that had been established and this led to what he termed a

'disastrous' lesson. Interestingly he commented on the use of the countdown strategy again in this reflection when discussing this lesson:

> I felt I could also control the class better with the use of 5,4,3,2,1 and in getting them to be quieter, quicker which would allow me to continue with the lesson and keeping the pace of lesson up to the pace I know the students can work at. (Reflection:09/11)

Jake's use of the countdown strategy is unclear, as he had previously been told not to use it with Miss Jones' class, and so I am unsure whether he is saying here that he would have been able to control the class more successfully if he had been allowed to use it, or if he is saying that he did use it and it was successful. The tense of the reflection and the 'would allow' makes me think that it is the former. Either way there is a sense from Jake that the countdown system was a successful strategy. However, he contradicted this when the tutor group were discussing behaviour management in the focus group a couple of weeks later, where Jake said, 'Cos I've got to do the 5-4-3-2-1 thing, which I personally don't like but I've had to use it'; he also commented that 'it's not how I naturally do it' (FG:Collaboration). Jake was aware of the audiences that he was talking to and was testing how he felt about certain issues through social speech. Contradictions do not cancel each other out (Solomon et al., 2015), but offer insights into the way Jake was testing out his ideas and then appropriating or changing them as he developed an internally persuasive discourse. Self-authoring happens at the site of struggle, and this often manifests itself as contested spaces or utterances that are considered contradictions (Holland et al., 1998). There was an indication from this comment in the focus group that Jake was starting to resist the authoritarian style of behaviour management that he was being encouraged to develop. His reference to this not being how he would naturally do behaviour management suggests that he was adapting his natural teaching in order to fit into the expected role, but that he was resisting this by holding on to his aspirational figurative identity as a preference. He was very subtly describing the figured world of the school as he saw it and his positioning within this world; a student-teacher who was expected to comply. His resistance to conforming became more prominent when he went on to discuss how Rhiannon responded to these expectations:

> It's like with me and Rihannon. It's something that we discussed with Sian [subject mentor] because I am definitely a lot more laid back in terms of my teaching style compared to Rhiannon and especially Sian. So it was kinda like I had to come out a bit from my comfort zone of what I wanted to see myself as a teacher because I have to be in line with Rhiannon and with what Sian kinda wants from the classroom environment. (FG:Collaboration)

Jake stated his vision of the type of teacher that he wanted to develop into and used the conflict within his lesson to highlight this figurative identity as being important to him. However, he also re-stated authoring himself as adaptable given the expectations and especially given that Rhiannon was aligned

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to Sian's teaching style. Jake termed his desire to be more 'laid back' in lessons as a teaching style rather than discussing issues around pedagogy. Jake aligned the characteristics and attributes of a teacher, which link to their behaviour management or teaching persona, as being the most relevant aspect of his teaching identity; that of being less strict or stern. He stated here the clear expectation that he had to align with Rhiannon as she was already making progress in the classroom environment that Sian, and by extension the department, expected to be created. Jake positioned himself against Rhiannon, saying that she was being favoured in respect to her style of teaching whereas Jake needed to adapt to be seen as equal to Rhiannon. He went on to say:

> So, I feel like that is kind of a struggle when you are doing this team-teaching collaborative thing because you have an idea of what the kind of teacher you want to be, but you don't always… to be fair I don't feel like I've got the opportunity to actually be the teacher I want to be. (FG:Collaboration)

By stating that he had not yet had the opportunity to try to teach in the way he desired in one respect absolved him of the responsibility of his teaching not always being successful concerning behaviour management as he was trying to masquerade as the teacher he was expected to be. He recognised that he did not fit the mould of the expected teacher within this department and the position available to him. However, the fact that Jake felt Rhiannon occupied this position caused further pressure for Jake to conform:

> …and I've told Rihannon this as well, because she's in line more with probably how Sian teaches, I think it's a lot easier for kind of Sian to turn back and say well because Rhiannon's already like this then you've got to be like it… She does know we've got different personalities but obviously it's not "change so we meet in the middle", it's more like "eighty-twenty". (FG:Collaboration)

He shows in this discussion how he positioned himself with respect to Rhiannon, from the perspective of others. He viewed himself and his position from the vantage point of Sian and there is a hierarchy of power from Jake's point of view highlighted in this discourse. He clearly stated the expectation for him to adapt and change to teach in a certain manner. Sian has been placed in a position of authority in Jake's reflection and Rhiannon being compliant has meant that he has been positioned as needing to change in order to meet expectations. This implies that he views Sian's perspective of him as being a weaker student-teacher with respect to Rhiannon. His view is that he has to adapt so that Rhiannon and himself have a consistent approach to their classroom management. Jake's reference to this adaption being eighty-twenty suggests that because Rhiannon already models Sian's expectations for the teaching in her classes that it is therefore himself who needs to change his style. This moves him further away from the teacher that he wanted to develop, more so than meeting in the middle would. He recognised that they are viewed as individuals, but they are not seen as equals;

they are not being given the same affordances to develop their own style of teaching. He authored himself throughout this discussion as adaptive, although he has made it clear that he has not given up on developing his desired figurative identity. This links to what Prior (2009) termed resistance, the most active sense of agency. Jake was aware that he was not fully appropriating the advice about his teaching style that Sian was requesting, and he was resisting the position of being the teacher that was expected; to be 'sterner'. He had an internally persuasive discourse on the type of teacher that he wanted to become and suggests that he is merely adapting to meet the expectations rather than appropriating this discourse on teaching.

Jake's position of himself from the vantage point of others continued to cause him tension when he felt he was being positioned with respect to his peer. In a later reflection, Jake complained about Rhiannon and how he felt an incident reflected on him:

> Tuesday, I wasn't in school. Wednesday, I went in to find out Rhiannon had already marked the year 7 books, which was slightly irritating because after the year 8 marking, I felt like I needed the practice more than she did. However, I do know that she did it so we didn't fall behind in the marking process if I wasn't in school on Wednesday. (Reflection:23/11)

Jake's irritation is interesting as he did not appear grateful for the marking that took place when he was unwell. Instead, this appears to be another example of Jake positioning himself against Rhiannon when his opportunity to improve and be considered an equal was removed. He has authored Rhiannon in this reflection as being organised and recognised that it would have become an issue for her if Jake had not returned to school on the Wednesday. However, rather than being thankful for the support, or remorseful that his absence had put Rhiannon under additional pressure, Jake focussed on the derogatory connotation of how he might be perceived and his lack of opportunity to improve through practice. There was an implication from Jake's reflection that he had wanted to use the marking to show that he had listened to and applied previous advice, but this opportunity was withdrawn; his opportunity to elevate himself was removed.

7.1.2 "I want to be who I want to be not because of what you're telling me to be."

Jake and Rhiannon taught a year 10 class together for the head of the mathematics department, Mrs Kath McGuinness. The lesson plans were submitted two working days in advance in order to allow time for the class teacher to provide feedback on the lesson and suggest any changes that were deemed necessary prior to delivery as is the universities expectation for student-teachers. The subject

mentor, Sian, supported Jake and Rhiannon with their lesson plans for this class as Kath was often very busy. When Jake and Rhiannon taught the lesson, Jake reflected that it had not been successful:

> Then the Year 10 lesson was quite bad. After changing our slides, and questions to what was wanted. The Class didn't have a clue and I feel wasn't down to our explanation but due to the nature of the layout of the re-changed lesson. During our feedback from Mrs McGuinness, we were told we should have done it in the way we had originally planned to take the lesson, which was very frustrating because being told one thing then being told you should have done it the other way is a bit of a nightmare. (Reflection:30/11)

Jake's frustration at trying to comply and implement the changes requested which led to an unsuccessful lesson is evident through his reflection. He absolved himself of the responsibility of the class not understanding by saying that it was not down to his explanation, the part he was responsible for, but due to the advice they had been given by their subject mentor. Mrs McGuinness validated Jake's position in the department as a mathematics teacher by saying that they should have delivered the lesson as they had planned. This comment from Kath could be seen as supportive, positioning them as being able to question the feedback they received on lessons and to decide whether to implement changes or not, rather than to always respond to the feedback received; empowering them to have confidence in their own lesson plans. However, it could also be perceived as Kath redirecting the accountability for the failure of the lesson back to Jake and Rhiannon and their decision to change it; the lesson was their responsibility and blame could not be placed elsewhere, reinforcing that they were ultimately accountable.

Jake had referred to the head of mathematics as Kath in previous reflections; however, in this account he referred to her as Mrs McGuinness. The decision that Jake made to refer to her as Kath, or as Mrs McGuinness, is not socially neutral; this decision indicates claims to the social relationship between Jake and Kath, as well as to me as the intended audience for this reflection. The fact that Jake chose to call her Mrs McGuinness either denotes his position in relation to her during this discussion, that of student-teacher and head of department, or distances himself from her in terms of the relationship they had previously formed as the discussion took a more emotional turn:

> There was also a discussion about how to have the class in the way Mrs McGuinness has it, in the fact that the class is very silent and only answer questions when asked to do so. Very regimental in the way. And me and her had, not quite heated, but quite a discussion on how I felt it was her role at the school that played a larger impact on the regimental style of her classroom. With her saying that she has had her classroom this way since halfway through her NQT year. (Reflection:30/11)

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The feedback from the lesson focussed on the behaviour management of the class. Jake had decided to share this account of the meeting in his feedback to me, so this was clearly an issue that he felt strongly about. Jake had noticeably authored Kath as authoritarian with the use of the term 'regimented'. He used the word 'regimented' twice in his description of her classroom and he implied he did not agree that this was an environment that he wanted to create. However, Kath had an expectation that this was the way her class should behave regardless of who was delivering the lesson. Jake's reference to her position of authority in school, as the head of department, impacting the management of her classroom was possibly Jake claiming that it was therefore acceptable for his classroom not to be this regimented as he was not in a position of authority. He authored himself as being less controlling of the environment, a teacher who allows more discussion in the classroom and for pupils to answer questions in a less controlled way. He othered Kath to do this and comments on the power relationship that was at play with herself, Jake and her class. However, Kath's response that she had maintained this classroom environment since her newly qualified teacher (NQT) year contradicts this being about her position. She reclaimed her own figurative identity as a teacher who felt maintaining this level of behaviour management with a class was important to being a successful teacher, as attested by her head of department role. Kath positioned Jake in a way which challenged his claim about his figurative identity being impacted by being a student-teacher and claimed that a more authoritarian stance was an option for him to explore, a position that he could and was expected to occupy. Jake had evidently shared his views on the nature of this classroom and the teacher he wanted to become as my feedback to this reflection stated, 'I know you have a strong sense of the teacher you want to be, but don't miss out on these learning experiences because you are blinkered to your style' (Tutor's written response on reflection:30/11). Jake had developed an internally persuasive discourse with respect to his teaching identity with his previous voicing of this to the university tutor. Jake strongly projected his desire to be a certain teacher for myself to comment on the reflection in this way.

Kath positioned Jake distinctly as a student-teacher by drawing attention to her own training in her NQT year and positioning herself as better at classroom management at a similar point in her career. Jake reflected on how this made him feel by saying:

> It was quite annoying to sit there and listen due to feeling like I was being told off and I was one of her students rather than one of her peers. With her also saying that I wouldn't get very far as a teacher if I thought this way. (Reflection:30/11)

Jake viewed this conversation in terms of the relations of power that were evident. He tried to discuss his views on behaviour management and the classroom he wanted to develop and was told

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that he needed to comply with Kath's expectations. Jake asserts in this reflection that he is a peer to Kath, and as such, he rejects the position of a student and asserts his desire to be seen as having equal standing. There is a contradiction in his overall reflection on this discussion with Kath, because he refers to her position as head of department impacting the authority she has in her classroom, and then later refers to her as a peer which negates the position of authority that she has over him as a member of her department. However, Kath readdressed how she had been positioned by Jake by unequivocally reminding him that he is a student-teacher as Jake referenced the perceived tone of the meeting and her comment on his future prospects in the profession. The tone of the discussion leads Jake to feel he was being told off which suggests that Kath was not prepared to change her expectations, but that she authored herself as being in a position of authority over Jake and again reaffirmed his position as a student-teacher.

When asked to reflect back on this conversation, Jake said:

> I think it has changed me slightly on where I was going to be, or where I thought I would be, but I think that was more for the better. Because I feel like if I probably didn't have that experience in Block A I feel like I would have been a lot more relaxed than what I was in Block B and I feel like that would have probably negatively, like been quite negative. (Interview)

Jake has considered the conflict that he felt in his first placement and although he resisted this authoritative discourse at the time, he reflects that it did make him consider how to develop as a teacher in his second placement. He had previously discussed wanting to be a more 'laid-back' teacher which contrasted with the teacher he was allowed to be in his first placement, and there was a recognition from Jake that he implemented some of the advice into his future teaching. He didn't appropriate this authoritative discourse into his internally persuasive discourse at the time and he resisted the position of being a more authoritarian teacher, but sediments from past experiences, our history-in-person, have shaped his teaching identity with respect to being laid back. He went on to say:

> So it's probably for the best but at that point in time I didn't see it. It was probably working it out because it was like this is not what I kinda signed up for. I want to be who I want to be not because of what you're telling me to be. So I kinda understood the points but not at that time I guess. (Interview)

This interview excerpt suggests that Jake felt it was important to have agency over developing his teacher identity; his autonomy on becoming the teacher he became was important to him. He made changes he perceived were valuable rather than because he had been told to make them. He

authored himself as a teacher who knew his own mind and had his own style of the teacher that he wants to become.

7.1.3 "Only a few times I got to be the teacher I wanted to be."

Jake had a clear sense of the teacher that he wanted to become and although he resisted the authoritative discourse from the school, he didn't reject this completely. He held on to this figurative vision of a teacher and his agency in this development:

> I also think I am developing into the teacher I want to become but hopefully I can truly be who I want to be as a teacher but I feel this is hard during the early years of teacher training. I still want to be this teacher I envision for myself but I know it has tweaked a bit and this will also depend on the students and the school I am at. I'd rather follow school policy then adapt around that policy to ensure that I can still be the teacher I want to be but also still following school guidelines. (Reflection:14/12)

The authoritative discourse from the school is evident in Jake's reflection; he is aware that he needs to be in line with school policies and procedures and that he needs to adapt where necessary. Jake's perception is that he is constrained and unable to fully be the teacher that he wants to be due to the restrictions and expectations in the school. His reference to the early years of teaching implies that he knows he will have to continue to comply with externally imposed measures of assessment on his performance and so will not be able to fully develop until he has more autonomy over his own teaching and classroom environment. There is little recognition that the advice given, or meeting the teaching standards, might help him develop into a better teacher; rather, he is holding on to the teacher he wanted to be at the start of the course. There is a contradiction in his self-authoring as on the one hand he has authored himself as flexible in his approach and that he prioritised meeting school expectations, and yet he also had a strong internally persuasive discourse on the teacher that he wants to ultimately become. There is a sense through this that he is therefore masquerading to fit in to the school's expectations as he also commented that '…there was only a few times where I really got to portray the teacher I wanted to become and really feel myself being that teacher' (Reflection 14/12). This was also discussed in his final interview when he talked about his second placement and said 'because in that year 7 and year 9 class, I felt like I was genuinely being how I would be as a teacher. And it felt, it just felt like me' (Interview). He considered how he would be as a teacher in subsequent years without the conflict of complying. The fact that he says how he 'would be as a teacher' reaffirms that he hasn't seen himself as a 'teacher' whilst on his placements as he has not had the opportunity to develop his own style. Jake is using these experiences to consider how to work within the constraints and be the teacher he wants to be when he is qualified; his progress being a journey once

he is not positioned as a student. Jake had developed his internally persuasive discourse on the figurative identity of a teacher, which did not include aspects of pedagogy but instead concentrated on the teacher's personality, his sense of feeling more like himself in the classroom.

7.2 Focus Group on Tessellation Lesson: "I've got more to pick on sorry".

Jake was very aware that he was not able to practise being the teacher that he wanted to be whilst on placement, and the advice and feedback he was given was implemented but not appropriated. The focus group on the taught lesson gave Jake a voice to answer some of the feedback he had been given, and he did this by giving the university tutor 'feedback' on their lesson. When Jake reflected on the focus group at the end of the course he commented 'I was very picky which sounds really bad' (Interview). Jake used the authority of the university tutor in the video to answer other people's claims against him and to bring into question not only the advice he had been given, but also how this aligned with his relational and figurative identity.

One of the first points raised by Jake in the focus group was concerned with the issue of behaviour management, this having been a key element of his reflections throughout the year. He said, 'You didn't challenge like distracting behaviour, like you kinda did leave that to like Niamh and Richard…' (FG:video). This was not phrased as a question asking why I hadn't challenged the behaviour but a statement that the behaviour had not been addressed and an expectation that it should have been. Given that his previous targets from his first placement had been around ensuring that the teacher was in control of behaviour, particularly in Kath's lessons, he positioned me as not being the authority in the room and allowing distracting behaviour to go unchallenged. Jake had been challenged for not doing this and so he took the opportunity to highlight when the university tutor, as the virtuoso, had not done this either. The reference to the other student-teachers being left to deal with the behaviour positioned myself with respect to these student-teachers, at best as an equal. The discussion on this statement with the focus group centred around what behaviour to challenge and when not to challenge, which aspects to challenge publicly and which to do privately along with subtle strategies teachers employ to encourage pupils to comply. The focus became the choices they have as a teacher to choose the bigger issues in their lesson.

Jake used the video to develop his social speech around certain issues which had been raised on his placement. Part of developing an internally persuasive discourse is internalising the words of others, and then trying them out in social speech and then internalising this based on the reaction of others.

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One such issue was the use of the random name generator for asking questions. In his first placement, one of the issues he raised in his discussion with Kath was that pupils were only allowed to answer questions when asked, by using the random name generator. Jake used the focus group to test his thoughts on this and students' misconceptions through social speech saying, 'I feel that the random name generator is like not that good because...if you know someone has made a misconception then you want to challenge them on that' (FG:video). The group responded very positively to this point and a fruitful discussion was had on techniques for choosing pupils to answer questions. This led to Jake really focussing on the target of misconceptions not being explored. Two weeks prior to the focus group Jake's target from the lesson the university tutor had observed was to 'explore key misconceptions' (LO:12/02). His previous targets had also been around listening to pupils 'You asked a pupil for the answer but then didn't listen to what he was actually saying... Make sure you listen to what pupils are actually saying' (LO:07/12). Jake used the feedback on the lesson to raise these issues in the lesson that the tutor had delivered saying:

> It felt like at times you were putting words in the kids' mouths, off their responses. It was kinda like they would tell you something but you kinda heard what you wanted to hear.' (FG:video)

This was an example of Jake referring to feedback the tutor had given him to improve his teaching, but he took the opportunity to point out that the tutor had not done this herself. When asked for an example so that it could be discussed Jake was unable to provide one saying, 'No I didn't write it down...I think it was something to do with the angle' (FG:video). This referred to a pupil giving the wrong calculation of the degrees in a pentagon even though they had used a correct method; it was a calculation error opposed to a misconception. The feedback Jake had received in his lesson was about listening to pupils due to them explaining a correct method which was different to the way Jake understood the mathematics, so he had changed the pupil's method to fit his own explanation and method. This fits with Jake's focus being on the actions of the teacher rather than the pedagogical understanding of a decision the teacher makes. He continued to focus on this point later on in the focus group discussion, coming back to the target of listening to pupils and understanding what they are saying:

> I feel like some answers you just didn't explore. This is something we get told. If they gave you the wrong answer, you didn't really explore it, you were just like "ok you're kinda close" and then just moved on to the next person. You didn't explore what they were getting at. ... I don't think it is something you pick up on us, but it is something that Karl [subject mentor] has said to us. (FG:video)

He was aware of his audience when discussing this issue and was using this to position myself with respect to his subject mentor in school, but also in respect to himself. He expressed that he shared a

target with the university tutor, that neither of us explored what the pupils meant, that we are equals. There is a sense of a certain camaraderie in this positioning of the university tutor with Jake. However, I had given Jake similar feedback to this in formal observations, such as 'you didn't really get her to explain, you presumed…' (LO:16/11). The notion that his subject mentor was focusing on issues that the university tutor had not 'picked up on' suggests that the authoritative discourse from the school is used to highlight a different focus between the school and the university. Yet his feedback from observed lessons by myself had focussed on similar issues such as doing the mathematics to them rather than with them and including them in explanations (LO:16/11, 28/11 & 07/12). The examples Jake gave to exemplify this were wrong answers pupils had given such as calculation errors or guesses that did not require any exploration; Niamh commented that 'it was not really misconceptions, it was just wrong' (FG:video). What was interesting about this was that his next comment was on a positive aspect of the lesson, which contradicted his previous comment: 'you did tease out by the way'. The idea of 'teasing' out the answer from the pupils in the class had been an on-going discussion in tutor groups and feedback prior to the focus group, with both Niamh and Danielle saying that they had also written that from watching the video. When asked to talk to us about 'teasing' he said:

> It's like how you are taking answers from the kids and going like yeah we are getting closer, we are getting closer. You were just like adding on and adding on. And even like if a kid gave the same response as someone else, it's like "yeah ok" (FG:video).

In his previous comment he had said that moving on from pupils who had wrong answers was not a good strategy, yet here he is suggesting the very same thing is a strength. This highlights that Jake was trying out other people's words and putting them into context using the video to discuss them. These contradictions are examples of Jake trying out ideas in social speech and developing his internally persuasive discourse on issues. Jake used these examples to show his tutor he understood some of the big ideas within teaching and the decisions that teachers make in the moment. He positioned himself as someone who can discuss these teaching strategies with confidence and offer them in feedback to peers. He authored himself as a competent teacher and an equal to the university tutor with respect to teaching.

His feedback to myself became more specific with respect to giving feedback that he himself had received and that I would also have received if they were in the student-teachers' situation:

> You said one more minute and it was actually thirty seconds. Something that's picked up on me all the time so I just thought I'd say … speaking over students to get them quiet … yeah but like obviously you just started talking and it did go quiet, but like if that happened

with us it would be, even if they went quiet, yeah you're talking over students…again if
we did that, that would be something that would be pick up on …(FG:video)

These were all examples throughout the focus group where Jake actively talked about targets that he had received and were aspects he noticed in my lesson   The feedback Jake had received about the time given in a lesson relates to him saying he would give 30 seconds for a task, which was an appropriate amount of time, but that he would actually give much longer affecting the overall pace and lesson engagement. The fact that Jake had timed the period when I said to the class that they had one minute to complete a task shows that this was an aspect that he was actively looking for. He had recognised it as feedback he regularly gets and so was actively looking to see if I also did this. His throw away comment of 'so I just thought I'd say' shows that he maybe doesn't agree with the feedback he gets about this target, but it is feedback he gets therefore it is also feedback he should give the tutor. He was able to reflect on the reason for the tutor giving less time and when asked why the tutor did not give them the full minute he said 'cos you thought like they'd understood it. Obviously, it was like you were listening and you could tell that more and more kids were getting it, so that's why' (FG:video). This again highlights the difference between Jake looking specifically for examples of his targets and understanding the pedagogical reason for certain actions. His comments about talking over pupils did reposition myself as being in a position of authority as opposed to an equal as he commented that I could adopt strategies that the student-teachers could not, even if they could be successful. This did generate a fruitful discussion on the point of feedback from subject mentors, and how there should be discussions about pedagogical decisions that were made and reasons for these rather than just being given a set of targets that you might not agree with. When questioned about the time and the talking over pupils, Jake could confidently articulate reasons for the strategies, but he focussed on the actions of the teacher based on his own actions in his classes that had been judged by others. This suggests that he may not understand the pedagogy sitting behind the feedback he is receiving hence the contradictions in his discussion.

Jake used the focus group to question elements of practice he observed the tutor doing as a way of rejecting the advice that he had previously been given by the authoritative voice asking him to masquerade as a certain teacher in the classroom. There is a clear sense of the heteroglossia that Jake is aware of and the differing voices he is trying to orchestrate, including that of the discourse in the video and in the focus group. He questioned the advice he had been given, and the alignment of his figurative identity, by using the authoritative discourse of the university tutor. The focus group discussion was an opportunity for Jake to explore his internally persuasive discourse on what a good

mathematics teacher was and to identify aspects where his internally persuasive discourse aligned with the authoritative discourse of the school or the university.

7.3 Conclusion

Jake's main reflections and discussions throughout the year centred on behaviour management and how this impacted the teaching persona, his figurative identity as a teacher. He claimed a sense of agency in the choices he had in that he could choose to conform to the expectations and appropriate the position of the certain type of teacher which was available to him, or he could resist and masquerade as the teacher the school wanted him to be to gain approval and acceptance as a good teacher to pass the placement. He was relationally positioned by teachers in the school with respect to his peer, Rhiannon, and this caused tension for Jake, as did being positioned as a student-teacher as opposed to a peer by the head of department, where he felt he should be afforded the position of equality and spoken to appropriately. Jake spoke often about his clear idea of the teacher he wanted to become, but that he had not had the opportunity to be this teacher, based on his natural persona. His reference to developing this in his first few years teaching and then later in his career shows that he was resisting the figurative identity of a teacher offered to him by the school. He did not reject this figurative identity though, but he also didn't appropriate it. There is a sense that Jake masqueraded as the teacher he was expected to be, to comply to the school policies and procedures, to pass the placement and be accepted as a good teacher. He had a figurative sense of the teacher he wanted to be without the deeper thinking on why, leading him to struggle to engage on a pedagogical level with feedback and support. His reflection on the video for the focus group demonstrated Jake's resistance to the feedback he was receiving by highlighting that the same targets could also be given to the university tutor in the "virtuoso" lesson. The video of the lesson was used to support and solidify his internally persuasive discourse on the teacher he wanted to become.

8. Discussion

8.1 Introduction

This thesis explores the experiences of four student-teachers in detail while they followed a university-led PGCE route into education. In the literature review I outlined how schools are positioned in a global market leading to a neoliberal education where schools are seen as a commodity and trusted professionals are viewed as a technical workforce (Perryman et al., 2011). Mathematics has been highly politicised and central to educational policy due to measures of performativity, managerialism and marketisation (see Ball, 2003; Wake and Burkhardt, 2013; Chitty, 2014; Jones, 2016; Ball, 2021). I discussed the issues surrounding the privatisation of education by the introduction of Academies and rather than them encouraging innovative teaching the research suggests that they conversely supressed creativity (Gunter and McGinity, 2014; Thompson et al., 2021). There was significant literature presented arguing that regardless of the school context, innovative teaching is constrained by measures of performativity (Ball, 2003; Perryman, 2011; Gainsburg, 2012; Holloway and Brass, 2018). I argued that this has led to a focus in UK schools of mathematics being taught procedurally (see Foster 2014; Black and Wiliam, 2018; Maass et al., 2019). Teachers are becoming cynically compliant in the workplace regardless of their own beliefs about teaching (Ball, 2003; Keddie et al., 2011; Ball, 2012) and become more concerned with the impression and performance of teaching (Ball, 2003). The literature review discussed the role that schools and mentors play in allowing student-teachers the space to explore their developing teacher identities.

Beauchamp and Thomas (2009) argued that student-teachers undergo a shift in their identity as they progress through their training year. This chapter will consider how the participants experience these shifts. I will interrogate these through the lens of figured worlds to consider the complexities of this; with respect to the contexts they were in and with the student-teachers perception of self being central to development (Flores, 2020).

In this chapter I will also discuss the tensions and conflicts that these student-teachers faced with respect to their beliefs about teaching, their biographies and aspirations and the effect of the school ethos on the development of a professional identity (see Beijaard, 2019; Flores, 2020; Arslan et al., 2021). I will combine this with the debate around using tension and conflict to support student-teachers sense of agency but consider why it is more complex than merely provoking conflict to question their beliefs (Beauchamp and Thomas, 2009; Liggett, 2011; Anspal et al., 2019). The literature highlighted the university's role in challenging beliefs and that these theoretical underpinnings are not translated into practice (Allen, 2009) as there are more complex issues and

tensions which play a part in the limited application of theory than merely contrasting beliefs (Allen, 2009; Gainsburg, 2012; Bjerke et al., 2013). I will also reflect on these student-teachers' perspectives of the issues around challenging their beliefs over the course of a year (Smith 2005; Arslan et al. 2021) and the role that other voices have in this development (Maynard 2000; Hopper 2001; Ambrosetti et al., 2014; Solomon et al., 2017). The literature discussed the student-teachers' desire to be seen as competent in the classroom, contrasting with being a learner and yet being accepted as a peer (Hobson, 2002; Maynard, 2000) and replicating the practice observed to survive a lesson (Hopper 2001; Solomon et al., 2017). All four student-teachers faced expectations to comply to the rules and routines of their placement schools and emulate the teachers they observed, yet I will discuss in this chapter how they experienced this differently, leading to negotiating these conflicts and tensions in contrasting ways with varying outcomes. Therefore, I will consider their propensity to emulate and replicate their mentors and the agency they had; whilst being immersed in the school alongside them. I aim to highlight the complexities within this journey and refute that the process of becoming a teacher can ever be fully understood as it is so multifaceted due to the student-teachers' history-in-person, their internally persuasive discourse and the development of their authorial stance; even when exposed to the same teaching experiences.

The previous three chapters focussed on the experiences of Niamh, Kate, Caroline and Jake, their self-authoring and their figurative and relational identities that were shaped by the overlapping figured worlds that they experienced. The theoretical lens of figured worlds enabled an exploration into the ways that student-teachers orchestrate the competing voices and use the tensions and conflict they experience to develop their internally persuasive discourse. I now consider how the student-teachers develop their authorial position across the competing figured worlds they experience. Their authorial position is the way they express their understanding and authoring of their own position, figurative or relational, that they have developed from their own vantage point in the figured worlds of school and university, leading to the overarching question of:

Research Question: How do student-teachers develop authorial positions across the figured worlds of the school and university?

Firstly, I will discuss how the figures, voices and authoritative discourse impact on student-teachers authoring themselves as mathematics teachers. I will then consider how student-teachers develop an internally persuasive discourse in response to the theory and practice divide in mathematics.

8.2 How do Figures, Voices and Authoritative Discourses Impact on how Student-Teachers Author Themselves as Mathematics Teachers?

One of the central aspects of Figured World theory is how we author ourselves through collective language (Holland et al., 1998). Language communicates power and authority, and student-teachers need to orchestrate the voices they experience. The conflict for the student-teachers is not to be bound by one authoritative discourse, then another, but to mediate and orchestrate these competing voices.

8.2.1 The Voice of the Mentor

School mentors play a significant role in the development of student-teachers, with student-teachers considering them to be a crucial element in developing their teacher identity (Hobson, 2002; Izadinia, 2015). Their voice is one that dominates the figured world of the school due to their positional authority and regular assessment of the student-teacher's progress. I have previously discussed teachers performing in ways that are dictated by inspection regimes and the detrimental effect this has on teachers questioning their own beliefs about teaching and the confidence and trust that they have in their own capabilities (Perryman, 2006; Keddie et al., 2011; Ball, 2012; Holloway and Brass, 2018). Mentors are bound by the norms and competencies of their schools and, due to the neoliberal context of education, can be inclined to demand that student-teachers become fully aligned with current school practices (Solomon et al., 2017). Ball (2003:222) discussed the inauthenticity that teachers can feel in their teaching, leading to 'cynical compliance' or 'game playing', and so it is reasonable to assume that these tendencies are also evident in student-teachers' approaches to teaching; given the similarity in them performing to be observed and subsequently judged (Ball, 2003). This combined with the notion that teaching is viewed as merely training opposed to education, an accumulation of knowledge or skills that can be learnt on the job, or a list of competencies to be achieved (Meijer et al., 2011; Biesta 2013; Mutton et al., 2017) can lead to the expectation that student-teachers simply need to emulate their mentors. This was strongly evident from the experiences of all four student-teachers in this thesis.

8.2.1.1 Emulating the Mentor

The notion of student-teachers emulating their mentors is such a complex concept and is multifaceted. It is a much more intricate debate than merely implying that teaching can be observed and replicated and that teaching can simply be learnt on the job (see Biesta, 2013; Brown et al., 2014; Mutton et al., 2017). All four student teachers experienced the expectation during their placements to emulate the teaching of their mentor or class teacher, however, they all had different experiences and strategies for navigating this and significantly diverse outcomes with respect to developing their teaching identity. Student-teachers can be initially concerned with surviving a lesson and coping with new ways

of behaving and so there is a tendency to initially align with mentors practice and behaviour (Solomon et al., 2017). Jake's experience highlighted this when, during initial observations, he commented on the opportunity to observe methods and procedures he would use in order to 'keep them in a routine'. However, this was a simplistic ideology as once in the classroom there are a myriad of factors that can affect the development of the student-teacher's identity such as beliefs, actions, workplace, previous experience and aspirations (Beijaard, 2019; Flores, 2020; Arslan et al., 2021). Regardless of these factors, subject mentors can expect compliance to their established rules and routines. This was highlighted in Jake's situation where he was instructed to use a behaviour management system that he said 'I personally don't like but I have to use'. Smith (2005) argued that it would be unrealistic to expect student-teachers to divert from these well-established routines, however this does not take into account the complexity of the effects of the student teacher's history-in-person, their internally persuasive discourse or their developing authorial stance on teaching. Smith and Lev-Ari (2005) conversely asserted that student teachers do recognise that it is not as simple as merely copying mentors but that they need to develop their pedagogy. However, this takes time and experience to reflect on the practice they observe with respect to theory (Bjerke and Solomon, 2020). Jake did use some of the strategies he was directed to and later reflected that they had positively influenced his views on how 'laid back' he should be in the classroom, and this had an impact in his second placement. He did not appropriate the position made available to him, and the vision he saw of himself through the eyes of his mentor, and resisted in order to try to find space to explore his teaching identity. Niamh also commented on her mentor as 'rigid in how he worked and liked routine'. Niamh found her creativity and innovation stifled in her first placement when she was required to teach in the same manner as her subject mentor. Like Jake, there was an expectation that Niamh would follow the rules and routines that the subject mentor had established with the class. Niamh storied herself as a student-teacher who was willing to use this as a learning experience to discover what she was comfortable with in her teaching referring to it as a 'good learning experience for me'. However, Jake found it difficult to see this conflict as beneficial to the development of his teacher identity. Jake based his figurative identity around the attributes and characteristics of a teacher which was portrayed in his desire to be 'more laid back' in terms of his teaching style. Jake was not able to align this view of an outstanding mathematics teacher with the positions that were made available to him as a student-teacher, and he resisted being moulded into someone else's view of the teacher that he should become. This was specifically evident in his heated discussion with the head of mathematics about being more like her in his classroom with respect to 'the regimental style of her classroom'. He talked about this being 'not what I kinda signed up for' and more specifically that 'I want to be who I want to be not because of what you're telling me to be'. Both student-teachers resisted the

expectation to model their teaching or classroom routines on their subject mentors. Niamh used it as an experience to develop her own pedagogy, whereas Jake masqueraded to pass the placement claiming that he hoped he would become the teacher he wanted to be in subsequent years, but he felt this was 'hard during the early years of teacher training'. This supports Smith's (2005) argument that some student teachers defer their implementation of personal beliefs about teaching during training as there is not enough time to be competent and confident to test out their ideas. However, as previously discussed, personal beliefs about teaching are not necessarily manifested in the actual practice of teaching (Brown, 2016; Solomon et al., 2017) and so this fabrication may be consistently present throughout their careers due to the performative nature of teaching. Conversely this was not the case for Kate or Caroline whose beliefs about teaching were not easily compromised by their mentors during their teaching experiences and they rejected the notion of fabricating to pass the course.

Kate described her strong sense of the teacher she wanted to become, and her sense of self, grounded in past experiences, her history-in-person. She commented specifically that 'going into teaching I had a clear vision of the teacher I wanted to be'. Kate had a strong sense of self based on aspirations, past experiences and beliefs about education which Flores (2020) claims is important in developing teacher identity. Kate was unyielding in her image of the teacher that she wanted to be due to being 'heavily influenced by certain teachers' in her past. She held onto this figurative identity of a "mathematics teacher" throughout the PGCE year, even claiming that 'I don't believe my time at [school name] changed this'. Kate was able to identify school mentors, as well as peers, who 'had the same ideas and values' that she said she possessed, and this validated her identity as a mathematics teacher. Kate had a strong desire to be positioned as an equal to the qualified teachers and was confident in her beliefs to judge other teachers by the qualities that she considered to be important. This meant that her figurative identity was not challenged. It is therefore difficult to say if she rejected the need to emulate the mentor or appropriated this expectation due to the authoritative discourse of the school strongly aligning to her internally persuasive discourse. The ability to view herself through the eyes of people who held a position of power which aligned with her own beliefs was crucial for Kate to figure herself, and therefore position herself, in the way she did.

The literature review discussed the mentors' desire to take control of the teaching due to anxiety about pupils' learning owing to pressures of performativity, especially in mathematics (Perryman et al., 2011; Solomon et al., 2017). The pressure for pupils to perform well in lessons sustains the well-established pedagogies of the school (Wake and Burkhardt, 2013) and this can be the motivation for mentors to encourage compliance to their routines. This was certainly evident from Caroline's experience with her mentor when discussing her mathematical pedagogy as she thought her mentor

was 'really worried about their [pupils'] progress' and that the mentor, and by extension Caroline, felt a 'heavy responsibility to make sure they learn the rules and methods in preparation for next year', encouraging a more procedural approach to teaching mathematics. This feeds into the neoliberal context of teachers' performance being quantified and measured and that test results are so high stakes that they steer classroom practice; from teaching pupils to teaching materials (Holloway and Brass, 2018). This is turn reduces teaching to be what pupils should know and be able to do and challenges teachers' notions of what good teaching and learning actually is (Holloway and Brass, 2018). With mentors feeling the pressure to align with school practice it would be hard for student teachers to develop their individual teaching style (Solomon et al., 2017). Caroline recognised that she was trying to be an innovative teacher and implement a more constructivist and relational style of teaching as advocated by universities (Gainsburg, 2012; Solomon et al., 2015). She also accepted that her subject mentor's anxiety about the pupils' learning was driving the advice to conform to teaching in the established routine of the newly formed MAT. Measures of performativity do not capture the innovative practice of teachers as data and therefore this is not valued in the metrics of accountability, which in turn distorts practice (Ball, 2003). Similar to Jake and Niamh, Caroline also experienced conflicts with her subject mentor when she resisted following the established rules and routines in the classroom. However, Caroline rejected the figurative identity of the mathematics teacher she was being asked to emulate as well as rejecting the positional identity available in the figured world of the school. The mentor's anxiety due to the technologies of performativity in the school led Caroline to feel that her teaching was being undermined and not respected. Caroline's experience demonstrated that as student-teachers become more confident in their teaching, and gain more experience and knowledge, those who originally emulated their mentor may start to assert themselves and move away from appropriation towards resistance. This shift is important for them becoming a qualified teacher and I argue that this resistance (tension/conflict) is necessary for this process (Beauchamp and Thomas, 2009; Liggett, 2011; Anspal et al., 2019). Caroline's integrity in how she wanted to teach meant that she felt like she was playing 'a political game' to maintain a relationship with the teachers in the school whilst being true to her own ideals. However, the relationship with the mentor is potentially conflicted when there is a resistance to emulate them. The relationship between the mentor and the student-teacher is crucial to consider with respect to student teachers positioning themselves as mathematics teachers

8.2.1.2 Mentor Relationships

It is well documented that mentor relationships play a crucial role in student-teachers being successful in their placements (see Maynard, 2000; Hobson, 2002; Izadinia, 2015). Maynard's (2000) research concluded that student-teachers value their mentors as a source of cultural knowledge and therefore their feedback is crucial to student-teachers' development, as well as how they are classified with respect to grading. Niamh commented that her mentor gave them a number of negative comments in their feedback rather than constructive comments on what she was doing well. Although she used this as a way of improving her teaching there is a delicate balance in the support mentors give to student-teachers. There is an off-set of offering developmental advice to the student-teachers whilst building confidence in their ability to teach, and the balance between the freedom and restraint given in the lesson. Boaler (2003, cited in Solomon et al., 2017:16) referred to this as a 'dance of agency', where student-teachers do not want free reign over the lesson, but also do not want to be restricted with prescribed lessons to follow (Solomon et al., 2017). However, the tension for student-teachers is that they desire to be viewed as a competent teacher and so the notion of learning through experimenting and learning from mistakes is undesirable due to the public nature of teaching (Maynard, 2000; Solomon et al., 2017). Niamh's reaction to the teacher allowing her to experiment was that she was 'really helpful' and that she did not 'step in when the lesson wasn't going to plan'. Niamh storied herself as a student who could learn from these situations and this was therefore not detrimental to her developing teacher identity. Jake on the other hand was indignant when his lesson did not go to plan due to the changes he had made following the advice of his subject mentor and was subsequently told he should have taught the lesson he had originally planned. Caroline's experience was more extreme, with the class teacher giving 'extra lessons' to the topics when she felt the mathematical rules and procedures had not been covered in sufficient detail. Although mentors are a significant voice in developing student-teacher's sense of self in the classroom, Maynard's (2000) research discussed the student-teachers need to manage the mentors to ensure they felt valued and important. Maynard (2000) concluded that the student-teachers who were most successful at this realised there was a game to play and possessed the skills to play it. I would argue that Niamh being heteroglossic meant that she was skilled at mediating and orchestrating the competing discourses she encountered and therefore was able to navigate the relationship with her mentors without playing a game. In contrast, Caroline was aware that she 'had to play the game'. She verbalised her ability to 'select the methods and approaches' that were encouraged and yet were not compromising the classroom 'environment I am committed to creating'. In her second placement she tried to bridge the gap between the competing pedagogies based on her subject mentor's advice, by including procedural methods after using a more constructivist approach. However, as her authorial stance developed

throughout the year, she made a conscious decision to no longer play the game and said, 'I just refused'. Caroline storied herself as a student-teacher, who wanted to learn from those who could justify their teaching approaches through literature and research. So secure was this hard-won standpoint on teaching for Caroline that she even questioned the intentions of the headteacher, the most highly positioned figure in the school. The voice of the mentor, school and university were in conflict for Caroline, but the voice of the university aligned with her internally persuasive discourse and so she appropriated this even though it affected her relationship with her mentor to the point of questioning her place on the course. This was a deeper issue for Caroline than a mentor relationship and mathematics pedagogy; it was concerned with her educational judgements being brought into question (Biesta, 2013).

One of the tensions that student-teachers face is the need to be seen as competent in the classroom, being perceived as a fellow professional and an equal, conflicting with simultaneously being a student-teacher who is there to learn from the mentors (Maynard, 2000; Hopper, 2001; Hobson, 2002; Alsup, 2006). Mentors can find this difficult to navigate as they are used to teaching children and therefore they position the student-teachers as learners and can respond to them in a similar manner as the pupils (Hopper, 2001). This was certainly evident from the experiences of Kate, Jake and Caroline during their placements and all three student-teachers vocalised how this positioned them. Both Kate and Jake had an initial focus to be accepted in the teaching profession, to be seen as competent teachers and not to be seen as a learner. Kate's indignation when the teachers 'speak to us like pupils' which she deemed unacceptable and Jake's reference to 'being told off' as if he was 'one of her students rather than one of her peers' highlighted their claim to a certain relational position which had not been afforded to them. When Jake was asked to consider his stance on behaviour management and his persona in the classroom, he was indignant that he had not able to develop his performance in the way he wanted to. He was not able to find a figure, an other, whose vantage point he could view himself through to validate his beliefs about the teacher that he wanted to become; he could not identify an authoritative discourse that he could marry his internally persuasive discourse to. This resulted in his emotional discussion with the head of mathematics where he positioned himself as an equal and was annoyed when he was re-positioned as a student rather than a peer. This re-positioning of Jake as a student-teacher rather than a peer was to reaffirm the expectations for him to conform to the behaviour management and classroom routines established in the school and to conform to his subject mentor's expectations. As discussed in the literature review, experiencing tension may be considered essential for the development of student-teachers' professional identity (Anspal et al., 2019). However, for Jake, his conflict was balancing his personal convictions as a student-teacher with the expectations of the professional role that he was occupying (Alsup, 2006).

This speaks to the irrefutable tensions and contradictions that exist and are implicit in professional practice, particularly teacher education, where the student-teachers are being prepared for professional autonomy in a world of externally imposed educational policies (Flores, 2020).

Both Niamh and Caroline positioned themselves as student-teachers and Niamh verbalised how she was able to learn from the advice and the contradictions in pedagogy that she experienced, she storied herself as dialogic in this sense. Niamh was willing to 'play the game'. However, Caroline regarded herself as someone who could 'learn from every professional that I meet' but this was later refuted when her authorial stance on how she was accustomed to 'speaking to people as equals regardless of the "position" they hold' was brought into question. She storied herself as being a student teacher *and* an equal but her stance on this positioning was 'not welcome in the sector'.

Hobson's (2002) and Maynard's (2000) research into mentor relationships highlighted that issues with mentors were not pedagogical in nature but were due to what their student-teachers referred to as personality clashes, leading to the mentors not being approachable, fostering a lack of trust in the student-teacher's ability and leaving them feeling worthless as a teacher and as a person. Hobson (2002) claimed that the relationship with the mentor is so crucial that when it breaks down it can lead to the student-teachers feeling that they have no option but to leave the course. This certainly resonates with Caroline's experience in her second placement where the relationship with her mentor led Caroline to this same conclusion. However, I argue that it is too simplistic to say the issue between the student-teachers and their mentors was due to personality clashes, although I concur that this is how the student-teachers themselves may perceive this. The ratio lesson was the point of rupture for Caroline as her subject mentor did not recognise the pedagogical intricacies of the lesson Caroline had planned. The compromise that was offered caused Caroline to question her ability to become a teacher under this scrutiny, with these restrictions affecting her integrity and ultimately the shaping of her teaching identity. Caroline recognised that her mentor was not able to give her the freedom to explore her teaching, referring to the school culture bringing out a feeling for 'staff to survive', which is symptomatic of a neoliberal education system (Ball, 2003). For Caroline it was a bigger issue than merely a breakdown in the relationship with her subject mentor; it was a breakdown in her relationship with the school and with teaching. She was not able to reconcile her beliefs about teaching within the constraints of the school's systems leading to her withdrawal from teaching.

Kate, Jake and Niamh referred to situations where they had been compared to other student-teachers in the school. Hopper's (2001) research found that mentors find it hard to not compare student teachers' progress, if not to each other, then to previous students or even their own experiences of

being a student teacher. Kate positioned herself as being the leader in her trio and othered her peers in order to author herself as a competent mathematics teacher. She felt the class teacher judged them as a whole and that other student-teachers mistakes reflected on her referring to this as 'embarrassing' and being 'tarred with the same brush'. Jake was compared and positioned by his mentor with respect to a student-teacher who was 'in line' with how the subject mentor taught and felt this required him to change 'like eighty-twenty' in favour of the expectations of the subject mentor. The head of mathematics also compared Jake's progress to her own experiences of being a newly qualified teacher and used this to project Jake's future prospects in the career noting that he would 'not get very far' unless he changed his perspective. Niamh also felt her mentor 'grouped us together' in a situation that occurred and felt this was 'unfair'. Similar to Kate, Niamh used this positioning with respect to other student-teachers to author herself. She used it to story herself as a team player and as supportive to her peers. Student-teachers are eager to be part of a school community, be that authoring themselves as students or as competent teachers, but they also have the desire to be seen as individuals. Comparing them to other student-teachers negates the influence that their history-in-person has on making them inimitable and their journeys through the placement unique and incomparable.

This contradiction of the desire to be included into the school community yet developing their autonomy as an individual is hard to navigate; inclusion versus independence. The inclusion into the school community has an important role to play in the student teachers' development of their teaching identity.

8.2.2 The Voice of the School

The school environment has a significant effect on student-teachers' beliefs about teaching (Allen, 2009) and is therefore influential in creating the positions which are available for student-teachers within their idiosyncratic policies and structures. These are further affected by the centralisation of school policies by academisation, with MATs adhering to procedures that are perceived to be recipes for success, using performativity and normalisation as structural mechanisms (Perryman, 2006).

I have previously discussed the role that the voice of the mentor plays in the student-teachers' journey through the PGCE year. However, the mentors are not working in isolation to the figured world of the school, where the culture of the school may be more significant than the mentor's personal beliefs about teaching (Solomon et al., 2017). Solomon et al.'s (2017) research highlighted that mentors feel pressure to align to school practices and are bound by the norms and competencies of the school.

These are very specific to the school's context and can lead to student-teachers finding it hard to develop their own teaching style (Solomon et al., 2017). If the mentors have already gone through a process of complying to the norms of the school, then the pressure for student-teachers to emulate the mentor also incorporates the expectation to emulate this compliance. Holland et al. (1998) discussed the unwritten rules within a figured world that need to be adhered to, such as ways of speaking, behaving or being and that these have been embodied by those continually participating in the figured world. Caroline was very aware of the unwritten rules in her first school claiming that she did not understand the 'rules of conduct' but she 'realised that I need to learn them' in order to fit in and be accepted. The literature review discussed the changing prominence in the role of schools in the 'training' of student-teachers; with the emphasis being on the practical experience in schools (See; Brown et al., 2014; Brown et al., 2015; Mutton et al., 2017; Ball, 2021). The role of the school is therefore pivotal in the development of student-teachers. Caroline was extremely vocal about the role that the schools played in her development and had a range of experiences. She talked about student-teachers being 'lucky' if they were sent to one particular school, saying 'you'll be great, your training is going to be great'. This was in contrast to the previous school where she described herself as being 'in a place that was pretending to be a school' and 'probably one of the most toxic environments I have ever worked in' where she described her days of training there as a 'daily struggle to maintain my integrity'. She made the bold claim that you 'can't be trained to be a teacher in that environment', emphasising that the school environment was extremely influential in her development. Her reflections were not limited to her own experiences, but her perception that the culture of the school had encouraged an instinct in staff 'to survive', which can be attributed to the neoliberalism of education where outputs are being prioritised over beliefs (Ball, 2003) and surveillance causes teachers to perform in ways dictated by the regime (Perryman, 2006).

This neoliberal view of education may be more ubiquitous in MATs due to their predetermined recipes for success being transported to academies across the trust with systems being implemented regardless of the school context (Thompson et al., 2021). Both Caroline and Jake were in a newly established MAT where the trust were implementing new policies and regimes that were contrary to previous ways of working. Jake accepted the new practices at first saying that it is 'vital in school to keep them in a routine' and that he would adhere to these rules and regulations. He initially recognised the importance to follow school guidelines to figure himself as a competent teacher in the department and an integrated member of the school community. However, as he progressed through the placement, he resisted these rules saying that once he had more experience he would 'adapt around the policy' in order to be the teacher he wanted to be whilst appearing to align to the school's guidelines. Jake was aware of the need to play the game whilst trying to maintain a modicum of

agency in his practice. However, my findings were that Jake was not able to find the agency to explore his teacher identity to become the figure of the teacher that he aspired to be based on his history-in-person and he resisted the identity afforded to him by the figured world of his school. Caroline also started a placement saying that she would disregard her personal feelings and 'adopt those ways', albeit with the caveat of them being 'appropriate for being used in the environment that I am committed to creating'. However, as she progressed through her placements, Caroline was aware of the political game that she was part of. She stated that she 'made allowances for the changes taking place in the school' but felt they had based their policies and ideas on 'personal whims' opposed to literature and research, which was an integral part of Caroline's internally persuasive discourse on teaching. She rejected the pressure to conform under these principles given her authorial stance on the teacher she was aspiring to become. It is clear from these experiences that the figured world of the school has authoritative discourses and that these voices shape the behaviours of the student teachers, regardless of whether they appropriate, resist or reject them.

The literature review discussed the inclination that student-teachers have to prioritise the school and that when tensions arise they may align heavily with school practices and expectations (Gainsburg, 2012; Solomon et al., 2017). This was evident in all four student-teachers' experiences where their own beliefs about the teacher they wanted to become were brought into question by the routines and established practice in the school. Beliefs are hard to maintain when there is a pressure to conform, and for Caroline this was evident from her initial experiences where she appropriated the authoritative discourse of the school. However, over time and with more experience, she came to resist these authoritative discourses and play the game, progressing to rejecting these discourses as her internally persuasive discourse and authorial stance was developed. She was not able to align her beliefs with the figurative identity of a mathematics teacher that was available to her as a teacher in that school. She rejected this figurative identity and was therefore unable to continue in that placement. Jake resisted the pressure to change his belief about the teacher he wanted to become but was also unable to align this with the position he was afforded in school. He aligned himself to the expectations of the school during the placement, and even reflected on the positive effect it had on developing his teacher identity in his second placement. Niamh was less resolute than Jake in her figurative identity as a teacher based on previous experiences. Early in the course Niamh stated that she was not sure what kind of teacher she wanted to be, but that she had developed her ideas based on lessons she had observed whilst in the school placement. She did however have a sense of 'a typical teacher' although she suggested that she did not personally identify with this perception of a teacher. She was able to reflect on the experiences she encountered over the placements and learn from these with respect to her developing teaching identity and her pedagogy. She was able to reflect

on the voice of the school as one among many to consider and learn from; she was dialogic in the sense that she could use the conversations and experiences to explore her own understanding of teaching. Through positioning herself as a learner, Niamh was able to successfully play the game and use the discourses to develop her internally persuasive discourse. Kate, Like Caroline, was resolute in her beliefs about teaching and the school had little influence over this. Whereas Caroline's experience supported her development of an internally persuasive discourse on her teaching identity, Kate had a clear vision of the teacher she wanted to be based on her history-in-person and she did not 'believe my time at [school name] changed this'. She stories herself as monologic and claimed that the school had little effect on her developing teacher identity however this was due to her ability to appropriate the authoritative discourse of the schools as it aligned with her own beliefs about teaching.

Mentors may not be aware of the cultural norms in their specific school context and so not give sufficient attention to the needs of the student-teachers to be enculturated into the school. However, it is crucial for mentors to take account of the student-teachers' wellbeing whilst adjusting to these cultural norms, the unique ethos each school has, that many teachers may take for granted (Hopper 2001; Ambrossetti et al., 2014). However, these are clearly influential in the student-teachers' experiences and prominent in the positions that are made available to them during their teacher education. This means the role of the university tutor is significant in highlighting the idiosyncrasies of the individual schools, due to their wider experiences in a range of schools, in order to support student-teachers to be enculturated into the school community.

8.2.3 The Voice of the University

Although the role of the university tutor has been reduced through the neoliberal changes to teacher education, moving towards teacher-training, the university tutor is still one of the many voices that needs to be orchestrated by the student-teachers during their PGCE year. University tutors are involved in working alongside many schools and therefore have a breadth of experiences and professional knowledge of how different schools operate and are removed from individual school contexts to consider the implication of research into general practice (Furlong, 2020). The role of the university tutor is therefore to minimise the limitations that may be present in a school environment and to maximise the benefits of the school placement for the individual student-teacher (Hopper, 2001). However, this does not take into account the complexity of the issue given that the authoritative discourse of the university is just one of the factors in the student-teachers need to navigate throughout their PGCE, with varying degrees of influence for the four student-teachers in this research. The authoritative discourse of the university was rejected by Kate, appropriated by Niamh and Caroline and resisted by Jake. The unique experience of the figured world of the university

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being inside the figured world of the school allowed the authoritative discourse of the university to attempt to disrupt and bring into question the voice of the school and the influence this has on student-teachers. The voice of the university, that of encouraging student-teachers to explore and experiment with their teaching, does not fit with the performance and outcome led classrooms that the student-teachers are experiencing and therefore this presented a potential conflict or tension between these competing discourses. Working alongside the student-teachers gave nuanced insights into the university's influence on student-teachers' development of an authorial position.

One of the considerations for student-teachers is that the principles of education learnt at university are seen by some to be disconnected from the reality of the classroom (see Gainsburg, 2012; Murray and Passy, 2014; Solomon et al., 2017) so the constructivist theory of teaching often promoted by universities is not easily applied to lessons they observe (Gainsburg, 2012; Nolan 2012; Murray and Passy, 2014). Kate was candid about the lack of influence that the authoritative discourse of the university had on the development of her teacher identity, with university sessions branded as 'there to fill time' highlighted that Kate rejected the authoritative discourse of the university. Kate had a strong authorial stance on what made a good mathematics teacher and the theory that was offered at university had no influence on this.

 However, the role of the university tutor is to offer student-teachers the opportunity to reflect critically on teaching in a broader sense of education (Hopper, 2001). This was the motivation behind modelling a lesson in their current school context and inviting them to reflect on it in a focus group. When discussing the modelled lesson for the focus group, Kate claimed that 'I didn't personally find it useful' referring only to the personality of the teacher as opposed to the contradicting pedagogy that was being modelled saying 'it was your personality and that came across…So, I don't think I learned anything from it'. Kate was unable to look past the actions of the teacher to consider the decisions that were being made. She did not engage in the pedagogy that was being modelled in the lesson. Kate simply did not engage in mediating or orchestrating these voices as she was resolute in her teaching, and she was able to find authoritative discourses from the figured world of the school which she appropriated.

The literature review discussed the tendency for student-teachers to be initially more concerned with their performance as a teacher, the tips and tricks they can apply to lessons and the teacher's attributes rather than considering pupil learning and the complexities of teaching (see Furlong, 2000; Younger et al., 2004; Smith and Lev-Ari, 2005; Brown et al., 2014; Bjerke and Solomon, 2020). Younger

et al. (2004) discussed the inability of student-teachers to articulate the teaching they observed, in a scripted lesson or during lesson observations, leading them to replicate teaching strategies without the underlying understanding. Similar to Kate, Jake's focus was on developing his performance as a teacher which was primarily concerned with merely acting like a teacher in the classroom without having an appreciation or understanding of the underlying principles (Furlong, 2000). This led to the strategies being ineffective such as, in Jake's case, the behaviour management systems, the counting down from 5 to 1 and the use of the random name generator. The focus being on teacher actions during a lesson was particularly evident in Jake's feedback in the focus group on my delivery of a lesson. Jake used the focus group to find examples where feedback, targets and advice he had previously been given by myself, as the university tutor, were not modelled in his observation of the "virtuoso" teacher. Jake used the focus group to challenge some of his beliefs and this supported his development of an internally persuasive discourse on the teacher he wanted to become. Jake used this focus group to validate his own internal dialogue on his developing teacher identity, corroborating his own conflict with the positions he found himself in during his placement. It brought into question for Jake the school requiring him to masquerade as a certain teacher and gave him the voice to legitimise and develop his own authorial stance on teaching. Jake also used the focus group to make a strong positional claim that he did not see himself as a student-teacher but rather as a teacher and as an equal to the university tutor. He used the authoritative discourse of the university, through this focus group, to answer claims made by authority figures against his teaching identity and position himself with respect to the university tutor.

8.3 How do Student-Teachers Develop an Internally Persuasive Discourse in Response to the Theory and Practice Divide?

Due to the neoliberal agenda shifting teacher education into schools, the authoritative discourse in the figured world of the university is not easily appropriated into the figured world of the school. The focus is on the schools teaching practical knowledge rather than the theory of education. There is considerable literature written about the divide between the theory and the practice of teaching mathematics (see Korthagen, 2007; Allen, 2009; Nolan, 2012; Gainsburg 2012; Solomon et al., 2015; Wake and Burkhardt, 2013; Foster, 2014; Murray and Passy, 2014; Brown, 2016; Solomon et al., 2017; Black and Wiliam, 2018; Maass et al., 2019) I add to this debate from the unique perspective of these four student-teachers, their experiences of this tension and my own experience of this through the figured world of the university being brought into the figured world of the school. I discussed in the literature review the emphasis countries place on procedural understanding versus conceptual

understanding such as South-East Asia favouring a mastery approach and Holland favouring a realistic conceptual approach. However, the debate about how mathematics is most effectively taught is not one that will be answered. What is clear from the literature is that beliefs about teaching are difficult to change, or even to integrate into classroom practice, because of the emphasis to teach procedurally due to national testing and the pressure for schools to compete in the market due to results being published (see Wake and Burkhardt, 2013; Brown, 2016; Black and Wiliam, 2018; Maass et al., 2019). Maass et al. (2019) found the perception of the mathematics teachers' role is to instruct pupils on how to do algorithms and procedures to answer questions, and it would be difficult to shift this ideology of teaching to being a facilitator who supports conceptual understanding. If this is difficult for teachers, then it is also a challenge for student-teachers who are not only challenging the teachers' beliefs about teaching, but also resisting the schools, the Government's and society's view of mathematics. Caroline, Niamh and Kate all had experiences of this tension, however their responses vastly differed.

This conflict has led to the question regarding how student-teachers develop their internally persuasive discourse in response to this divide between the theory of education and the practice in schools. The cacophony of voices that the student-teachers experience are problematic spaces and they have to make sense of them and respond to them. They commence the course with an internally persuasive discourse and are involved in identity work throughout their teaching. Their narratives are part of their self-authoring and self-understanding and are personal negotiations. I will therefore consider how they have responded to the conflict of the theory and practice divide individually.

8.2.1 Caroline

The theory and practice divide played a significant role in Caroline's experiences over her PGCE year. What was interesting about Caroline was that she herself recognised the impact of the neoliberal agenda to move teacher training into schools and, in her words, divorce it from research-based pedagogy. Her final placement was in a school where they taught mathematics in an interconnected way, and their teaching was based on research that was supported by the university, that of realistic mathematics education. This had a significant impact on her authorial stance on teaching.

There was a clear mismatch for Caroline in her first placement between the theory learnt at university and the practice in the classroom. She initially tried to marry these two competing discourses into her lessons by teaching for conceptual understanding and then teaching pupils the procedural methods

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for their books. Her initial communications about her views on teaching show that she attempted to orchestrate the authoritative discourse from the school and the university and find a way to navigate these in line with her own internally persuasive discourse on mathematics teaching. She talked about bridging the gap between these styles of teaching and trying to incorporate both into her lessons. Skemp (1978) referred to procedural and relational understanding as two completely different subjects both being taught under the same name of mathematics. Schools have been shown to favour rote learning, recitation, and instruction rather than dialogue due to national assessments such as GCSE's prioritising the technical fluency of mathematics over knowledge recall and problem solving (Black and Wiliam, 2018; Wake and Burkhardt, 2013). Teachers' beliefs about mathematics are not necessary a reflection of how they themselves teach; rather, teachers subscribe to relational teaching in theory but the pressures from school to measure pupil progress make these beliefs difficult to sustain (Solomon et al., 2017). The mentors in school did allow Caroline the space to teach more relationally if she also formalised the learning in their books. However, Caroline was undermined and de-valued in the learning environment that she was trying to create by the mentor prioritising instrumental teaching, thus highlighting the theory and practice divide she experienced.

The balance between teaching instrumentally and relationally is difficult to navigate, as Caroline experienced, focusing on one at the expense of the other. However, teaching purely instrumentally without the underlying understanding of mathematics does not offer pupils an authentic experience of mathematics and may hinder the pupils' overall mathematical development (Foster, 2014). Caroline recognised that she strongly aligned to an RME pedagogy and originally tried to be open to the possibility that others might not agree with this. The ratio lesson was a point of rupture which led to a realisation for Caroline, where the competing voices around this lesson led her to strengthening her internally persuasive discourse about teaching and to develop her authorial stance. The dilemma for Caroline was to either develop her teaching based on what she felt was important and she believed in it, or to align with the school's procedures, which due to measures of performativity encouraged instrumental teaching that was measurable and comparable (Ball, 2003). Caroline talked about her integrity being important to her and her inability to enact the fantasy of education or be cynically compliant (Ball, 2003) to meet the requirements of those observing, judging and assessing her. The neoliberal context of the school, along with the authoritative pressure of the MAT dictating classroom procedures, did not allow Caroline the space, or position, to shape her teacher identity.

The presence of the university tutor bridging the figured worlds of the university and the school allowed Caroline to readdress her beliefs and develop her authorial stance on teaching mathematics. This was a hard-won standpoint for Caroline which she was not willing to compromise. A fundamental aspect of our self-authoring is that we are able to view ourselves from the standpoint of others and either appropriate, resist or reject the positions made available to us through this. Caroline was not in a favourable position in the figured world of the school due to her beliefs about teaching and she firmly rejected that positioning of her. However, my presence allowed her to reposition herself and she emphasised the importance of the shared vision with the university. The school were amenable to Caroline developing this aspect of teaching, as long as the department procedures which were based on policies in the MAT, were adhered to, such as having rules and procedures written in their books. This pressure for teachers to perform in a particular manner in this MAT led to instrumental teaching being prioritised and the subject mentor being anxious about pupil progress when alternative teaching methods were explored. However, this conflict and tension led Caroline to really interrogate her beliefs about teaching and develop her authorial stance.

Caroline's journey through the PGCE year shows how she attempted to mediate the competing voices and over time she rejected the figurative identity of a teacher offered by the placement school and appropriated the authoritative discourse from the university to develop a strong internally persuasive discourse which she developed into an authorial stance on teaching.

8.2.2 Niamh

Niamh was similar to Caroline in that she was in a school which advocated a more procedural approach to teaching mathematics, which was also supported by the voices of her peers in her collaborative teaching. However, she was open to exploring and mediating the voices to consider different approaches to teaching. Niamh also embraced the development of relational understanding and the pedagogy of the RME approach to teaching mathematics. However, her peers with whom she co-taught had a more instrumental approach, which caused conflict in the trio. There is a similarity in Caroline's and Niamh's experiences, that of being in a school where their internally persuasive discourse did not marry up with the authoritative discourse of the school. However, what is interesting is the different approaches the student-teachers took, and the different outcomes they experienced. Niamh was able to embrace the heteroglossia and orchestrate the competing discourses in a way that allowed her to justify her teaching approach depending on the audience. She was able to navigate the expectations and viewed tensions and contradictions in her teaching experiences as opportunities to learn about, and develop, her own beliefs about teaching. Where her internally persuasive

discourse did not marry with the authoritative discourse of the school, Niamh took it as an opportunity to explore different teaching styles and to question or solidify her authorial stance on teaching. Niamh authored herself as a student-teacher who was willing to learn due to the tensions she experienced. She was able to 'compromise and see someone else's point of view' and discussed that 'it was good to see … it almost fail in a way to then see how I can do it better next year by myself'. Niamh embraced the student-teacher identity and her heteroglossia allowed her to be successful in playing the game to the players within it, whilst considering the teacher she would be in subsequent years. Niamh was able to resist the authoritative discourse of the school and the figurative identity of a mathematics teacher which was made available to her. This is in stark contrast to Caroline, who was unable to 'play the game' and rejected the authoritative discourse of the schools to the extent of wanting to withdraw from the profession entirely.

Niamh used the experiences of observing her peers teach instrumentally and reflected on this in relation to developing her own lessons with the RME approach, saying that it definitely made her realise 'what I would and wouldn't do'. Niamh was able to reflect on lessons where she disagreed with how it was taught but had the ability to reflect that although 'I wouldn't have taught it like that but actually … I do see why that works' or conversely 'I understand why I wouldn't teach it that way'. This consideration of different strategies and mediation of competing discourses allowed Niamh to articulate her reasoning for the choices she made in her teaching. However, Niamh was resilient in maintaining her pedagogy when planning lessons with her trio and started to develop her authorial stance as she experienced different teaching methods. Niamh used a lesson about circles to highlight the different teaching approaches, hers being exploratory and Kate's being to tell them the formula. The pupils 'just not getting it' during the lesson where the focus was 'just give them the formula' highlighted for Niamh that subject knowledge is not enough to become a good teacher, but that there needs to be an understanding behind the mathematical concepts being taught. Similar to Caroline, Niamh developed a hard-won standpoint that a teacher of mathematics should have a relational pedagogical knowledge of the mathematics they are teaching, which she holds in stark contrast to Kate's instrumental subject knowledge. The figured world of the university overlapping with the figured world of the school allowed Niamh to develop her inner voice and then gave her the confidence to explore this in social speech and develop her internally persuasive discourse on teaching. Niamh used the negative spaces she encountered to develop her internally persuasive discourse and her authorial stance on mathematics teaching.

8.2.3 Jake

The conflict between theory and practice is difficult to comment on for Jake as he doesn't discuss pedagogy in his data. His story predominantly concerns positioning and the attributes he wants to develop as a teacher, his teaching persona. He rejects his position as a student who is learning to be a teacher and, similarly to Kate, he positions himself as a teacher with little to learn other than practice. It is difficult to conclude how he developed, or if he developed, an internally persuasive discourse due to the theory and practice divide. Jake storied himself as an outstanding teacher and the relationships he formed in his classes were integral to his approach to teaching, however, the pedagogical knowledge of teaching mathematics was not part of how he authored himself as a teacher.

8.2.4 Kate

Kate was candid about the lack of influence that the authoritative discourse of the university had on the development of her teacher identity, with university sessions branded as 'there to fill time'. This, along with her final target on her teacher entry profile being to develop 'understanding within lessons rather than teaching a method' highlight that Kate rejected the authoritative discourse of the university. The disconnect between the observations of lessons in school and the constructivist theory promoted by universities is problematic for the student-teachers (Gainsburg, 2012; Nolan, 2012; Solomon et al., 2017). The Government's view of university lecturers being held in an ivory tower directing student-teachers towards ideological driven theory (Gove, 2013) further increases this divide between the theory learnt at university and the experience of student-teachers once on placement. Bridging this divide was the consideration behind modelling a lesson in their current school context and inviting them to reflect on it. Kate was unable to discuss the pedagogy in the modelled lesson for the focus group as the authoritative discourse, that of an unquestionable belief that procedural teaching is most effective, was fully appropriated and became an authorial stance for her. She did not engage in the pedagogy that was being modelled in the lesson, which was in stark contrast to Caroline.

The interesting aspect of Kate's journey through the PGCE year was that she came with a strong concept of the teacher she was going to be and aligned with the practice that she observed in schools. The theory offered at university was not appropriated into her discourse and was rejected when challenged by myself or her peers. Kate had a strong authorial stance on what made a good mathematics teacher and the theory that was offered at university had no influence on this. Kate simply did not engage in mediating or orchestrating these voices as she was resolute in her teaching, and she was able to find authoritative discourses from the figured world of the school which she

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appropriated. The instrumental approach to teaching aligned with the neoliberal values of education where there is a pressure for teachers to ensure their students perform well in assessments which fuels the tendency to sustain well established pedagogies such as instrumental teaching (Wake and Burkhardt, 2013). With mathematics being particularly influential, due to it being deemed as 'responsible for progress, of both society and of the self' and the Government's 'back to basics' campaign focusing on instrumental teaching (Brown et al., 2016), it is understandable that the authoritative discourse of the school aligns with this rhetoric. Kate's instrumental approach to teaching aligned with these neoliberal values, and with the authoritative discourse of the school, and therefore her internally persuasive discourse was never in conflict; thus, this tension was not explored by Kate in order to challenge her internally persuasive discourse.

8.3 Conclusion

All four teachers faced expectations from their schools to comply to the rules and routines that were established in their classrooms, and pressure to emulate teachers whose classes they were taking. In this respect the constraints of the neoliberal agenda in school directly affected their teaching experiences, but with differing responses. Kate's internally persuasive discourse aligned with both schools' authoritative discourses so her beliefs about teaching remained unchallenged, and she developed into the teacher she wanted to be. The other extreme was Caroline, whose experiences led to her to reject this positioning and consider leaving the profession. Both Jake and Niamh resisted this positioning, but with different outcomes. Jake masqueraded as the expected teacher but did not really alter his figurative identity; he just acknowledged that this would develop in subsequent years when he could be himself in a classroom. Niamh tried out the different teaching strategies, and experienced different ideas from watching teachers or her peers whose approach to teaching differed from hers. She used this to reflect on her own beliefs about teaching, developing her internally persuasive discourse and was able to mediate these discourses. Niamh viewed the conflict and tension as positive experiences and opportunities to develop her own teaching.

My argument is that it is too simplistic to say that student-teachers can learn how to become a teacher by emulating their mentors. Figured Worlds theory has been utilised to consider the experiences of student-teachers and explore the tensions surrounding emulating the mentor and the influence of the mentor, school and university. Figured Worlds theory allows for considering the influence of internally persuasive discourse, the figured worlds they inhabit, the authoritative discourses they orchestrate and their history-in-person, to highlight that there is more to developing as a teacher than emulation and compliance. It is therefore more complicated than saying student-teachers need to experience

tension and conflict to develop a teacher identity (Beauchamp and Thomas, 2009; Liggett, 2011; Anspal et al., 2019), but that resistance is also required in order to negotiate and develop their authorial position. All four student-teachers resisted authoritative discourses. The pressure to emulate the mentor also incorporates a pressure to emulate compliance and this research argues that student-teachers go through the process of initial appropriation but that, over time, resistance is integral to the process of becoming a teacher. The voice of the university is therefore problematic within neoliberal education as, without this, the authoritative discourse of the school, as guided by regimes of accountability, performativity and government policies, could become unquestioned and compliance unnegotiable.

All four student-teachers experiences the tension between the theory and practice divide during their PGCE year. Where conflict was evident, they all realised that there was a game to play and discussed, implicitly or explicitly, the extent to which they were willing to play it. Jake resisted with the belief he could develop in his ECT years and adapt around policies, so was prepared to masquerade to pass the course. Caroline referred to it as a political game being played and she was willing to compromise until her integrity was brought into question. Kate did not engage in this game playing as her pedagogy aligned to the school's neoliberal views so she rejected the authoritative discourse of the university. Niamh recognised that she needed to act on advice from multiple voices and recognised the need to orchestrate the heteroglossia in order to develop and learn from the experience. All four student teachers also discussed how they were positioned by the mentors and teachers in their placement, either as a student or as a teacher. Niamh positioned herself as a student-teacher throughout the placements, so this did not cause conflict for her. Kate, Jake and Caroline all experienced being positioned as students as opposed to being spoken to as equals and all three vocalised their rejection of this positioning.

All four teachers developed secure authorial positions by the end of the course. Kate based hers on her history-in-person and the strong figurative identity she brought into the PGCE; when this was challenged she did not question this figurative identity. Kate positioned herself with respect to her peers as a leader and in a position of authority, and her relational identity was as a mathematician who had a desire to been seen as equal to the teachers in the school. Jake also had a strong figurative identity, as a laid-back teacher, but was not able to find a figure to support and develop this aspect of his teaching identity. He also tried to position himself as an equal with the teachers in school, and as a peer of the university tutor. Jake was positioned relationally with respect to Rhiannon by others, and he found this difficult to navigate. Jakes used conflict and tension to balance his personal convictions with the expectations of the professional role. Caroline had a very strong internally persuasive discourse on teaching relationally, as did Niamh. They both appropriated the authoritative

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discourse of the university to support the shaping of their teacher identities. Caroline positioned herself as a student-teacher willing to learn from those she encountered, but the reality was that this was only productive if others aligned with her internally persuasive discourse on teaching, similar to Kate. Niamh, however, authored herself as a student-teacher throughout the PGCE both relationally and figuratively. She was the one who was most able to mediate and orchestrate the competing discourses she encountered and navigate the tensions and conflicts to develop her own internally persuasive discourse and authorial position as a mathematics teacher.

9. Conclusion:

9.1 How Do Student-Teachers Develop Authorial Positions Across the Figured Worlds of the School and University?

Institutions, be it HEI's or schools, do not create teachers from a blank slate, but they do try to create teachers based on their own image. Student-teachers navigate their way through the PGCE to identify as a teacher in the different figured worlds they encounter. History-in-person plays a significant role in how student-teachers author themselves and strongly influences their experiences throughout the PGCE year, as exemplified in the stories told by Kate, Niamh, Caroline and Jake. In order to self-author, they begin to understand what it is to be a teacher in practice, but they have to negotiate versions of the teacher they can be and negotiate the teacher positions available to them. Their aspirations of the teacher they wanted to become are part of their identity and relate to how they negotiate versions of themselves. The cacophony of voices they need to orchestrate throughout their placements, that of symbolic past figures, subject mentors, professional mentors, teachers, peers, university tutors is a crucial element to their development and how they respond to the pressure to replicate these figures is significant; their negotiated identity is dependent on them rejecting, resisting or accepting the positional identities offered to them by these figures; resistance being central to their negotiation and development of their authorial position.

There are multiple different ways of being a teacher and different positions available to them based on the ways they negotiate how they are understood. The student-teacher's internally persuasive discourse and their history-in-person should be taken account of by teacher education programmes as these play a significant role in student-teachers appropriating, resisting or rejecting the positions available to them in the figured worlds of the school and the university. If their internally persuasive discourse aligns with the authoritative discourse they encounter then they are unlikely to have their teaching identity challenged. However, where they do encounter differences, they can either reject these positions, which may have extreme consequences for their teaching practice, or they can resist. In resisting they can attempt to mediate and orchestrate the competing discourses to develop their authorial position, or they can masquerade until their figurative identities can be explored and further developed in subsequent years.

The literature suggests that the neoliberal context exerts a force on what happens in schools and necessarily frames the relationship the student-teachers form with their mentors. More influential though is the role that the neoliberal context plays in defining the positions available to student-teachers. The measures of performativity in schools, and university, drive the perceptions of what they are allowed to do and therefore what they are allowed to become as mathematics teachers. The divide between the theory learnt at university and the practice in school means that student-teachers

need to develop an internally persuasive discourse that might not have been required had there not been tensions and conflict to negotiate. The specific conflict in mathematics education, where beliefs about pedagogy are so contested, means that this is a critical aspect in developing their authorial stance and ultimately shaping their teacher identities.

9.2 Contribution to Knowledge

The purpose of this thesis was to capture the experiences of student-teachers throughout their PGCE year and to shine a spotlight on the myriad of pressures, conflicts, and tensions that they experience, and navigate, to shape their teacher identities. This thesis provides a nuanced account of four student-teachers working within the constraints of the neoliberal education system and considers how they negotiated their positions within it. The aim was to consider how student-teachers mediate the cacophony of voices that they experience, often competing discourses, and the effect that relationships, emotions, and their history-in-person play in this orchestration. This thesis offers an interpretation and a representation of the lived experiences of my four participants to make better sense of the experiences of student-teachers, from my unique vantage point. This is an important contribution to the body of knowledge. The main contribution to knowledge is that student-teachers develop negotiated versions of themselves due to the tensions and conflicts they experience and I argue that resistance is required to develop their authorial position. The reason for considering this research is to highlight the significant role that conflicts and tensions play, especially in the contested field of mathematics education, in challenging student-teachers' internally persuasive discourse and developing their authorial stance on teaching, to shape their teacher identities.

This thesis adds to the significant body of knowledge considering the implications of the theory and practice divide in mathematics education. However, this thesis considers it from the point of view of student-teachers and how these specific tensions, linked to the marketisation of education and the neoliberal context of mathematics education, impacts their experiences and development over the course of a PGCE year. The discussion of mathematical pedagogies such as Realistic Mathematics Education, as promoted by the university, was not the focus of this thesis. However, the fact that it became so prominent in some of the student teachers' stories made it was useful to consider in highlighting the contested nature of mathematics education and the impact this has on student-teachers and their mentors. This thesis brings together the debate around this pedagogical division and the consideration that emotions, relationships and beliefs play a part in the development of student-teachers over the course of their training year. The use of figured worlds to consider these issues, not only adds to the body of knowledge through applying this theoretical lens to an education

setting but offers the unique perspective of how the student-teachers author themselves, the role that their history-in-person plays, and the effect that their figurative and relational/positional identities play in shaping their teacher identities.

This thesis also contributes significantly to the body of knowledge using figured worlds to consider social-qualitative methods in educational research. There is a strong emphasis on Holland et al.'s use of Bakhtin and dialogism in my interpretation of their theory. Therefore, the analytical tools offered in the theory of figured worlds have been conceptualised to show how I have made sense of these unique lived stories. The concept of the figured world of the university overlapping the figured world of the school, due to the university school model, is also a unique contribution to the way this theory has been utilised. The thesis considers how student-teachers' author themselves with competing authoritative discourses, along with considering the effects of their relational and positional identities, within these overlapping figured worlds and the impact this has on their developing teacher identities.

This thesis has implications for university tutors involved in initial teacher education and raises questions about how we place and support student-teachers during the PGCE year. It evokes interesting questions for university tutors to consider with respect to their student-teachers existing beliefs, their history-in-person, their internally persuasive discourse and the role tensions, conflict and resistance play in developing their teacher identity. This study also has implications in the wider field of education and can contribute to the knowledge that schools and school mentors have in their role in developing student-teacher's identity. It highlights their voice as one among many that the student-teachers orchestrate and how student-teachers can respond to this as an authoritative discourse in contrasting ways to develop their authorial stance on teaching.

9.3 Implications for Future Practice

One of the main aspects of my role is "supporting" student-teachers throughout their PGCE year as their personal tutor. This thesis has brought into question how I perceive the role of support. Prior to conducting this research, I would have specifically tried to minimise tension and conflict throughout the student-teachers' PGCE year as it is already perceived as an emotional and stressful course. However, this research has shown how powerful tensions and conflicts can be in supporting the student-teachers' development of their authorial stance on teaching. How these tensions and conflicts can be orchestrated in a purposeful manner is an aspect of my practice that I will consider and explore further. I will consider their value when they arise in my current practice. This thesis has highlighted the implications of my intervention, and the support student-teachers may need in navigating these encounters. I am mindful of considering student-teachers' existing internally persuasive discourse and how difficult it can be to bring this into question depending on their

alignment with the authoritative discourses that they experience, giving me a clearer understanding of how and why they accept, resist or reject the positions available to them. This will allow me to consider situations from a different perspective and be more alert to how to support student-teachers in future.

The data collected has been extremely rich, highlighting the individual journey that student-teachers take and the role that the university plays, and more specifically myself as their tutor. The research has already had an impact on how I perceive my role, as it has highlighted my own preoccupation with issues around professionalism that I had previously been unaware of, although this was not discussed in this thesis. This self-reflection of my internally persuasive discourse on mathematics education as well as on professionalism has been very powerful in my own interaction with colleagues and is possibly an avenue to consider for future research.

Considering the theory and practice divide in depth from the student-teachers' perspective has impacted on sessions I deliver on the PGCE course and will continue to do so. This thesis has also made me reflect on my own view of RME and the impact this has on student-teachers. The student-teachers' ability to decipher that my voice is only one of the many they need to orchestrate allows me to be the lecturer I want to be in sessions, advocating the RME approach to teaching. However, when considering Caroline's story, I am also aware of the powerful influence that my voice can bring and the detrimental effect this could have if not in the USM where intervention and support were more easily offered. This is impacting on my own practice as a lecturer on the PGCE and the authority I bring to discussions on student-teachers' development over the course of the PCGE year.

9.4 Limitations

As is the way with qualitative research, my findings relate to four student-teachers over the course of a year in a small number of educational settings, so the findings are limited in their ability to generalise to a wider population of student-teachers. However, considering these cases in depth, using a wide range of data has brought about rich insights into considering the journey that student-teachers undertake. I am also aware that with limited words for this thesis, I was not able to explore all the aspects as I would have liked. I have not explored in detail the work of Foucault or the work of Bourdieu and their discussions on power, which are clearly relevant for a study such as this. A further limitation is that these findings are individual to me as the researcher given my relationship with the participants and could not be easily replicated. In dialogism, words are never neutral, and responses given by the participants were influenced by their knowledge of my beliefs about teaching and their relationship with me over the course of the year. My relationship with them was both a limitation and a strength. It allowed me to consider their journey over the full expanse of the year and

understand their situations as an insider. However, it was also a limitation in that there were power relations at play given my position and the stories they shared with me were filtered through their knowledge and positioning of me as their tutor. This meant that I was not able to stay completely free of judgement in the collection of this data, and my relationship with the participants will have influenced not only their provision of data, but also my analysis of their data.

Although this is a methodologically rich study, it could be considered a pilot study to my future research in this area. However, due to the qualitative nature of using figured worlds as both my theory and my methodology, a limitation to this research is its inability to be significantly scaled up to represent the larger population of student-teachers. It cannot make conclusions about the wider student-teachers experiences, only those involved in this study. The limited number of participants that I could consider did not allow me to take into account factors such as ethnicity, gender, sexuality, religion, or beliefs for example. I was also limited to considering only the student-teachers that were in my tutor group and the schools that these student-teachers were placed in, neither of which were in my control. Given the conclusions that I have drawn about the nature of schools being significant for student-teachers' development, I feel the small number of schools used in this research was a limiting factor. There were also ethical considerations and limitations around which student-teachers I could consider for my research. In discussing the student-teachers navigation of competing discourses and the tensions they experienced, I have only considered those student-teachers who confidently and successfully completed the course. For ethical reasons I decided not to consider the experiences of those who did not complete the course or those who required significant support in order to complete the course. This is an area that I feel needs a wider consideration in future research and will add breadth and a layer of complexity to the discussions that have arisen in this research.

9.5 Implications for Future Research

To conclude, this study is not complete. I have presented in-depth accounts and captured the lived experiences of four student-teachers over a specific year in teacher education. I have considered how they have self-authored and the role their history-in-person plays in this. I have also considered how they have orchestrated the competing education discourses they have encountered, and their positional and relational identities based on how they have presented themselves in the data. However, I have not considered other factors that might have impacted their experiences and their self-authoring over the course of the year, aspects such as their age, their race, their culture, their gender, or their sexuality. I would like to further explore how these factors impact how they experience these tensions and their responses to it. I have also only considered student-teachers who successfully completed the course, whereas I would be interesting in exploring further the way student-teachers who have been identified as requiring additional support might negotiate versions

of themselves and how they orchestrate the competing discourses they experience. My research only focused on a small number of educational establishments; that of a community school, a long-established academy, and a newly formed multi-academy trust. The educational setting of their placements plays a significant role in the shaping of their teacher identities and so I would like to consider student-teachers' experiences in a wider range of educational contexts in future research.

My theoretical framework for this research was figured worlds as developed by Holland et al. (1998) and it critically guided my methodological approach so significantly that I would be interesting in further developing the explicit notion that figured worlds is also a methodological approach. I am interested in writing a paper on this aspect of the Figured World theory and developing this further.

10. Glossary and References

10.1 Glossary of Acronyms

BSc – Bachelor of Science – undergraduate course.

CCF – Core Curriculum Framework

DFE – Department for Education

DfEE – Department for Education and Employment

GNVQ's – General National Vocational Qualification

HEI's – Higher Education Institutions.

HMI's – Her Majesty's Inspectorate

ITE – Initial Teacher Education

ITT – Initial Teacher Training

LEA – Local Education Authority

MATs – Multi-Academy Trusts

MEC – Mathematics Enhancement Course

NQT – Newly Qualified Teacher (current terminology is ECT – Early Careers Teacher)

OECD – Organisation for Economic Co-operation and Development

Ofsted – Office for Standards in Education

PGCE – Post Graduate Certificate of Education

PISA - Programme for International Student Assessment

PM – Professional Mentor

REF – Research Excellence Framework

RME – Realistic Mathematics Education (or Realisable Mathematics Education)

SCITT – School Centred Initial Teacher Training.

SM – Subject Mentor

TIMSS - Trends in International Mathematics and Science Study

TTA – Teacher Training Agency

USM – University Schools Model (of initial teacher education)

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Appendix A: Ethical Approval Form

APPLICATION FOR ETHICAL APPROVAL

Manchester
Metropolitan
University

Introduction

All university activity must be reviewed for ethical approval. In particular, all undergraduate, postgraduate and staff research work, projects and taught programmes must obtain approval from the Academic Ethics committee.

Application Procedure

The form should be completed legibly (preferably typed) and, so far as possible, in a way which would enable a layperson to understand the aims and methods of the research. Every relevant section should be completed. Applicants should also include a copy of any proposed advert, information sheet, consent form and, if relevant, any questionnaire being used. The Principal Investigator should sign the application form. Supporting documents, together with one copy of the full protocol should be sent to the Faculty/Campus Research Group Officer.

Your application will require external ethical approval by an NHS Research Ethics Committee if your research involves staff, patients or premises of the NHS (see guidance notes)

Work with children and vulnerable adults

You will be required to have an Enhanced CRB Disclosure, if your work involves children or vulnerable adults.

The Academic Ethics Committee will respond as soon as possible, and where appropriate, will operate a process of expedited review.

Applications that require approval by an NHS Research Ethics Committee or a Criminal Disclosure will take longer.

1. Details of Applicants
1.1. Name of applicant (Principal Investigator):Fiona Haniak-Cockerham
Telephone Number: 01612472075
Email address: f.cockerham@mmu.ac.uk

Status:	Postgraduate Student (Taught)
Department/School/Other Unit: Faculty of Education	
Programme of study (if applicable): Doctor of Education	
Name of supervisor/Line manager: Tony Brown/ Sue Pope	

2. Details of the Project

2.1. Title: **Turning Education Inside Out:** a teacher educator's psychoanalytical exploration of "good"mathematics lessons.

2.2. Description of the Project: (please outline the background and the purpose of the research project, 250 words max)

My role as teacher educator at University involves me observing student teachers, judging their progress and offering advice on how to meet the external imposed teaching standards. I am also responsible for teaching mathematics on an undergraduate and enhancement course where my perspectives on 'what makes a good mathematics lesson' are constantly modelled to future teachers. This thesis aims to focus on developing an account of my perceptions of teaching mathematics and consider how they develop and relate to successive perceptions of my professional space. My research will focus on encounters with students and how the ecology of relationships informs who I am and influences who they are. This thesis will not answer the question of what makes a "good" mathematics lesson but is an exploration of these assumptions that underpin such assertions and their impact on practice.

2.3. Describe what type of study this is (e.g. qualitative or quantitative; also indicate how the data will be collected and analysed). Additional sheets may be attached.

This study is qualitative. The study will be carried out at Manchester Metropolitan University and in various inner-city schools in the Manchester area. Students on a teacher-training course will be chosen dependant on their school placement being a 'University school'. These are schools that offer six mathematics placements to student teachers and work collaboratively with the university tutor throughout the placement. This allows the university tutor to work in the school for one day a week to support with the student teachers' development as well as the students supporting each other and teaching collaboratively. Lessons will be observed, with observation field notes taking the same form regardless of participation in the study, including a commentary of the lesson, strengths of the lesson and points to consider for future development. Pieces of reflective writing will also be scrutinised to identify themes for a focus group discussion. Focal groups will also be formed around the analysis of video clips of myself delivering lessons in a university school planned by student teachers. The methodology of a focus group (Morgan 1997) will be used where emerging themes are shared with my tutor group. The resulting discussions will be analysed, and this will inform subsequent research. The focus groups are designed to gain insight into the developing teacher identity of the student teachers and the experiences that have influenced this, but also how these interactions inform who I am and explore the assumptions that underpin my own identity as a teacher educator and as a teacher. My own actions will be integral to the situation being described and thus my narrative becomes an essential part of the research. I will be located within the research but will also attempt to move outside the context to become an observer. Although never objective in what I notice, I will try to capture my development through a journal of my critical reflections.

Analysis of Data

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The data will be analysed through the lens of psychoanalysis as this is very much looking at myself through a lacanian mirror. The emphasis being on exploring interactions with students and considering these in terms of the ego, the unconscious, the role of anxieties and desires and how these underpin assertions that impact on practice. Lacan's notions of power relationships and knowledge will also be explored.

2.4. Are you going to use a questionnaire?

NO

2.5. Start Date / Duration of project: September 2017-August 2019

2.6. Location of where the project and data collection will take place:

Brooks building, Manchester Metropolitan University

Various inner-city schools in the Northwest of England based on the premise that they are a placement school involved in the 'University schools' model of teacher training.

2.7. Nature/Source of funding
   MMU sponsorship

2.8. Are there any regulatory requirements?
   NO

3. Details of Participants

3.1. How many? Up to 12 student teachers in my tutor group.

3.2. Age: 19 and above

3.3. Sex: Any

3.4. How will they be recruited? (Attach a copy of any proposed advertisement)

The initial sampling frame contains student teachers enrolled on a teacher-training course at Manchester Metropolitan University (PGCE and BSc). My role as a tutor involves leading sessions on mathematics pedagogy and observing student teachers on placement. Placements are organised around students' term time postcode and proximity to schools, as well as taking into account their own personal experiences. Once students have been placed, schools following a 'University school model' for teacher education will be identified and this will form the basis of my 'tutor group'. All of the student teachers placed in this tutor group will be invited to volunteer to take part in this study. The student teachers in my placement University schools will be invited to attend a 20-minute meeting where information about the study will be shared. It will be made clear that participation is voluntary and any data used will remain anonymous. Participant information and a consent form will be distributed. Student teachers will have one week to consider the information before returning any consent forms.

I will inform placement schools about the study I am undertaking and I will make it clear that the focus is student teacher development. Names of schools and any data used will remain anonymous. (see letter attached)

3.5. Status of participants: (e.g. students, public, colleagues, children, hospital patients, prisoners, including young offenders, participants with mental illness or learning difficulties.)

The initial sampling frame contains student teachers enrolled on a teacher-training course (PGCE and BSc) at Manchester Metropolitan University. I am a tutor on these courses.

Inclusion and exclusion from the project: (indicate the criteria to be applied). How many are you going. Selection?

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The criteria used for the sampling frame is based on student teachers being placed in schools incorporating a 'university schools' model of teacher training as these are the schools that I work closely with and where collaborative teaching takes place. From these criteria, I will invite all of the students to volunteer to take part in the study. It is anticipated that the sampling frame will include approximately 12 student teachers. Student teachers outside of the sampling frame will be informed of the project and reassured that there are no advantages or disadvantages of being involved. All students will be informed that there are no additional teaching sessions or observations. There will be full transparency about the sampling frame

3.6. Payment to volunteers: (indicate any sums to be paid to volunteers).No payment

3.7. Study information:
   Have you provided a study information sheet for the participants?
         YES (Please attach a copy)

3.8. Consent:
   (A written consent form for the study participants MUST be provided in all cases, unless the research is a questionnaire.)
   Have you produced a written consent form for the participants to sign for your records?
         YES (Please attach a copy)

4. Risks and Hazards

4.1. Are there any risks to the researcher and/or participants?
   (Give details of the procedures and processes to be undertaken, e.g., if the researcher is a lone-worker.)
a)   I am asking students to give up their time to participate in focus group discussions.
b)   There could be perceived advantage or disadvantage of participating in the study.
c)   Lesson observations can be stressful to students. With the added focus of the observations around pedagogy and their evolving teacher identity, there could be additional stress.
d)   There is a risk that students will join the project to 'please me' as I am their tutor. I will be clear that participation is in no way connected to course outcomes.
e)   Placement schools needs to be aware of the aims of my study. They might be concerned that it could be a reflection of their departments pedagogy.
f)   The researcher will be inviting the student teachers to reflect on clips of a video of a lesson that they have taught in a placement school using a lesson plan developed by the trainees. There is a concern that this could influence future feedback to the trainees if there are perceived inadequacies in the delivery.

4.2. State precautions to minimise the risks and possible adverse events:

a)   I am aware of the ethical issues regarding the process not being too arduous in terms of time commitments for the participants. I have carefully considered the construction of the focus group, minimising the amount of time required. I am mindful that I will not undertake excessive data collection for this study or collect data that is beyond the scope of the study and therefore cannot be used. Students will be invited to participate in a focus group at a time that is convenient to them. Focus groups will last a maximum of thirty minutes on three occasions during the academic year.
b)   Both non-participants and participants will be reassured that there is no advantage or dis-advantage of participating in the study. Participants' opinions will be valued but they will remain anonymous and independent of course outcomes. I will make it very clear to participants that involvement in the study is at all times voluntary. I will also stress to the participants that they may withdraw at any point during the process without explanation and there will be no adverse consequences as a result.
c)   During lesson observations, I will reassure student teachers to teach as they normally would for any other lesson. I do not want them to do anything different. I will not assess the participants differently to those

not in the study. The participants will have the same amount of lesson observations as any other student teacher on their courses

   d) I will inform placement schools about the study I am undertaking and I will make it clear that the focus is student teacher development. Names of schools and any data used will remain anonymous. (see letter attached)

   e) I will choose clips from the video of the lesson delivered to minimise the risk of inadequate practice being shared for discussion.

4.3. What discomfort (physical or psychological) danger or interference with normal activities might be suffered by the researcher and/or participant(s)? State precautions which will be taken to minimise them:

There is a risk that students could feel exposed when they are sharing their opinions. I will work hard to create a non-threatening, non-judgemental atmosphere. I will engage in active listening allowing participants to finish what they are saying. The discussions are not about conformity to a 'good mathematics lesson', but much more about the support mechanisms that student teachers encounter in their teaching experiences in schools and how these influence their pedagogy and their teacher identity. There may be discomfort discussing issues around my teaching of their lessons, so these will planned as a trio or a group of six. The use of a focus group rather than an interview will be used to minimise this anxiety and create a more supportive environment to share their thoughts. The agenda for the focus group will be shared before the meetings so as to allow time for student teachers to be confident in what they want to share. By having an emphasis on these aspects, I hope to minimise any feelings of potential distress. Only aspects of the lesson which provoke discussion will be used in the focus group.

The potential discomfort for the researcher is the delivery of a lesson planned by the student teachers which will inform the discussion in the focus group. This could lead to complications if there were inadequacies in the lesson when later supporting trainees who are not meeting the standards of the course. The precaution for this is the researcher delivering a student teachers lesson rather than their own lesson so that the focus can be more on the design of the lesson than the delivery, although delivery will also be a factor. The researcher will need to be mindful of choosing a class where there is the maximum potential for reflection on the issues of teaching rather than other issues. Clips will be chosen by the researcher to be used to provoke discussion in the focus groups. These will be chosen beforehand to maximise discussion and minimise discomfort for the researcher.

5. Ethical Issues

5.1. Please describe any ethical issues raised and how you intend to address these:

Students are being asked to discuss their thoughts and views on teaching mathematics. Their writing will be analysed, teaching observed and focus group discussions will take place. The imbalance in power relations between students and myself as their tutor as well as the researcher increases the risk that students will join the project to 'please me'. There may also be concerns that there will be repercussions if they say anything negative and/or they may tell me things that they think they want me to hear. I will reassure the participants that there is no obligation to take part - it is purely voluntary and anything that is said will not impact on their studies or in future relationships with me as a tutor at MMU. Published work arising from the study will be anonymous and I will not discuss his or her responses with anyone else. Everything will be kept confidential.

I am aware of the ethical issues regarding the process not being too arduous in terms of time commitments for the participants. I have carefully considered the construction of the agenda for the focus groups, minimising the amount of time required. I am mindful that I will not undertake excessive data collection for this study or collect data that is beyond the scope of the study and therefore cannot be used. As ever, I will also stress to the participants that they may withdraw at any point during the process without explanation and there will be no adverse consequences as a result.

Use of audio – confidentiality and storage of data (please see Section 6 below). It is important that students are clear about how the audio footage will be stored, for how long and used for what purposes. I will ensure that I will not use the footage for my own purposes without full permission from the participants.

Use of video – this will be used for the purpose of the focus group discussion and will be deleted immediately after the focus group.

6. Safeguards/Procedural Compliance

6.1. Confidentiality:

6.1.1. Indicate what steps will be taken to safeguard the confidentiality of participant records. If the data is to be computerised, it will be necessary to ensure compliance with the requirements of the Data Protection Act 1998.

Data will be kept on a password-protected computer known only by the researcher. Written data will be stored in a locked office and will be anonymised.

6.1.2. If you are intending to make any kind of audio or visual recordings of the participants, please answer the following questions:

6.1.2.1.   How long will the recordings be retained and how will they be stored?

The recordings will be retained until successful completion of the study; they will be stored in password-protected files on an encrypted work issued laptop.

6.1.2.2.   How will they be destroyed at the end of the project?

All recording will be fully deleted

6.1.2.3.   What further use, if any, do you intend to make of the recordings?

Permissions will be sought to use any material arising from the study, which would be relevant and of value in the writing of research papers/reports and for conference presentations.

6.2. The Human Tissue Act

The Human Tissue Act came into force in November 2004, and requires appropriate consent for, and regulates the removal, storage and use of all human tissue.

6.2.1.   Does your project involve taking tissue samples, e.g., blood, urine, hair etc., from human subjects?

NO

6.2.2.   Will this be discarded when the project is terminated?

N/A

If NO – Explain how the samples will be placed into a tissue bank under the Human Tissue Act regulations:

6.3. Notification of Adverse Events (e.g., negative reaction, counsellor, etc):

(Indicate precautions taken to avoid adverse reactions.)

Please state the processes/procedures in place to respond to possible adverse reactions.
In the case of emotional distress, I will follow the MMU Distress Protocol for Qualitative Data Collection. In the event of unforeseen issues that cannot be resolved, the research will be terminated and all data deleted.

SIGNATURE OF PRINCIPAL INVESTIGATOR:	Date 26/07/2017

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![signature]	
SIGNATURE OF FACULTY'S HEAD OF ETHICS:	Date:

Checklist of attachments needed:

1. Participant consent form
2. Participant information sheet
3. Full protocol
4. Advertising details
5. NHS Approval Letter (where appropriate)
6. Other evidence of ethical approval (e.g., another University Ethics Committee approval)

Appendix B: Consent Form

Name: F.Haniak-Cockerham
Course: Doctor of Education
Department: Educational Research
Building: Birley
Manchester Metropolitan University
Tel: 0161-247-2075
Date: 24-03-17

Title of Project: What makes a 'good' mathematics lesson?: Normativity in the production of mathematics teachers

Name of Researcher: Fiona Haniak-Cockerham

Participant Identification Code for this project:

Please initial box

1. I confirm that I have read and understood the information sheet
    Dated 24-03-17 for the above project and have had the
    opportunity to ask questions about the interview procedure.

2. I understand that my participation is voluntary and that I am free to withdraw
    at any time without giving any reason to the named researcher.

3. I understand that my responses will be sound recorded and used for analysis
    for this research project.

4. I give/do not give permission for my interview recording to be archived as part of this
    research project, making it available to future researchers.

5. I understand that my responses will remain anonymous.

6. I agree to take part in the above research project.

7. I understand that at my request a transcript of my interview can be made
    available to me.

_____   _____   _____
Name of Participant   Date   Signature
_____   _____   _____
Researcher   Date   Signature
To be signed and dated in presence of the participant.

Appendix C: Participant Information Sheet

Study Title

What makes a 'good' mathematics lesson?: Normativity in the production of mathematics teachers.

Invitation paragraph

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take the time to read the following information carefully. Ask any questions if anything you read is not clear or you would like more information. Take time to decide whether or not to take part.

The research is not about answering the question of what makes a good mathematics lesson as such. This is a rhetorical question because we all have different opinions on what a 'good' mathematics lesson actually is, based on our own experiences and beliefs about mathematics. This research aims to shine a light on how my personal beliefs about mathematics shape my interactions with you as students. I aim to focus on developing an account of my perceptions of teaching mathematics and consider how they develop and relate to your professional development over the year.

What is the purpose of the study?

The purpose of this study is to provide a critically reflective account of my evolving practice in teaching Mathematics on the MEC, BSc and PGCE course and how the discourse produced guides my practice. I also aim to document the support mechanisms that student teachers encounter in their teaching experiences in schools and how these influence their beliefs about teaching and their developing teacher's identity.

Why have I been invited?

You have been invited to take part in this study because you are in my tutor group which means your school placements are in a 'University school'. This is decided purely on your term time address and proximity to schools that we use in this model of teacher training. The university school model of teacher training is relevant for this research because I, as your tutor, will be working closely with you every week throughout your placements in your schools.

Do I have to take part?

It is up to you to decide. I will describe the study to you and go through the information sheet which I will give to you. I will then ask you to sign a consent form to show you agree to take part. You are free to withdraw at any time, without giving a reason. This will not affect the support you receive throughout the year or the course outcomes.

What will happen to me if I take part?

The research will be conducted at various points throughout the year and will mostly be concerned with actions that you will doing as part of the PGCE. As part of the PGCE you are asked to reflect ever week on your teaching experiences and your emerging professional development and this will form part of the data for this study. Your lesson observations and more importantly your feedback from lesson observations will also form part of the data collected. There will be no additional observations for this study. You will also be invited to be interviewed to talk about your experiences. These will be arranged at a time that is convenient to you within the school day and will be held in your placement school. The interviews will be recorded and transcribed and you are welcome to have a copy of this. Any audio recordings will be kept secure on a password protected encrypted computer and will be deleted at the end of the research. All of the data collected will be anonymised

Expenses and payments?

There will be no costs incurred to you in being part of this research as it will occur within your time in the Brooks building and where possible within the sessions you are attending.

What will I have to do?

You will need to reflect weekly on your experiences within your teaching practices – this will include reflecting on your teaching and how you are developing as a teacher. It may include emerging thoughts on teaching based on meetings or lesson observations. You will also be invited to a semi-structured interview where you will be asked to discuss your beliefs about mathematics teaching and how you are developing as a teacher.

What are the possible disadvantages and risks of taking part?

You may feel uncomfortable talking about aspects of your lessons or your beliefs about teaching, especially if you feel it contradicts that of the class teacher or the observer. I appreciate that these are very personal opinions. Lesson observations are stressful at the best of times and so with the focus of feedback being around your pedagogy you may feel that this is an additional stress. You are free to withdraw at any time without the need to give a reason. Participation or non-participation is in no way connected to course outcomes.

What are the possible benefits of taking part?

I cannot promise that the study will help you but the information I get from the study aims to improve the understanding behind how teachers perceptions of mathematics (such as myself) influence their students. You may find that your reflections throughout the year are more focussed and this may have an effect on your own development as a teacher. Participation is in no way connected to course outcomes.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your question: Fiona Haniak-Cockerham (0161-247-2075) f.cockerham@mmu.ac.uk

If you remain unhappy and wish to complain further, or you do not feel comfortable talking to the researcher directly, you can do this through the research supervisor. Please contact Tony Brown (0161-247- 2243) a.m.brown@mmu.ac.uk or Sue Pope (0161-247-2373) s.pope@mmu.ac.uk

Will my taking part in the study be kept confidential?

All information which is collected about you during the course of the research will be kept strictly confidential, and any information about you which leaves the university will have your name removed so that you cannot be recognised.

Any data or recordings will be kept on a password-protected encrypted work issued laptop known only by the researcher. Any written data collected will be stored in a locked filing cabinet in a locked office and will be anonymised. Recordings from interviews will be retained until the successful completion of the study and then be fully deleted. Permission will be sought to use any of the material arising from the study which would be relevant in the writing of research papers or for conference presentations.

What will happen if I don't carry on with the study?

If you withdraw from the study all the information and data collected from you, including recordings, interviews, reflections, will be destroyed and your name removed from the study files.

 What will happen to the results of the research study?

This research will be submitted as the thesis for an educational doctorate. It will therefore be published and will be made available to you in the university. You will not be identified in any publication.

 Who is organising or sponsoring the research?

The research is organised through the educations research department at Manchester Metropolitan University.

Contact details:

Researcher: Fiona Haniak-Cockerham f.cockerham@mmu.ac.uk (0161-247-2075)

Supervisor : Tony Brown   a.m.brown@mmu.ac.uk   (0161-247-2243)

Supervisor : Sue Pope   s.pope@mmu.ac.uk   (0161-247-2373)

All of the above have an office at:

Faculty of Education
Manchester Metropolitan University
Birley Campus

53 Bonsall Street,

Manchester.

M15 6GX

Appendix D: Risk Assessment and Ethics Checklist

Manchester Metropolitan University

RISK ASSESSMENT

FACULTY/DEPARTMENT	BUILDING
Education - Secondary Mathematics	Brooks

1) ACTIVITY

Research study:This study is qualitative. The study will be carried out at Manchester Metropolitan University and in various inner-city schools in the Manchester area. Students on a teacher-training course will be chosen dependant on their school placement being a 'University school'. This allows the university tutor to work in the school for one day a week to support with the student teachers' development as well as the students supporting each other and teaching collaboratively. Lesson will be observed, semi-structured interviews will be conducted, lesson plans analysed and pieces of reflective writing scrutinised. Students on the Mathematics enhancement course will be included in the sample. Their reflective writing will also be scrutinised and semi-structured interviews will be conducted. The interviews are designed to gain insight into the developing teacher identity of the students and the experiences that have influenced this, but also how these interactions inform who I am and explore the assumptions that underpin my own identity as a teacher educator and as a teacher. My own actions will be integral to the situation being described and thus my narrative becomes an essential part of the research. I will be located within the research but will also attempt to move outside the context to become an observer. Although never objective in what I notice, I will try to capture my development through a journal of my critical reflections as well as videoing my own teaching for analysis. This will help me to consider aspects of my taught lessons and my interactions with students and highlight aspects of my teaching that I may have been unaware of.

2) PERSONS AT RISK

Students enrolled on a teacher training course at Manchester Metropolitan University. This involves students on a PGCE, BSc and the Mathematics Enhancement Course.

3A) HAZARDS

a) Lesson observations can be stressful to students. With the added focus of the observations around pedagogy and their evolving teacher identity, there could be additional stress.

b) Students may feel uncomfortable talking about aspects of their lessons or their beliefs about teaching, especially if they feel it contradicts that of the teacher

c) There is a risk that students could feel exposed when they are sharing their opinions.

d) There is a risk that it will add more work for the students in an already busy year and therefore extra pressure

3B) Hazard Rating   Low ☒   Med ☐   High ☐

4A) RISK CONTROL METHODS

a) During lesson observations, I will reassure students to teach as they normally would for any other lesson. I do not want them to do anything different. I will not assess the participants differently to those not in the study. The participants will have the same amount of lesson observations as any other student on their courses

b) Participants' opinions will be valued but they will remain anonymous and I will ensure they are aware that their opinions are independent of course outcomes. I will make it very clear to participants that involvement in the study is at all times voluntary. I will also stress to the participants that they may withdraw at any point during the process without explanation and there will be no adverse consequences as a result

c) I will work hard to create a non-threatening, non-judgemental atmosphere. I will engage in active listening allowing participants to finish what they are saying.

d) I will ensure any interviews are conducted during free periods during the working day and at the venue that is most convenient for the participant eg Brooks building or their placement school. ANy reflections or writing to be analysed will be what is expected from anyone on the course. I will emphasis that they do not need to go into more detail than those not in the study.

4B) Hazard Rating with control methods   **Low** ☒   **Med** ☐   **High** ☐

5) FURTHER ACTION REQUIRED
None

NAME AND TITLE OF ASSESSOR	SIGNATURE	DATE
Fiona Haniak-Cockerham	Fiona Haniak-Cockerham	24-03-17
		REVIEW DATE
SIGNATURE OF DEAN/HEAD OF DEPT.		**DATE**
		REVIEW DATE

ETHICS CHECKLIST

This checklist must be completed **before** commencement of **any** research project. This includes projects undertaken by **staff and by students as part of a UG, PGT or PGR programme**. Please attach a Risk Assessment.

Please also refer to the University's Academic Ethics Procedures; Standard Operating Procedures and the University's Guidelines on Good Research Practice

Full name and title of applicant:	Fiona Haniak-Cockerham
University Telephone Number:	0161-247-2075
University Email address:	f.cockerham@mmu.ac.uk
Status: All staff and students involved in research are strongly encouraged to complete the Research Integrity Training which is available via the Staff and Research Student Moodle areas	Undergraduate Student ☐ Postgraduate Student: Taught ☐ Postgraduate Student: Research ☑ Staff ☐
Department/School/Other Unit:	Education - Secondary
Programme of study (if applicable):	Doctor of Education
Name of DoS/Supervisor/Line manager:	Tony Brown & Sue Pope
Project Title:	What makes a 'good' mathematics lesson?: Normativity in the production of mathematics teachers
Start & End date (cannot be retrospective):	May 2017 to August 2019
Number of participants (if applicable):	32
Funding Source:	Manchester Metropolitan University

Brief description of research project activities (300 words max):

My role as teacher educator at University involves me observing student teachers, judging their progress and offering advice on how to meet the external imposed teaching standards. I am also responsible for teaching mathematics on an undergraduate and enhancement course where my perspectives on 'what makes a good mathematics lesson' are constantly modelled to future teachers. This thesis aims to focus on developing an account of my perceptions of teaching mathematics and consider how they develop and relate to successive perceptions of my professional space. My research will focus on encounters with students and how the

	YES	NO
Does the project involve NHS patients or resources? If 'yes' please note that your project may need NHS National Research Ethics Service (NRES) approval. Be aware that research carried out in a NHS trust also requires governance approval. Click here to find out if your research requires NRES approval Click here to visit the National Research Ethics Service website To find out more about Governance Approval in the NHS click here	☐	☑
Does the project require NRES approval?	☐	☑
If yes, has approval been granted by NRES? Attach copy of letter of approval. Approval cannot be granted without a copy of the letter.	☐	☐

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NB Question 2 should only be answered if you have answered YES to Question 1. All other questions are mandatory.	YES	NO
1. Are you are gathering data from people?	✔	☐
For information on why you need informed consent from your participants please click here		
2. If you are gathering data from people, have you:	☐	☐
a. attached a participant information sheet explaining your approach to their involvement in your research and maintaining confidentiality of their data?	✔	☐
b. attached a consent form? (not required for questionnaires)	✔	☐
Click here to see an example of a participant information sheet and consent form		
3. Are you gathering data from secondary sources such as websites, archive material, and research datasets?	☐	✔
Click here to find out what ethical issues may exist with secondary data		
4. Have you read the guidance on data protection issues?	☐	☐
a. Have you considered and addressed data protection issues – relating to storing and disposing of data?	✔	☐
b. Is this in an auditable form? (can you trace use of the data from collection to disposal)	✔	☐
5. Have you read the guidance on appropriate research and consent procedures for participants who may be perceived to be vulnerable?	✔	☐
a. Does your study involve participants who are particularly vulnerable or unable to give informed consent (e.g. children, people with learning disabilities, your own students)?	✔	☐
6. Will the study require the co-operation of a gatekeeper for initial access to the groups or individuals to be recruited (e.g. students at school, members of self-help group, nursing home residents)?	☐	✔
Click for an example of a PIS and information about gatekeepers		
7. Will the study involve the use of participants' images or sensitive data (e.g. participants personal details stored electronically, image capture techniques)?	☐	✔
Click here for guidance on images and sensitive data		
8. Will the study involve discussion of sensitive topics (e.g. sexual activity, drug use)?	☐	✔
Click here for an advisory distress protocol		
9. Could the study induce psychological stress or anxiety in participants or those associated with the research, however unlikely you think that risk is?	✔	☐
Click here to read about how to deal with stress and anxiety caused by research procedures		
10. Will blood or tissue samples be obtained from participants?	☐	✔
Click here to read how the Human Tissue Act might affect your work		
11. Is your research governed by the Ionising Radiation (Medical Exposure) Regulations (IRMER) 2000?	☐	✔
Click here to learn more about IRMER		
12. Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	☐	✔
Click here to read about how participants need to be warned of potential risks in this kind of research		
13. Is pain or more than mild discomfort likely to result from the study? Please attach the pain assessment tool you will be using	☐	✔

Click here to read how participants need to be warned of pain or mild discomfort resulting from the study and what do about it.		
14. Will the study involve prolonged or repetitive testing or does it include a physical intervention?	☐	✔
Click here to discover what constitutes a physical intervention and here to read how any prolonged or repetitive testing needs to managed for participant wellbeing and safety		
15. Will participants to take part in the study without their knowledge and informed consent? If yes, please include a justification.	☐	✔
Click here to read about situations where research may be carried out without informed consent		
16. Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?	☐	✔
Click here to read guidance on payment for participants		
17. Is there an existing relationship between the researcher(s) and the participant(s) that needs to be considered? For instance, a lecturer researching his/her students, or a manager interviewing her/his staff?	✔	☐
Click here to read guidance on how existing power relationships need to be dealt with in research procedures		
18. Have you undertaken Risk Assessments for each of the procedures that you are undertaking?	✔	☐
19. Is any of the research activity taking place outside of the UK?	☐	✔
20. Does your research fit into any of the following security sensitive categories: • commissioned by the military • commissioned under an EU security call • involve the acquisition of security clearances • concerns terrorist or extreme groups If Yes, please complete a Security Sensitive Information Form	☐	✔

I understand that if granted, this approval will apply to the current project protocol and timeframe stated. If there are any changes I will be required to review the ethical consideration(s) and this will include completion of a 'Request for Amendment' form.

☐ have attached a Risk Assessment

☐ have attached an Insurance Checklist

If the applicant has answered **YES** to **ANY** of the questions **5a – 17** then they must complete the MMU Application for Ethical Approval.

Signature of Applicant: Fiona Haniak-Cockerham *Digitally signed by Fiona Haniak-Cockerham Date: 2017.03.24 14:56:06 Z*   Date: 24-03-17 (DD/MM/YY)

Independent Approval for the above project is (please check the appropriate box):
Granted
☐ I confirm that there are no ethical issues requiring further consideration and the project can commence.

Not Granted
☐ I confirm that there are ethical issues requiring further consideration and will refer the project protocol to the Faculty Research Group Officer.

Signature:_____Date:_____(DD/MM/YY)

Print Name: _____Position:_____

Approver: Independent Scrutiniser for UG and PG Taught/ PGRs RD1 Scrutiniser/ Faculty Head of Ethics for staff.

Appendix E: Student-Teacher Weekly Reflection Form

REFLECTIONS ON EXPERIENCE AND LEARNING

Please refer to REAL guidance for your weekly reflective entries.

(For use by PGCE Secondary Core and School Direct Trainees and their Mentor(s)

Trainee Reflective Entry (weekly entries) – refer to experience* and reflect on its impact on your learning.	**Subject Mentor** acknowledgement, support, or question to develop trainee's thinking & practice (complete at mentor session
I'm not sure how to reflect about this week. It was good to be back in the school environment, even though I could only be there for a couple of days. I was a little taken aback by being told about several Math's lessons being taught by non- specialists. I felt really sorry for the kids. We did observe one of these lessons and although the teacher did his best, it was clear he didn't really know what he was talking about. The same teacher told me, he has been teaching three other subjects that are not his own. It left me with an initial impression that I wasn't in a "real' school. There were other times, during the two days I was able to go in, that left me with a surreal feeling that I was in a place that was pretending to be a school. I've decided to ignore this feeling and focus on the kids. Whatever my impression is, they turn up every day, and their parents send them there to get an education. I'm happy to be teaching my own classes and am looking forward to meeting the two classes I couldn't meet this week. I chose to go in this week, with a firm attitude, as I was aware that soon I would be teaching these kids and needed them to understand the boundaries in my classroom. I also took responsibility for the behavior in the corridors and at breaks if I saw something untoward. It was something we were encouraged to do in the last placement, so I wanted to implement this immediately upon arriving at this placement. I really took home the lesson during the consolidation phase about getting certain things right from the very beginning. The kids did respond very quickly, though I am aware that consistency will be the key in sustaining these relationships. There isn't too much else really that stood out this week, except maybe the subject mentor. I'm really looking forward to working with her. She seems cheerful and professional, and also a good teacher from the lesson I observed.	An interesting reflection and some interesting insights. I look forward to seeing how this progresses over the placement, whether the sense of it being a 'real' school continues. I am glad that you are starting as you mean to go on, this will definitely help throughout the placement. Consistency is the key!

Appendix F: Lesson Observation Form

Lesson Observation Report Form   Placement: _____   Week:

➢ **Tick statements indicating strengths in the lesson.** ➢ **Highlight statements to indicate areas to reflect on.** ➢ **Use these statements as prompts in written feedback.**	Trainee	Date-
	School/College	Number in group
	Mentor/Teacher/Tutor F. Haniak-Cockerham	Year group/ability information
	Lesson Topic	Observation Focus (Standards or previous target(s)

| • Establish a secure learning environment that promotes good pupil progress and behaviour (S1) • Build on, consolidate and extend pupils' capabilities, prior knowledge and understanding (S2) • Ensure all learners make progress that is at least good (S2) • Have good subject knowledge (S3) • Stimulate and maintain pupils' interest and curiosity in the subject (S3) • Promote high standards of literacy, numeracy and communication (S3) • Use questioning and discussion to promote learning (S4) • Reflect on learning and teaching (S4) • Use time effectively (S4) • Be aware of the needs of all pupils and differentiate appropriately (S5) • Be aware of potential barriers to learning with an understanding of the needs of all pupils, including those with SEN, EAL and those with disabilities (S5) • Maintain a good relationship with pupils (S7) • Manage pupil behaviour effectively and appropriately inc. low level disruption (S7) • Have clear rules and routines and high | **Teaching and Learning** Evaluate key features, as appropriate.: behaviour management including low level disruption, resources used, differentiation and individual needs, subject knowledge, numeracy and literacy, SMSC, questioning skills |
| | **Trainee impact on pupil progress / learning** . |

- expectations of behaviour (S7) - Deploy support staff effectively (S8)	
- Plan well-structured lessons that use time and resources effectively (S4) - Set high expectations (S1) - Show good subject knowledge (S3) - Plan lessons using reflection on teaching (S4) - Promote a love of learning and intellectual curiosity (S4) - Set learning goals that stretch and challenge all pupils (S4, S5) - Differentiate learning appropriately (S4, S5) - Be aware of the needs of all pupils (S5) - Plan lessons using pupil assessment data to extend pupils' capabilities, knowledge, skills and understanding (S4, S5, S6)	**Planning** Evaluate key features, as appropriate., timing(phases in lesson) and resources used, differentiation and individual needs,, subject knowledge, numeracy and literacy, SMSC, questioning skills , pupil progression, use of assessment data
- Make use of formative assessment to promote pupil progress and learning (S6) - Use assessment which is appropriate to the subject and curriculum (S6) - Guide pupils to reflect on their progress and their learning needs (S2) - Give pupils regular accurate oral and written feedback and encourage them to respond (S6)	**Assessment of pupil progress** How are trainees assessing progress during the lesson and techniques used
Standard(s) No(s) Added by mentor or trainee	**Progress on previous targets:** Trainee or mentor to complete 1. . 2. . 3. .
Standard(s) No(s)	**Key strengths of this lesson:** At least three - one subject-related

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Added by mentor or trainee	1. . 2. . 3.
Standard(s) No(s) Added by mentor or trainee	**Targets:** **At least one, up to three. What should be addressed next? Suggest how. (Use weekly mentor meeting to record how)** 1. . 2. . 3. . **<u>Trainee: consider how these targets will improve your lessons</u>**

CONFIRMATION OF JOINT SUBJECT MENTOR/MMU TUTOR OBSERVATION

Common format agreed by The University of Manchester and Manchester Metropolitan University

MANCHESTER METROPOLITAN UNIVERSITY

FACULTY OF EDUCATION

IN PARTNERSHIP WITH SECONDARY SCHOOLS AND COLLEGES

RECORD of REVIEW 6

Name of Trainee Teacher: **Subject: Mathematics**

Name of Reviewer: Fiona Haniack-Cockerham
(*Personal Tutor)*

As you approach the award of QTS –and look toward the NQT year-

Please consider and respond to the questions below.* You may present your response in an alternative **electronic**   format of your own choice or complete and/or adapt the format here. Please expand the boxes. The following questions are not an exhaustive list; you can choose to add your own. Your response will form the basis of the discussion with your tutor at Review 6.

1 At this stage, which aspect(s) of teaching you do you find most interesting and rewarding?
2 As you approach the award of QTS, what do you consider to be your main strengths and achievements as a teacher?
3 In which aspects of teaching would you value further experience in the future?
4 As you look ahead to your career in teaching, you may be thinking about your longer-term professional aspirations and goals. Do you have any thoughts at this stage about how you would like to see your career develop?
5. With <u>explicit reference</u> to the *Teachers' Standards* what are your key targets for <u>further</u> development during your NQT year? (up to 3)

-

Programme Outcomes attained: Yes/No (*tutor to circle as applicable*)

If No, please comment (*personal tutor*) ……………………………………………

Further Comment *where appropriate (personal tutor)*

Signatures:

Personal Tutor : Fiona Haniak-Cockerham

Trainee Teacher :   **Date   : 12-06-18**

Confirmed grades against the Teachers' Standards at Review 6 *(tutor to complete)* Requires Improvement (RI) Good (G) Outstanding (O)		
S1	Set high expectations which inspire, motivate and challenge pupils	
S2	Promote good progress and outcomes by pupils	
S3	Demonstrate good subject and curriculum knowledge	
S4	Plan and teach well structured lessons	
S5	Adapt teaching to respond to the strengths and needs of all pupils	
S6	Make accurate and productive use of assessment	
S7	Manage behaviour effectively to ensure a good and safe learning Environment	
S8	Fulfil wider professional responsibilities	
Part Two: Personal and Professional Conduct		

Overall Ofsted Grade at Review 6 against the Teachers' Standards **(for Ofsted purposes only):**

RI /Good/ Outstanding *(tutor to circle as applicable)*

(using the Progress Indicators and with reference to the trainee Record of Professional Development and the related evidence as indicated above, including since Review 5/5b).

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Appendix H: Excerpt from Focus Group 1- What Makes a Good Lesson.

When you are planning a good lesson, and you think this is going to be a good lesson. what is it that you put in it, what do you do, how do you plan a good lesson, what do you think needs to be in there?

Archie – I kinda remember things, of ways I was taught and remember what was good about it, and what didn't work so well. So, the things that I think worked well is the stuff that I try and implement into my lessons and I think if that's the way that I learnt it and I thought it was good then maybe students now will think it's a good way to learn as well

Fiona – Ok, other people?

Jake – something like in your lesson plans like you always have a bit of a back-up. So, if something, you are explaining something and it's not going right, you've got that back up in your lesson plan, which I can explain this a different way. I think that's really important, it's not just to have that one way. But actually, to have gotten something down to say yeah, I've got a back-up just in case, or I've got a different worksheet or something.

Jennifer – or going the opposite as well. If it's too easy, a challenge.

Fiona - So having some harder work for them to do?

Jake - Harder or easier

Fiona - So that's one thing that when you are doing a really good lesson plan that you are thinking about, how do I make it easier how do I make it harder?

Rhiannon – yeah differentiation.

Archie – One of the things we have done in our lesson plans now is we will have an example, and if some people don't understand it then we will go through another example on the board. But obviously set work for the other people to do. So, say if it's just a small group of people have them focusing on the board and everyone else working in a worksheet.

Jake – you see we've tried that, and it didn't work. It kinda did and it kinda didn't did it?

Rhiannon – Yeah

Fiona - It's a bit hard isn't it because you don't know who is listening to you and who isn't and it's all a bit confusing?

Everyone - Yeah

Jake – Do they tend to be in a group?

Archie – no its usually dotted around the classroom. Which makes it a bit…which makes it a bit trickier but normally you can tell who's working and who's focusing on the board by who's looking up and who's looking down at their piece of paper.

Jennifer – I think it is important to know exactly what you are going to be doing for the whole lesson.

Appendix I: Excerpt from Focus Group 2 – Collaboration

Collaborative practice focus group

Fiona - Ok so collaborative teaching – your thoughts?

Archie – the main that sticks out for me … laughing.

Fiona - Straight in there, I love that…

Archie – the main thing that sticks out for me is the 1+1=3 which is something that you actually stated to us in the first week of us, being on placement and its stuck up on the wall in our room. And it's just saying how the individual parts… I am pretty sure I am getting this right… the individual parts added all together is better... isn't as good as people working collaboratively together. So, you need to work as a team rather than being players in a team which was the analogy that I gave it.

Fiona – Now [school name] didn't get that poster put up in their room.

Sofia - Yes I wondering about that

Fiona – because you are in the staff room so there was nowhere to put it. So its interesting to see whether that has made any impact or not but it was something that I did with these guys right at the start.

Sofia – What is that?

Fiona – So it was in the article I gave you talks about it says if you are planning collaborately…well someone else explain it. Archie has said what he got out of it.

Jake – If you are planning collaboratively then you are kinda like bringing in more ideas and that should make your planning better and your lesson better but if you are planning like just by yourself and then like either presenting a lesson, or planning by yourself and saying this is what you are doing. It's not going to be *as* good because you are not…it's kinda you know like the minds coming together, you're not going to have that much impact if you both go away, or the three of you all go away and plan a lesson and then come together, do it and try to mix and match. But if you actually sit there and plan it together, then the lesson and your planning could be better because you are sharing ideas right there on the spot [Does Jake believe what he is saying? – the use of the word could makes me wonder] and you are also not wasting time by all three of you going away to plan a lesson, like the same lesson, and then coming together and then talking about your ideas.

Fiona – So let's put that in a real context, cos this is what we do when we critically write, so we look at what the reading says and then put it in a real-life situation. So, thinking about your groups have you got any thoughts on how working collaboratively you think that's better than I would have come up with on my own?

Niamh – from the other side, yeah, not the same argument but we did a few lessons individually and then turned round to each other and said "ok this is what we are doing"…and… If you don't fully look at the lesson plan, and kinda look at the slides and know what's happening then the lessons just kind of …don't work… because you kinda don't know what you're doing. But if you all come together and plan it first…Like we did a great lesson with elastics and shapes and they had elastic and stuff on their legs.

Appendix J: Excerpt from Focus Group 3 – Tessellation Lesson

Fiona   Because it came out in your lesson previously when someone had spotted the ceiling tiles hadn't it

Danielle   Yeah but it really worked. It was like complete shock, that you hadn't seen it, even though you obviously had and it worked really well.

Jake   It felt like at times you were putting words in the kids mouths, off their responses. It was kinda like they would tell you something but you kinda heard what you wanted to hear. And repeat it back. Not like is this what you meant, but like "you said this", but its not actually what the kid did say. *(this annoys me, even now as typing. Do I put words in the kids mouths, or did I tweak, is there a difference – first implies it didn't come from them, it wasn't their idea, second implies I took what they had said and tweaked it to be more in line with what I wanted as it was on the right lines – this is something that I have pulled James up for before in feedback)*

Fiona   Yeah. Have you got an example of that, did you write it down?

Jake   No I didn't write it down

Fiona   Did anyone else spot that because I spotted a few times where I was like that's not what the kid said.

Jake   I think it was something to do with the angle. I cant quite remember

Archie   Oh was when they said it was 560 but it was a pentagon so it was 540.

Fiona   yeah I definitely corrected that because I just didn't want to waste any time on that. It was just like a calculation error. But I think there was something before that, something about the angles and it wasn't going the way I wanted so I thought I'm just going to tweak this.

Danielle   But it's knowing when to do that. Because sometimes you can ask and ask and ask and ask because you are trying get there but then you lose it in that flow of asking. Then you go more off task, trying to get back on task sometimes so it's knowing when to just say "no they are not getting it". But rather than saying no you're all wrong this is the answer, you still made it sound like they gave it you.

Fiona   but that is feedback I give sometimes and you probably get from other mentors sometimes isn't it.

Jake   yeah yeah [laughter]. *(he has had this feedback a few times because it comes across as he is not listening to pupils rather than tweaking their answers- bee in his bonnet)*

Fiona   I think when you find that happening it's justifying it to yourself isn't it. Like why did I do that. And as long as you know why you've done it, feel free in feedback to go well I did it for this reason.

Niamh   It's like ignoring kids who are doing that little thing, whereas it's definitely been picked up numerous times. Sometimes its intentionally ignored, sometimes its just… but that kid at the back who isn't paying attention or doing something and its like how you chose to do it, isn't it. Like at the end there were a couple that were like disengaged, like staring off over here kinda thing. It's the same thing. Why you just ignore them or why you don't. And

Appendix K: Excerpt from Semi-Structured Interview

Fiona Overall can you describe your experiences of the university school model and what has been significant for you?

Niamh: I think initially the start. Block A. It was really nice because we did the skills course last year obviously, when we heard about it initially, we were a bit like oh I don't want to do that. I want to go in by myself. But having started Block A and doing it, it was really nice to have support. Have your one lesson where you did it by yourself, and obviously in those first few weeks if it was a bit of a train wreck, you could walk out and you knew in your other lessons you would have people. I think, that was really nice in Block A. I think Block B when you are all kind of, it was still nice to have to have it on the lessons where you did something a bit out there or tried something new because you have this support. But like near the end of Block B when we were getting a bit more established in ourselves, that's when clashes happened. Well, I would teach like this but you would teach like that and I think that was if any, not massive issues, but if any arose that was when it happened

Fiona So talk to us about that then about what clashes happened and how you resolved it

Niamh So there was one that was to do with circumferences of circles and I kinda said I would quite like to do the string across and around and the two people I was with kinda said just give them the formula, not throwing anyone in it,

Fiona It will be totally anonymised so it doesn't matter. Give them a false name if you want

Niamh So they said just give them the formula, we had the formula in school, and I think because one of them wasn't on the skills enhancement course they didn't really have that [pause] basis that we had of having the knowledge behind it. And the way we actually… it wasn't actually resolved it was just the unanimous vote. So I think that's when sometimes the downfall happens in a trio. If you have an idea like that, I am not saying its right or wrong, but I thought it was quite a nice way of showing them. But because two people were saying no let's do it this way, I felt like ok let's do it that way because you're arguing against two people then. So, I think that's when it can sometimes fall down. I think as well in Block B, when we always tried to talk through lessons together because we were teaching them separately, but sometimes when obviously the course is very busy, and if you taught it on a period 4 Friday and were teaching period 1 Monday its quite hard to then plan the next lesson together. Because [school name] were very much see where you get to and then talk through it with us. So, we didn't always have the opportunity to talk through it. So, you would then arrive and a lesson would be delivered and you were like…[noises] not how I would teach it. So that obviously is an issues. But.

Fiona So that not how I would teach it, with the circle and the ones that had been planned over the weekend, did that hinder you or did it make you realise what you would want to do?

Niamh It definitely made me realise what I would do and what I wouldn't do. And actually, it's quite good to stand at the back of the class and watch a lesson that I wouldn't teach it that way and be like ok I understand why I wouldn't teach it that way. And actually, it was quite beneficial in that sense to kind of realise that…Like the circle thing, we then taught the area but they just…they were set three in [school name] so probably lower than a normal set three but they could just not realise the difference between the area and the circumference. And I think that if we did that it would have worked so now, I know that I am going to take that forward and spend half an hour measuring out the circumference because I think then you have the difference. Where we spent three lessons trying to teach them the difference

Appendix L: Data and Theory

1. Highlighted weekly reflection

02/03

MANCHESTER METROPOLITAN UNIVERSITY FACULTY OF EDUCATION

REFLECTIONS ON EXPERIENCE AND LEARNING

Please refer to REAL guidance for your weekly reflective entries.

(For use by PGCE Secondary Core and School Direct Trainees and their Mentor(s)

WKS

Trainee Reflective Entry (weekly entries) – refer to experience* and reflect on its impact on your learning.	Subject Mentor acknowledgement, support or question to develop trainee's thinking & practice (complete at mentor session
Thursday 1st March 2018 (before university tutor visit) Another week down, only 8 to go. That's literally how I feel. I have searched and reflected, in depth and daily, to try and progress in my attitudes to the school I've been placed in. I've diligently identified my own shortcomings, made allowance for the changes taking place in the school, but still, I am left with the conclusion that this is probably one of the most toxic environments I have ever worked in. I am skilled at turning a situation around in my mind to see only the good, but, being here has stretched that ability to its limit, and borders on living in complete denial of reality. I never for a second thought that my days of training to be a teacher would be a daily struggle to maintain my integrity in a place that is full of backbiting, faultfinding, hypocrisy, fear and favoritism, and having multiple faces depending on who one is speaking to, or how that person can bring some benefit to oneself/one's own progress. It might not even be about progress, just a base instinct that the culture has brought out in the staff to survive. Its literally putting me off being a teacher. Within this context, somehow, I still managed to get myself into the school this week and actually enjoy being round the kids. It is taking a mighty effort to do this, and I am really sad that my days are spent thinking about how to deal with various	

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2. Weekly reflection notes - Niamh

Reflections: Niamh.

12/10 3) Planning lessons - Richard not offering ideas/pulling weight
19/10 4) fun & engaging pupils, will work for you, lesson went
badly - talked Richard down as he got frustrated. Relationship
with pupils focus.
5) Negative feedback from Mentor - power of waiting (my
response is to say how well she is doing) Joint feedback
with Subject Mentor (SM)
16/11 6) Feedback : SM blamed them all - explaining to Richard
where he went wrong.
23/11 8) Because More myself rather than a typical teacher. Issues
with SM . He curtailed all of their engaging ideas,
frustration with this & using trio lesson to try engaging
activities (I said I'd talk to SM videos from Taba etc
30/11 9) Trio = duo with someone else to think about. Richard
doesn't listen to feedback - only changed it when ___ said
the same. Not being judged as trio - individuals Richard
running over even though signalling.
7/12 10) Allowing Richard to step up but pressure from ___ class
so falls back on us to pick up the pieces Richard does what's
in his head - not what the trio had planned
11) Teacher she wants to be. Also talked about class
teachers - what she learnt from ___ and SM etc.
staying away from Worksheets lessons.
13) lesson engaging & to be fair. Type of teacher she wants to be
02/02 14) Went to algebra too soon, no other way to explain it,
Direct proportion, 'I carefully thought how to explain it'
09/02 15) Scaffolding joint lesson, applied to other lessons. Wants
to be adventurer & try new things but other two are less
willing to try new ideas. Hopefully change as they get
comfortable. Came to an agreement on how to teach
a topic as well as developing our own teaching styles.
(My response : about supporting new ideas in trio)

23/02 16) Treasure hunt in year 9, a lot engaged. Showed u:
we can do more group work & tasks to challenge
them. but we pick the groups g students off task.
02/03 17) Weather - snow - absent.
09/03 18) Rigid in routines and not push boundaries. Asked for
me to observe lesson for advice.
16/03 18) Planning as a trio and Kate being stubborn. Lesson
plan and questioned but ideas not taken on board.
After feedback on Friday, hope that thiss will change &
we will be able to openly discuss & challenge the Maths.
(Sine rule lesson - awful).
20) Nothing.

25) Grown into the teacher she wants to be & plans for september.
27) Real life scenarios for sectors → Enrichment.

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4. Data overview for chapters

5. Return to the original data

Niamh: Return to data.

Conflict with subject Mentor & how they hold firm to teaching strategy - where do the strategies come from, and in what way are these so important that they need to resist subject Mentor.

Critical event → circles lesson, sine rule & my feedback reflections on teaching. Was this a moment of rupture or not, why was this critical. How did Niamh use this to position herself and Kate

After the feedback Niamh hoped Kate would be open to discussion, Danielle just says its different teaching styles and Kate doesn't mention it at all. interesting contrast!

Lesson plan changed to be less engaging whats the story line according to Niamh, Kate, Danielle. How do they use this to position themselves, what is resistance/ rejection & appropriation of authoritative discourses.

With weaker trainee - they said they didn't learn as much. Teaching experience to be reflective of her own style of teaching How does she story this? who is she addressing? What/who are the figures in her story

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Kate: Return to data.

Wants to be seen as an individual ~ how does she express this, what words, what context, contradictions (humours me)

Look for other figures to give her teaching belief a voice ~ why is the subject mentor an important figure

Says she doesn't want to be a certain type of teacher yet becomes this- Is this her view, how does she express this, how does she tell me, how do I know the story, how does she tell this and why.

Resisting my style   } how does she express this.
Duo that was more equal   }

Dominant in the group- is this discussed by others.

Humours me- look at the way she talks, notice intertextuality is she referring to things I have given her. How does she construct her text with me as the audience.
& if she thought it would make her a better teacher she would have done more of it. This feels important, I am interested in her actual words.

Kates reflections are limited to the obvious- Who is Kate addressing and what words is she using?

6. Pulling together literature review, theory and data for discussion chapter
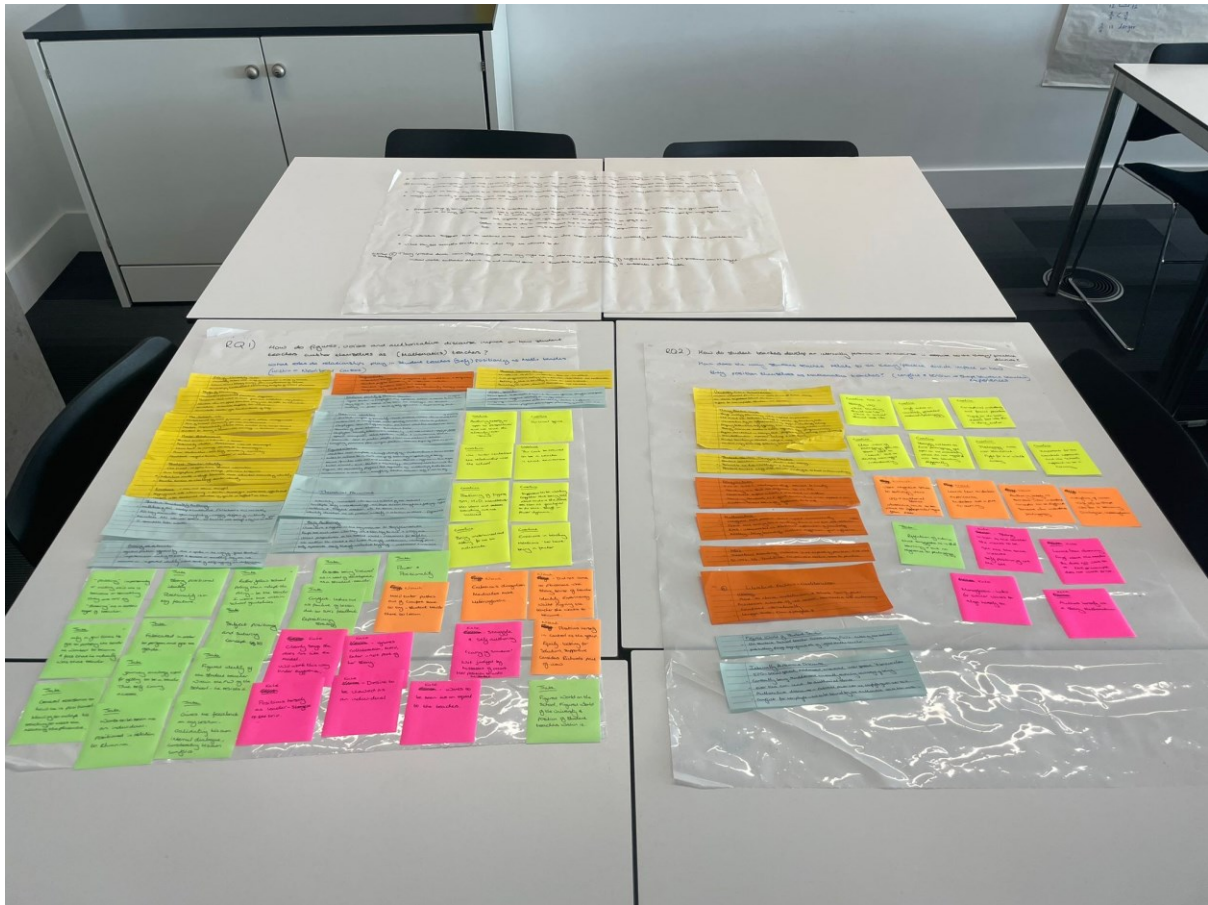
Yellow and Orange paper = Literature review

Blue paper = Theoretical concepts

Post-it notes = yellow for Caroline's data, Pink for Kate's, Orange for Niamh's and Green for Jake's data.