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Powerful subject pedagogical knowledge in teacher education and its integration into practice

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Powerful Subject Pedagogical Knowledge in Teacher Education and its Integration into Practice

Helen Mary Sheehan

A thesis submitted in partial fulfilment of the requirements of

Sheffield Hallam University

for the degree of Doctor of Education

August 2021

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I hereby declare that:

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2. None of the material contained in the thesis has been used in any other submission for an academic award.

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Name	Helen Sheehan
Award	Doctorate in Education
Date of Submission	3rd August 2021
College	Social Sciences and Arts
Director(s) of Studies	Professor Bronwen Maxwell

Abstract

Powerful subject pedagogical knowledge in teacher education and its integration into practice

In recent years the importance of subject specificity in secondary teaching has been more prominent in discussion of both the curriculum in schools and the content of initial teacher education provision (Carter, 2015). This study focuses on how subject specialism can be conceived and developed in a one-year postgraduate teacher education course. The review of literature outlines the policy context and different conceptions of teacher knowledge, adopting the position that teacher education should help trainees develop theoretical knowledge, alongside knowledge developed through experience, to support them in making professional judgements in their subject context. The case is made for a focus on integration of the knowledge developed in university and classroom settings. On this basis the study explores participants' perceptions of the importance of the subject-specific elements of their course, the way in which this is developed and the extent to which it impacts on their practice.

Adaptive theory (Layder, 1998) provides a framework for the design of this longitudinal study which followed eight secondary PGCE students over the course of one academic year as they trained to teach citizenship, history or geography. The data were generated through semi-structured interviews at three points in the year, and initial analysis at each phase was used to inform the development of the stages that followed. Initially analysis of the data used pedagogical content knowledge (Shulman, 1986) and powerful knowledge (Young, 2014) as orienting concepts to explore student perceptions of the relationship between the theoretical and practical aspects of their training, particularly in relation to their subject specialism. In line with the adaptive approach emergent themes were also identified and pursued.

The findings show that, whilst some participants experienced tension between the school and university settings, they valued both aspects of their training and the ways in which they developed their understanding of subject-specific pedagogical approaches are identified. Therefore, it is argued that teacher education courses should focus on integration of the knowledge developed in the school and university settings; the parts played by mentors, peers, university tutors and academic work are identified as factors with the potential to support this process. Based on the findings, the notion of *powerful subject pedagogical knowledge* is also offered as a more adequate conceptualisation of how subject-specific knowledge should be understood in the context of initial teacher education. This discussion highlights the varying experiences of participants from different subject areas and, on this basis, argues for a distinctive, subject-specific element in the design of teacher education programmes.

Acknowledgements

Thank you to my supervisors – Professor Bronwen Maxwell and Dr Fufy Demissie. Without their support, encouragement, and insightful questions I am certain that I would not have made it this far. Thank you for sticking with me to the end.

This research would not have been possible without my eight participants who were so generous with their time. I will never be able to thank them enough for the insights that they shared in the middle of a busy and intense year. I hope they enjoyed our conversations as much as I did.

I also owe thanks to my colleagues. I am grateful for the support of my team of humanities tutors. Whilst they were not directly involved in the project, their personal support and encouragement has meant so much but, more than that, their fierce commitment to preparing our students to be knowledgeable and passionate subject specialists has made an indirect, unseen contribution to this research project. I would also like to thank my colleagues in the secondary education team who have given me time, space and encouragement to complete this work.

There are many individuals among our family and friends who have offered help and support or encouragement in numerous ways. I cannot mention you all, but you know who you are, and I thank you. However, I would like to particularly mention my parents, Janice and Brian, who have never wavered in their support and whose practical support in particular is so appreciated.

Finally, the most important thank you of all goes to David, Grace and Joel. It has been a long journey and David has helped in every possible way to keep me going; I would certainly not have completed this without him. For that - and everything else - I am eternally grateful. Grace and Joel – you will now finally get to experience what it is like to have a mummy who is not either trying to research or write a thesis. You are the reason I nearly gave up, but also the reason I kept going. I hope this helps you understand that anything is possible and that, along the way, you encounter teachers who help you find the subjects that become your passions.

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Glossary

Assessment for Learning	AfL	Assessment in a school context where outcomes are used to modify teaching with the intention of promoting pupils' learning.
Community of Practice	CoP	A theory outlining how groups of people who share a particular interest and interact regularly together learn how to improve their practice (Lave & Wenger, 1991).
Core Content Framework for Initial Teacher Training	CCF	The statutory framework that defines the minimum entitlement of all trainee teachers in England.
Department for Education	DfE	The government department responsible for children's services and education.
Higher Education	HE	Tertiary education leading to the award of an academic degree.
Higher Education Institution	HEI	A tertiary education provider.
Host Teacher	-	The teacher of a class being taught by a trainee teacher. This is usually a subject specialist, but not the colleague designated as the trainee's mentor.
Initial Teacher Education	ITE	A term used to describe HE courses that lead to qualified teacher status. Some prefer it to the term ITT as it places emphasis on education rather than competency focused training.
Initial Teacher Training	ITT	An HE course that leads to the award of qualified teacher status. This is the term preferred in policy documentation (as an alternative to ITE).
Multi-Academy Trust	MAT	A group of state funded academies that work together under a shared funding agreement.
Office for Standards in Education, Children's Services and Skills	Ofsted	The government body with responsibility for inspecting services providing education and skills for learning of all ages, and for inspecting and regulating services that care for children and young people.
Pedagogical Content Knowledge	PCK	A concept introduced by Shulman to describe knowledge developed by teachers about how to teach particular content in appropriate ways to enhance student understanding.

Postgraduate Certificate in Education	PGCE	A one-year postgraduate course that combines academic study with training in schools leading to an academic qualification and qualified teacher status.
Powerful Disciplinary Knowledge	PDK	A term used by Lambert (2016) to describe "powerful knowledge" unique to a subject discipline.
Powerful Knowledge	-	Knowledge that enables individuals to understand things beyond the limits of their own experience is described as powerful knowledge. It provides reliable explanations and new ways of thinking about the world.
Powerful Subject Pedagogical Knowledge	PSPK	A conceptualisation of teacher knowledge offered in the conclusions to this study. It takes the position that pedagogical knowledge developed in the context of a subject discipline is powerful knowledge.
Programme for International Student Assessment	PISA	An international study launched by the OECD in 1997 which, every three years, provides comparative data on the performance of 15-year-olds' in reading, maths and science for 80 countries.
Progress in International Reading Literacy Study	PIRLS	An international comparative assessment that measures student learning in reading.
Religious Education	RE	A compulsory subject in the English curriculum that seeks to develop pupils' understanding of religion and worldviews.
Research Question	RQ	Reference to one of the four research questions identified for this study.
School Direct	SD	A school-led ITT route, run by a partnership between a lead school and an accredited teacher training provider.
School Direct (salaried)	-	A school-led ITT route for graduates with prior classroom experience.
Teachers' Standards	TS	The professional standards for teachers that trainees are expected to meet (and then maintain) to be awarded Qualified Teacher Status.

Teachers' Standard 3	TS3	The teachers' standard that specifically addresses subject knowledge. It states that teachers must: *Demonstrate good subject and curriculum knowledge* • *have a secure knowledge of the relevant subject(s) and curriculum areas, foster and maintain pupils' interest in the subject, and address misunderstandings* • *demonstrate a critical understanding of developments in the subject and curriculum areas, and promote the value of scholarship*
Training and Development Agency	TDA	The body responsible for the initial and in-service training of teachers and other school staff in England from 2005 until 2012.
Qualified Teacher Status	QTS	The qualification required to work as a teacher in state schools in England and Wales (although academies are permitted to recruit teachers without QTS).

Chapter 1 - Introduction

Subject specialism is important for teachers. This view has evolved from my starting point as a secondary school Religious Education (RE) teacher. Like many other secondary subject specialists, I entered the teaching profession because I enjoyed my subject and wanted to utilise my knowledge and expertise in my career (Kyriacou et al., 1999). I am also conscious that it was continuing to learn about knowledge, theories, developments and research in my subject that helped me maintain enthusiasm for my choice of profession (Rampa, 2012). However, my thinking has also been informed by my current role as a teacher educator in a university setting. My efforts to "enrich" the theoretical aspects of my students' learning (Menter, 2016, p. 1021) as I work with them to explore the aims and purpose of our subject have influenced my perspective, as have choices about curriculum content and pedagogical approaches. Essentially, I take the view that we need teachers who understand their subject discipline, and have the knowledge and skills to prepare a curriculum for their pupils that allows for engagement with this in an age-appropriate and meaningful way (Lambert, 2016).

However, as I embarked on my doctoral study in 2012, I was concerned that the importance of subject was being overlooked and, from my perspective as a teacher educator, this was a pressing issue as the landscape of initial teacher training [ITT] was changing rapidly. In 2010 the government set out plans to reform ITT in England with the aim of increasing time spent in the classroom to focus on core teacher skills (DfE, 2010). The secretary of state for education, Michael Gove, had declared his opinion that "teaching is a craft and it is best learnt as an apprentice observing a master craftsman or woman" (Gove, 2010), and was keen to move training out of universities (Vaughan, 2010). The subsequent introduction of the School Direct (SD) route in 2012 enacted this vision. SD is a school-led ITT route which allows schools to recruit trainees and organise their training in conjunction with a teacher training provider

(usually an HEI). I was concerned that placing teacher education in schools was locating it in a context dominated by what Biesta (2010) calls 'learnification', where the focus is on 'learning' as a concept in policy and practice (Biesta, 2013). He argues that the point of education is never just to learn, but to learn something (content) for a particular reason (purpose), but that discussion of purpose had virtually disappeared from the discourse. My unease was that a focus on learning, rather than questions of content and purpose, would lead to teachers being prepared to be "facilitators of learning" (Biesta, 2016, p. 37), rather than professionals able to use their own judgement in the classroom to decide on the best approach. I was also concerned that this would lead to a focus on generic aspects of teaching and the importance of subject specialism with its potential to help clarify purpose would be lost. This potential threat to subject specialism is noted elsewhere (Lambert, 2018; Orchard & Winch, 2015; Priestley et al., 2013) with Lambert arguing that "a deeper appreciation of the professional knowledge required to be an effective subject-specialist teacher is essential" (Lambert, 2018, p. 363). During the period in which this research was conducted, a renewed focus on curriculum (Coe et al., 2020; Ofsted, 2019a, 2019b) has led to some development of this "deeper appreciation" as discussion of subject specialism has become more prominent (Deng, 2018a; Lambert, 2018). It is argued that not only do teachers require "deep knowledge" of their subject, but that they must also "understand the ways students think about the content, be able to evaluate the thinking behind students' own methods and identify students' common misconceptions" (Coe et al., 2014, p. 2). However, whilst literature explores what effective teaching might look like within a particular subject (Standish & Cuthbert, 2017) and articulates this for senior leaders in schools to support curriculum development (Ashbee, 2021; Ofsted, 2021a), consideration of how trainee teachers develop as subject specialists is more limited.

Recent policy reviews and documents relating to ITT that have paid attention to subject specialism, suggesting that trainees should have the opportunity to come together in subject specialist groups (Carter, 2015) and highlight the "need for training

to be subject and phase specific" (DfE, 2019, p. 6). The Core Content Framework for ITT (CCF) (DfE, 2019) supplements Teachers' Standard three outlining what trainees should know and be able to do in relation to subject knowledge (DfE, 2011), and Ofsted, the body responsible for the inspection of ITT, states the curriculum should ensure "trainees have sufficient subject knowledge to identify and evaluate content for their teaching, considering matters of scope, coherence, sequencing and rigour" (Ofsted, 2021a, p. 40). However, despite greater acknowledgement of the importance of subject-specific training (Lambert, 2018), its form and content is not necessarily being addressed, and research and writing about subject specialist provision in the ITT curriculum is limited (Perry et al., 2019). Previous research tends to focus on particular subjects (Burn et al., 2015; Harris & Burn, 2016), the development of student-teachers' professional thinking (Burn et al., 2000, 2003; Hagger et al., 2008; Lunenberg & Korthagen, 2009) or considers the impact on subject specialism of the changing ITT landscape (Brown et al., 2015; Brown et al., 2016; Orchard & Winch, 2015). There is little that addresses broader questions about how subject-specific pedagogical knowledge can be conceived or developed within in a one-year PGCE course.

The research on which this thesis is based focuses on this potential gap in our knowledge; it might be acknowledged that subject-specific pedagogy is important, but how can trainee teachers develop knowledge and understanding of subject-specific pedagogical approaches, and make links between this and classroom practice? Whilst the future of teacher education continues to be a matter for policy debate (DfE, 2021), there are concerns that universities, who demonstrate strength in the delivery of subject-specific pedagogy (Ofsted, 2020), may withdraw from ITT provision (Speck, 2021) and that secondary subject pedagogies may be "'squeezed' for space in curriculum design and awarded secondary importance" (UCET, 2020). Therefore, exploring the extent to which trainees recognise, understand, develop, use and value subject-specific aspects of their training is important, and any conclusions have the potential to be helpful contributions to knowledge.

1.1 Research Focus

This study set out to explore whether trainee teachers from university and school-led routes understood that there was such a thing as subject-specific pedagogy and whether they could identify this within their own practice. Data were generated over the course of one year to observe whether their understanding developed or evolved whilst they were on their ITT course. The research also sought to examine what helped them make links, throughout the duration of their course, between their developing subject-specific pedagogical knowledge and classroom practice, and whether they thought theoretical input was an important element of their training. This was formalised in four research questions:

1. On entering Initial Teacher Education [ITE], what perceptions of, and attitudes towards, subject-specific pedagogical knowledge (e.g., particular approaches to aspects of their subject, or understanding of subject-specific pedagogical issues) do trainees in humanities subjects have?
2. Can trainees identify ways in which their understanding of specialist subject pedagogical knowledge and its relationship to classroom practice develops over their PGCE year?
3. What do trainees think has been most effective in helping them to make links between the theories explored in their university-based training and their classroom experiences?
4. Do university-led trainees and school direct trainees have different views regarding the importance of subject-specific pedagogical knowledge and its usefulness in their classrooms?

1.2 Methodological Approach

The research undertaken was a longitudinal, qualitative study following eight students completing a one-year Postgraduate Certificate in Education (PGCE) in 2016-2017. The approach adopted for the design of this project and analysis of data is one that would be described by Layder (1998) as an adaptive approach. This sits largely within the

tradition of a social constructivist paradigm but allows for the fact that, whilst this is qualitative research which seeks to understand subjective social phenomena, there is an objective element to the study as it is set within the context of a system (i.e., the ITT system). Subjectivity came from my preconceptions about the importance of subject-specific pedagogy (discussed above), but also the fact that I was a tutor on the participants' course. Whilst this presented challenges in ethics and potential bias that needed to be mitigated in both planning for the generation of data and during analysis, adaptive theory allows for acknowledgement of this. The participants were training to be secondary school humanities teachers (three history, three geography and two citizenship) and were following a variety of routes into teaching; three were on a university-led programme, three were on an SD route and two, were on an SD (salaried) route (which, in recognition of their prior classroom experience, paid them an unqualified teacher's salary whilst training). They were attached to the same university and, regardless of route, were taught in subject-specific groups for 10 days throughout the year. All taught input relating to subject specialism came through these sessions, although they also received advice and guidance from their mentors and host teachers whilst in school. Each participant volunteered to take part in the research and be involved in semi-structured interviews at three points during the academic year (September, January and June). They also gave permission for one of their academic assignments to be reviewed as a 'document-in-use' (Rapley, 2007) to inform discussion about developments in their thinking.

Adaptive theory acknowledges pre-existing ideas and theories found in literature and presents an opportunity to review data in this context whilst, also, remaining open to the discovery of emergent themes that may be used to adapt the pre-existing frameworks going forward. For this reason, there was some initial analysis of data at each stage which was then used to inform the next phase of the research. For example, analysis from the first interview informed the development of the questions for the second interview and a review of the participants' work informed preparation for the final interview. Theories and frameworks found in the literature were used to

identify orienting concepts which provided a starting point for analysis. NVivo was used to code and organise data, and a series of analysis memos were written to explore and develop themes. These memos focused on the data from a number of different angles (e.g., focusing on a single theme across the year, or a particular participant or subject area, etc.) to develop analysis in the context of the orienting concepts already found in the literature whilst, at the same time, supporting the identification and investigation of emergent ideas.

1.3 Thesis Outline

The review of literature surveys three key areas. The initial focus is on research and writing that explores the impact of current policy on ITE. This sought to develop understanding of the landscape determined by the variety of possible ITE routes and the contribution of universities within a school-led system. The place of subject specificity within this context is also considered. The second key area was a consideration of the concept of teacher knowledge, with the aim of identifying possible conceptual lenses for exploring subject specialism. This is a large field and different views of knowledge are examined, including disciplinary knowledge, craft/tacit knowledge and use of research to inform practice. However, to apply this in a subject context there is a particular focus on Shulman's concept of Pedagogical Content Knowledge (PCK) (Shulman, 1986, 1987) and Young's ideas about Powerful Knowledge (Young, 2014) to consider what subject specialist pedagogy might look like and why it is important. Finally, the literature review considers the challenges faced in moving between theory and practice in ITE. Different models are explored in relation to the 'transfer' of knowledge between the university-based sessions and the classroom, with the concept of 'integration of knowledge' (Brouwer & Korthagen, 2005) being explored as a more helpful way of conceptualising this relationship.

The methodology chapter outlines and provides a rationale for the methodological approach. It identifies the research methods used, considering their strengths and limitations, and defines the approach adopted for the analysis.

Two chapters are included which combine findings, analysis and data around key emergent themes – the integration of knowledge and powerful subject pedagogical knowledge. Given the qualitative nature of the data, this approach was found to be most effective in allowing the participant voice to be heard in the analysis, both in the context of pre-existing themes and discussion regarding emergent ideas.

Chapter four focusses on the integration of knowledge explores how the relationship between the university-based input and the classroom experience was perceived by the participants. It considers their initial expectations and the ways in which they experienced tension between these two aspects of their training. Where the participants demonstrate an awareness of the value of both the theoretical and the practical, there is exploration in the data of how they build on this and analysis of what helps them bring the two together. The part played by mentors, peers and university tutors, and the importance of academic assignments, are all considered in the discussion which concludes the chapter. The findings presented indicate a model of integration rather than transfer is possible; there are challenges in achieving this, but it is argued that it is a desirable and not unrealistic aim.

The focus then moves to teacher knowledge and in chapter five, based on analysis of the data, I propose a reconceptualisation of subject specialist teacher knowledge as 'powerful subject pedagogical knowledge'. This conclusion arises from analysis of data that explores participants' understanding of the distinction between *what* and *how* to teach, the extent to which they recognise and then develop their understanding of subject-specific pedagogy, and considers whether they value this aspect of their knowledge. Much of this analysis draws on the work of Shulman and Young, as well as some subject-specific literature that considers how challenges differ from subject to subject. As a result of the differences between subjects, an emergent idea is

acknowledgment of varying experiences of participants derived from their different subject specialisms, such as awareness of additional challenges faced by the citizenship trainees because of the nature of their subject and its place on the curriculum. Despite this, the way in which the knowledge of citizenship participants develops has parallels with those from history and geography, supporting the view that powerful subject pedagogical knowledge is a key aspect of development for subject specialists.

The concluding chapter is mindful of the limitations of this research given the small-scale nature of the study with participants from a single institution. Nevertheless, it revisits the original research questions and offers a response to each, insofar as the data allow. It highlights the discussion of powerful subject pedagogical knowledge and the integration of knowledge as potential contributions to the ongoing debate about subject specialism within ITT and, whilst acknowledging that conclusions could be viewed as "fuzzy generalisations" (Bassey, 2001) which may not be applicable in every case, it is hoped that they are not so unique that they have no implications for others, and that they offer insights to support the development of initial teacher education in the future.

Chapter 2 - Literature Review

There is a vast amount of literature relating to teacher knowledge and initial teacher education (ITE) and so, for this review, it is necessary to identify specific areas of focus. It is structured in three sections to focus on different aspects of teacher knowledge, what substantive knowledge might be needed and how it might be developed in teacher education. The first section – teacher knowledge in policy and research – considers the current policy landscape that influences ITE and the research relating to this area. It is conceived as a problem as the research is limited and policy often seems to be at odds with aspects of ITE provision that universities seek to offer. Some of the tension rests on different views of the knowledge needed by teachers. In light of this, the second section moves on to ask, 'what do teachers need to know?', exploring different conceptions of teacher knowledge, including in a subject-specific context. Whilst acknowledging there are different ways of viewing teacher knowledge that are not necessarily compatible with one another, this section seeks to establish a framework for understanding the aims and purpose of ITE provision in relation to teacher knowledge. The final section explores a resulting theoretical problem: how to make connections between theory and practice. This is a well-documented challenge, and this review explores how this might be approached given the policy landscape and prior consideration of teacher knowledge. As there is so much variation between the approaches to ITE in different countries, this review of literature focuses primarily on the English context as this is where the research was located. However, some international literature is used to enrich the discussion.

To identify sources for this literature review, in addition to the library catalogue several databases were used; Jstor, Pro-Quest, Education-Online, EThOS and Google Scholar. For aspects of the literature review that explore policy, government websites were also used to search for publications from the Department for Education (DfE) or Ofsted. Initial search terms included *School Direct, Powerful Knowledge, Pedagogical*

Content Knowledge, episteme, techne, phronesis, knowledge transfer, theory/practice divide, integration, History/Geography/Citizenship AND PCK, craft knowledge, tacit knowledge, and *evidence-informed practice*. As the study progressed, some of these lines of enquiry, such as the concept of transfer, were left aside and others were refined. For example, the focus on subject specialism developed to include *subject AND powerful knowledge, disciplinary knowledge* and *substantive knowledge.* When selecting sources, consideration was given to the date of the publication, the credentials of the author and the extent to which the abstract suggested that the article aligned with the research questions. Attention was also paid to whether selected articles had been cited by others and, in the case of research articles, the scale of the study as some studies in this area are relatively small projects. References, lists of books and articles that seemed particularly relevant to this study were also examined to see if any of their sources should also be reviewed.

2.1 Teacher Knowledge in Policy and Research

In the last 10 years the move to "an increasingly school-led ITT system" (DfE, 2016a, p. 28) has influenced views and content of ITE curricula. In 2012 the government introduced the School Direct [SD] route to achieving qualified teacher status [QTS] and, by 2016-2017 (when this study was conducted), 51% of those enrolling on postgraduate ITE courses were following school-led routes (DfE, 2016b). The view that learning "on the job" is best (Gove, 2010), has driven many of these policy changes to the extent that Jackson and Burch (2015) argue the rhetoric started to create rather than represent reality. Ofsted findings do not support one route over the other (Ofsted, 2020) and this literature review has found no robust impact studies suggesting the SD route is either more or less effective than university-led courses (Ellis & Spendlove, 2020). However, there is research and discussion focussing on the potential impact if university involvement ceases (Harrison, 2012; Orchard & Winch, 2015; Universities UK, 2014). This section critically examines some of these dominant

discourses to consider the strengths and limitations of current policy frameworks and implications for the way teacher knowledge can be understood and developed.

2.1.1 Current Context

The SD route was intended to offer "practical, hands-on teacher training delivered by experienced, practicing teachers" (DfE, 2016b, p. 3) from day one. Schools can select and recruit their own trainees, working in conjunction with a teacher training provider (often an HEI) (DfE, 2014) and, initially, there was an expectation that trainees would be employed within the partnership when they qualified (DfE, 2014). Whilst an SD place does not necessarily lead to employment, it presents an opportunity for headteachers to recruit and train teachers in the context of their school or multi-academy trust [MAT]; something that might be important to those in geographical locations or with specific subject areas where they traditionally find it hard to recruit teaching staff.

However, despite the advantages to school-led ITT for both trainees and schools, this sets provision in a context driven by strict accountability measures which are used to inform and evaluate teaching. The white paper, Educational Excellence Everywhere (DfE, 2016a), uses the word "accountability" 60 times and, despite the stated aim of monitoring schools in a way that allows for more autonomy and freedom to innovate, it talks about ensuring that "professionals are held accountable for the outcomes of their decisions" (p21). Some argue this policy leads to a reductionist view of teaching (Kelly & Pitfield, 2014) in which both trainees and the experienced colleagues from whom they are learning are expected to deliver a prescribed curriculum in a prescribed way, to achieve success measured by high-stakes testing. In this environment teachers are sometimes encouraged to use particular learning theories, perhaps without being told why these approaches have been adopted (Orchard & Winch, 2015). Kennedy (2002) calls the kind of knowledge gained through institutional policies "prescriptive knowledge", characterised by "should" and "ought" statements delivered with an "air of certainty" (p. 356). The issue is that ideas or strategies are presented as correct and imposed on practice with little room for negotiation or dissent. Whitty (2014) refers to

this as the development of 'local' professionalisms and questions the extent to which these are "informed professionalisms" (p. 472), expressing concern that insisting professional wisdom is to be found in schools means that university-based teaching and research may not be considered important in the development of early career teachers. This could be further compounded if the experience of SD trainees is confined to experience of one school "supplemented by a brief placement in a second linked to the first" (Kelly & Pitfield, 2014, p. 454). Whilst this is not true of all SD provision, for some trainees the second placement is only 4-5 weeks and in a school with close ties to their main placement. This raises questions about the breadth of their experience and whether trainees are being trained to teach in a broad sense, or in the context of one school or MAT.

This reductionist view presupposes an understanding of teachers as facilitators or deliverers of curricula. If the focus is on ensuring good outcomes in high-stakes tests, the focus shifts to aspects of education that can be easily measured (Reich et al., 2016). There is a policy of comparing educational outcomes in the UK with "the best in the world" (DfE, 2010, p. 46). The Programme for International Student Assessment (PISA) and the Progress in International Reading Literacy Study are relied upon to give policymakers a way of measuring success in education (DfE, 2016a). However, this focus on teachers as facilitators of learning to secure success in benchmark tests, overlooks the "contextual, social, cultural, emotional, creative and critical dimensions of learning" (Reich et al., 2016, p. 1004). For Reich et al., programmes like PISA are reductive because they try to measure fixed points without considering the complex realities that teachers are dealing with daily, and the focus shifts to looking for easy solutions to multifaceted problems (Hyland, 2006). Counsell (2018a) cautions about the use of "final performance as deceiver and guide", arguing that focus on outcomes means "you not only miss the point of the curriculum, you limit success". If a view of success is taken that looks beyond the quantitative and moves towards more qualitative, broad-based education, the current policy focus may not be guiding us

towards a sufficiently broad and robust provision for teacher education (Brill et al., 2018).

2.1.2 A Competency Based Approach

ITT is not immune to this accountability environment as trainees are judged against a set of standards which "define the minimum level of practice expected…from the point of being awarded QTS" (DfE, 2011, p. 6). This is the preferred approach (DfE, 2016a), but critics are sceptical, believing it supports policy rather than educational objectives. Biesta (2013) argues a focus on competence shifts the discussion onto what teachers can do, rather than what they need to know; this then becomes a dominant discourse supporting the idea of learning on-the-job.

England is not alone in adopting competency-based approaches to teacher education, although other countries work with competencies in ways that still acknowledge the agency and professionalism of teachers. Drawing on her review of international practices, Darling-Hammond (2017) highlights several "promising" strategies for the improvement of teacher learning based on overseas comparisons. These include the connecting of theory and practice through both the design of thoughtful coursework and the integration of well-supported classroom-based practice. She also picks out the importance of "using professional teaching standards to focus attention on the learning and evaluation of critical knowledge, skills and dispositions" (Darling-Hammond, 2017, p. 306). The language of the teachers' standards in England largely focuses on doing rather than knowing (DfE, 2011), although the more recently published Core Content Framework [CCF] (DfE, 2019) builds on the standards, offering a development that distinguishes between what students must know (learn that) and be able to do (learn how to). The CCF is not an assessment tool; it sets out a "minimum entitlement" rather than a full curriculum for ITT. However, perhaps its introduction can move the discussion beyond what teachers must be able to demonstrate and initiate conversation regarding what they need to know.

2.1.3 ITT or ITE?

This is an interesting development given the long-standing debate (Mansell, 2010) regarding whether the term initial teacher training [ITT] or initial teacher education [ITE] is preferred. The policy position in relation to this debate was clear; Carter (2015) acknowledged that many prefer ITE to ITT, but the latter was used in his review as it was in the Terms of Reference set by the DfE and it has been retained in more recent policy documentation (e.g., the CCF). Stephens et al. (2004) highlight concern that dominant discourses taken from policy tend to solidify into policy practices, arguing that the term trainee "usurps" (p.127) the term student and defines an approach focussing on the introduction of skills with limited opportunities to reflect on the intellectual aspects of teaching. Training implies teachers are 'technicians' who need to acquire skills and implement ideas and procedures determined by others, rather than being viewed as professionals making decisions about what and how to teach (Tapsfield, 2019).

There have been attempts to move past this debate by offering alternative definitions (Hobson et al., 2008). However, the debate should not be avoided. Whether we see these courses as training or education is a key indicator of the view taken of teacher knowledge. The policy focus has been on training that prepares students to be "facilitators of learning" whose role is to create "learning opportunities" in a "learning environment" (Biesta, 2016, p. 37) rather than professionals required to use their own judgement in concrete situations to decide on the best course of action, although the use of 'ITE' in the title of the current Ofsted inspection framework (Ofsted, 2021a) may signal that the debate is not concluded. I think we need to see this enterprise as teacher education, particularly in the light of more recent publications (DfE, 2016a, 2019) which have talked about increasing emphasis on subject knowledge and evidence-based practice, to ensure teachers have a clear understanding of how to teach their subject effectively, and can engage critically with up-to-date research on how pupils learn. ITE providers need to consider what effective subject-specific

pedagogical approaches look like, how and when trainees will have access to up-to-date evidence and how they can be supported in engaging with this critically.

2.1.4 Subject Specificity

Some literature reviewing the content for and provision of ITE does consider the place and importance of subject knowledge. This is explored in both academic literature (Brown et al., 2015; Brown et al., 2016; Burn, 2007; Burn et al., 2015; Ellis, 2007) and, as previously noted, in government reviews of ITT provision. The Carter Review was tasked with identifying the core elements of high-quality ITT and included "subject knowledge development" and "subject-specific pedagogy" in a list of areas that should be covered "explicitly and systematically" (Carter, 2015, p. 23). However, despite this policy steer, there is concern that "conceptions of substantive subject knowledge and pedagogical subject knowledge vary between school and university teacher educators" (Brown et al., 2015, p. 24). Brown et al. (2016) suggest there might also be different priorities, such as how subject knowledge is understood, responding to the demands of testing and how to effectively use materials. Traditionally, in the university context, subject knowledge has been conceptualised in terms of the shift made by the student from their own academic study of a specific area to focus on a more pedagogical view of their subject for teaching in a school context. However, in the absence of sector-wide agreement regarding the pedagogical content of the ITE curriculum (Perry et al., 2019), a school may focus on the immediacy of classroom practice with clearly defined approaches to teaching and learning. Recent research highlights issues that may be overlooked in this approach:

- Prior Knowledge - Graduates training to teach their own subject will have gaps in their knowledge. For example, historians may have to teach periods of history with which they are unfamiliar (Burn, 2007). The CCF encourages providers to focus on subject knowledge and foundational concepts to support trainees in being able "to identify essential concepts, knowledge, skills and principles" in their subject (DfE, 2019, p. 13).

- Reconfiguring subjects – Brown et al (2016) note the way that some subjects have become "reconfigured" (p. 500) within schools. They cite the example of 'Social Sciences'; a subject area that might comprise some or all of Sociology, Psychology, Health and Social Care, Politics, Citizenship and PSHE. A teacher entering the profession with specialism in one of these subject areas, may be asked to cover one or more of the others on their timetable, highlighting the need for clarity about the form subject knowledge elements of the course should take. The participants in this study are training as specialists in history, geography or citizenship but, in their careers, including during their PGCE year, they are unlikely to teach only the subject for which they are trained.

- Breadth of exposure – There are potential limitations concerning the breadth of experience for some SD trainees (Brown et al., 2016). In smaller subject areas (such as citizenship) trainees might only have the chance to observe one other teacher in their placements. In a model where HEIs are involved in subject knowledge training, the same trainees would also find themselves part of a group of specialists, all exploring pedagogy, and bringing together a broader variety of experiences.

- "The out-sourcing of pedagogical subject knowledge" - Brown et al (2016, p. 504) cite the example of a provider who had marginalised subject knowledge to the extent that the manager of the programme could not offer any examples of how trainees were supported in developing their subject knowledge from that of an undergraduate to that required by subject specialist teacher. Schools had been given responsibility for this, but the interviewee concluded "that's not proved very good". Orchard and Winch (2015) take the view that the depth and breadth of subject expertise is more limited in school than universities and Brown et al (2015) concur; their findings highlight that time and opportunity are limited for those responsible for ITE in schools to become familiar with recent research, resulting in

a "less developed understanding of pedagogical concepts specific to their subject" (p. 19).

2.1.5 The Place of the HEI in ITE

These subject-specific issues raise questions about the role of HEIs in teacher education. Some of the points arise from the findings of a five-year study which set out to assess the impact of changes to ITE on teacher educators and explore broader questions about the contribution of universities to teacher education (Brown et al., 2015). The findings question capacity in schools to organise and deliver effective training whilst, at the same time, arguing that universities need to defend their input. The necessary re-evaluation of the role of HEIs in ITE (Furlong, 2013; Whitty, 2014) is not a new challenge (Robinson, 2006) or a straightforward debate. Concern about the potential long-term impact of locating training in schools is an emotive discussion, particularly for university-based teacher educators (Ellis & Spendlove, 2020). Therefore, it is important to examine what, if anything, universities can offer as a distinctive contribution to the development of teacher knowledge. A Higher Education Academy summit, held in 2013, brought together teacher educators from universities and schools across the UK to discuss research-informed teacher education and the role of universities in ITE. The themes emerging from this argued teacher education should:

1. offer access to and engagement with scholarly and disciplinary literature;
2. give opportunities to question accepted ways of doing things and develop independent views;
3. give time and space for reflection away from the busyness of school (Florian & Pantic, 2013).

Furlong asserts that universities are committed to "the process of the pursuit of truth" (Furlong, 2013, p. 7), arguing that generating and assessing evidence and challenging and contesting assumptions are central to university teaching and research, and are the unique element that university-based study of education can contribute to ITE. He is not alone in adopting this view (Brown et al., 2015; Gewirtz, 2013; McNamara & Murray, 2013). More recently, Ofsted has concluded that HEI partnerships "have a

better grasp of education theory" (Ofsted, 2020, p. 30) than those teaching on some school-led routes and Woodbury (2017), based on her small case study, questions whether schools are able to provide ITE students with the opportunities to engage with research and enquiry. She is concerned about the extent to which the classroom context allows time for reading and reflection, whereas university sessions can give "space and time for exploration and critical thinking away from the fray" (Gewirtz, 2013, p. 12). It can be difficult to question the accepted way of doing things, but the university context can offer time to ask difficult questions and reflect on experiences with tutors and peers. Perhaps university tutors, despite the fact they are removed from school life (Jones, 2015), are in a privileged position. They can explore a variety of ideas and approaches, free from contextual constraints, and engage in critical reflection and evaluation, without risk of offence or resentment. The knowledge and research introduced in university programmes, may help students reflect on, develop and even contest the prescriptive knowledge that they are presented with in the school context.

It is necessary, however, to reflect on whether universities are either aiming or managing to achieve this. In their research focussing on 12 students' experiences of different routes George and Maguire (2019) note the university-led students believed their course helped them to become reflective and thoughtful teachers, although sometimes those on SD routes felt that they wanted to be in the classroom, putting what they had learnt into practice, and that the timing of university inputs was not always appropriate given their school experience. Overall, all their participants felt that the university-based aspects of the programme were useful, but it is important to remember the student perspective and note that this is one aspect of a larger programme. HEIs need to recognise the importance of collaborative partnerships with teachers and schools (Ofsted, 2020) and ensure that research is relevant to educational policy and practice (Brown et al., 2015; Furlong, 2013).

2.1.6 Delivering or designing the curriculum?

The policy of movement towards a school-led system for ITE has made questions about the purpose and content of teacher education more prominent. In research with experienced teachers Priestley et al (2013) found:

> There was a commonly acknowledged view that the teacher's role has changed – from that of a deliverer of knowledge to that of a facilitator of learning, and from a subject specialist to a teacher of children (p. 194).

This has been fuelled by a policy rhetoric that focuses on the conception of teaching as a "craft" and which supports and is supported by accountability measures in both school and ITT structures. However, more recent policy has highlighted an emerging counter-narrative which emphasises the distinction between learning 'that' and learning 'how to' (DfE, 2019), opening up discussion about the distinctive contribution that can be made to ITE by both the school and university inputs. The introduction of the SD route in 2012 initially led some to question whether there would be space in ITE for university input, particularly in relation to exploration of subject-specific pedagogy (Brown et al., 2015). The Carter Review seemed to justify this concern, concluding that many training programmes did not give sufficient attention to subject knowledge or pedagogy (Mutton et al., 2017). However, it highlighted the important part universities play in ensuring that trainees have "access to sufficient high-quality subject expertise" (Carter, 2015, p. 26) alongside input from schools, arguing ITT partnerships should "ensure that trainees have opportunities to learn with others training in the same subject" (p. 67).

This study aims to answer questions about the ways trainee humanities teachers recognise and use their specialist subject pedagogical knowledge (RQ2/RQ3) and how they can be best supported to develop knowledge and understanding of subject-specific pedagogy. It also seeks to explore whether the ITE route chosen by participants influences their views and perspectives (RQ4). Therefore, it is important to consider where this knowledge sits within an ITE programme and how university and school provision can work together to ensure that early career teachers have the

knowledge they need. This is based on a view of teachers as professionals who demonstrate agency and move beyond knowing what to do and being deliverers of curricula, to understanding what they need to know so that they can become 'curriculum makers' (Lambert & Biddulph, 2015; Mitchell & Lambert, 2015). Following Priestley et al. (2013), this view of agency is not about the 'quality' of the teachers themselves, but it recognises that they are individuals who "are able to be reflexive and creative, acting counter to societal constraints" as well as being "enabled" by them (p. 189). Teachers can, therefore, be "agents of change" (p. 201) if they have the necessary knowledge and understanding to make decisions in their classrooms that are in the best interests of their pupils.

2.2 What do teachers need to know?

The craft view of teaching that has informed policy thinking in ITE in recent years (Brown et al., 2015; George & Maguire, 2019; Orchard & Winch, 2015) leads to a narrow view of teacher knowledge that seeks 'effective teachers' judged via "technical accomplishment and measurement" (Menter et al., 2010, p. 21). Menter et al highlight that, if we focus on the teacher as a professional, it is possible to take different perspectives, offering 'the reflective teacher' (underpinned by a commitment to professional development through practice), 'the enquiring teacher' (where emphasis is based on the teacher developing their practice through enquiry) and 'the transformative teacher' (where the teacher seeks to prepare pupils to contribute to change in society) as alternatives. If we adopt any view of teacher professionalism beyond a craft/effective model, teachers need to engage with questions of "meaning and purpose" (Orchard & Winch, 2015, p. 21) and develop knowledge of research and principles that underpin classroom practice if they are to draw on their reflective abilities, improve their skills and offer an approach to teaching and learning which is 'transformative' for their pupils. As highlighted above, a teacher is not simply a deliverer of curricula, but an individual with agency who has an understanding of both

their subject and effective teaching and learning, and is keen to develop and add to their knowledge and understanding over time.

This section of the literature review, therefore, explores different conceptualisations of teacher knowledge and makes the case for acquiring disciplinary and theoretical knowledge, and an understanding of relevant research, to support the development of skills and aid reflection. The attempt to categorise the nature of the knowledge that might be needed to support this is not a new enterprise. Aristotle offered an understanding of knowledge that was more nuanced than the binary views (e.g., implicit/explicit, theoretical/practical) that often characterise writing about teacher knowledge. If we accept that knowledge can come from both learning facts to inform a theoretical understanding of a subject and from practical experience, this leads to an understanding of knowledge where it is not seen as a fixed entity, but something that can evolve and develop over time; it may be presented as tried and tested theories, but they are open to refinement and development, often because of experience and experimentation in particular contexts (Darling-Hammond, 2006). As the research questions address trainees' perceptions of the importance of subject-specific pedagogy within their training (RQ1) and the ways in which learning about subject specialist pedagogical knowledge relates to their classroom practice (RQ2), this review turns to explore some of the dominant ideas about the types of knowledge required by teachers. This is used to consider what knowledge is needed and how it might be conceived and developed in ITE, particularly in a subject-specific context.

2.2.1 An Aristotelian Perspective

In Nichomachean Ethics, Aristotle (2009) highlights three different kinds of knowledge which are frequently reviewed in writing and research on teacher knowledge. These are:

- Episteme - theoretical or scientific knowledge which is "acquired by intelligence and context-independent" (Grint, 2007). This is empirical and tells us about an unchanging world.

- Techne - technical knowledge that incorporates understanding of how to do something. This is universal, teachable and precise (Nussbaum, 1986).
- Phronesis - practical wisdom that is rooted in action. For Aristotle, phronesis is different from techne and episteme; it is an intellectual virtue that is "based on values, concerned with practical judgement and informed by reflection. This is pragmatic, variable, context-dependent, and oriented toward action." (Kinsella & Pitman, 2012, p. 2)

Despite distinctions made between episteme, techne and phronesis by Aristotle, some authors offer a binary understanding of teacher knowledge, where techne and phronesis are merged into one category of 'practical knowledge' with episteme as a separate and distinct category (Fenstermacher, 1994; Korthagen & Kessels, 1999). Whilst this binary approach addresses, in simple terms, two obvious types of teacher knowledge – that learnt through reading and research and that learnt by doing – in policy discussions it can lead to a discussion that sets practice versus theory (Korthagen, 2010b), or school- versus university-led. A consideration of Aristotle's three kinds of knowledge offers an opportunity to move away from this dichotomous perspective in the search for a more nuanced understanding to support teacher education.

2.2.2 Episteme

Teaching is a practical activity with too many variables for it to be based on scientific knowledge (Biesta, 2015), making it hard to initially see the relevance of episteme in this context. The view taken in this study is that knowledge relating to teaching is dynamic, responds to change and need, and is open to continuous development, but this is at odds with a conception of knowledge that is fixed, universal and can be scientifically proven. However, I would also argue that there is a body of knowledge to be acquired by those training to teach. This idea is accepted in literature (Burn et al., 2015) and a similar view is taken in policy documentation (DfE, 2019) which lists things that trainees are expected to learn. Therefore, although the position adopted in this

study is that knowledge in the context of teaching is not fixed, it takes the view that there is knowledge to be acquired.

In teacher education, the knowledge to be acquired is often presented in the form of "theories" (Hennissen et al., 2017); a system of ideas, developed through research, that offer principles or justify actions in a classroom context. For Eraut (1994, 2000) this knowledge is subject to quality control by editors, peer review and debate, and it is given status through incorporation into education programmes. Examples of theories that meet these criteria would be dialogic teaching (Alexander, 2017) or assessment for learning (Black & Wiliam, 2009, 1998). They form part of a body of knowledge that helps teachers understand what is possible, offering general ideas that can be useful in a variety of situations (Korthagen & Kessels, 1999). They may be open to debate and challenge, but they offer a starting point for the development of skills and help trainees understand the current approach to teaching and learning in secondary schools in England.

This epistemic knowledge in the context of teacher education has its roots in the 'disciplines' (a field of study in higher education). Whether teacher education constitutes a discipline is a contested issue (Loughran, 2009), but it can be perceived as a multidisciplinary pursuit. For Hegarty, 'disciplines' that together form a dominant discourse in education are "psychology and its various subdisciplines, especially cognitive psychology and educational psychology, psychometrics, sociology, history of education, philosophy of education, linguistics, neuroscience and of course subject knowledge" (Hegarty, 2000, p. 452). Eraut (1994, 2000) offers a similar list: history, philosophy, psychology and sociology. Hegarty (2000) considers this structure to be "undoubtedly useful for education" (p. 453) but notes that these bodies of knowledge exist outside of education and are separate from one other. Therefore, relationships between the disciplines and their relationship to the study of education is, by definition, interpreted and contextualised.

Current policy has side-lined exploration of this aspect of teacher knowledge (Beck, 2013), although some universities use a discipline-based approach within education studies (Bignold et al., 2013). In my own institution PGCE students explore psychology and neuroscience to understand how children learn, the history of education to help understand curriculum development, and explore the sociology of education to consider the impact socio-economic factors have on pupil outcomes, all of which have the potential to help develop their classroom practice. This is epistemic knowledge; it is "context independent" (Grint, 2007), evidence-informed and something students can use in a classroom context.

Evidence Informed Practice

The lack of attention given to disciplinary knowledge may result from the fact that, in policy, conceptions of teacher knowledge focus on formal propositional knowledge arising from research (DfE, 2019; Ofsted, 2021c). This is presented as the epistemic knowledge required by teachers to underpin 'evidence-based' or 'evidence-informed' practice. Nelson and Campbell (2017) note that many use these terms interchangeably but argue the latter reflects the view that evidence is one of several factors influencing educational decisions "with educators needing to apply professional judgement" (p. 128), whereas evidence-based practice implies that evidence and data are the sole basis of decision. The move to ensure educational policy and practice is "influenced by robust research evidence" (Coldwell et al., 2017, p. 5) has been a key aim in recent years. In a report for the DfE, Goldacre (2013b) argues that evidence-based practice is intended to empower teachers and set them free from "governments, ministers and civil servants who are often overly keen on sending out edicts, insisting that their new idea is the best in town" (p. 7). Instead, teachers were urged to look to evidence about what works best and use this as the basis of their own professional judgements.

In 2017, findings from a two-year study reviewing progress towards an evidence-informed teaching system indicated that, at a national level, school leaders were keen that government policy should be aligned with research evidence and, at a school level, the most research-focussed schools effectively integrated research evidence into

all aspects of their work (Coldwell et al., 2017). However, they also found that it is not always easy to implement at an individual level, concluding that, whilst teachers valued and trusted research evidence (particularly when it was supported by other evidence sources), most did not feel confident in engaging with research and there was "limited evidence" of teachers "directly importing research findings to change their practice" (Coldwell et al., 2017, p. 7). This presents a challenge for ITE; if this is difficult for qualified teachers, how can those training to teach develop these skills? It is expected that courses should support trainees to become "intelligent consumers of research" and teach them "where and how to access research findings, how to interpret and challenge research and how it can be applied in practice" (Carter, 2015, p. 28). Rose and Eriksson-Lee (2017) suggest that, to become "intelligent consumers of research", trainees must:

1. Develop professional scepticism;
2. have knowledge of curriculum and learning;
3. have knowledge of research methods and data analysis;
4. be able to implement what you have learnt in your classroom practice.

Two of these rely on existing knowledge to help teachers understand where new research might fit into their existing practice and understand how to assess its validity. They argue teachers need (among other things) "a broad familiarity with the research domain relating to teaching and learning" and "a practical introduction to the science of learning" (p. 11). Therefore, evidence-informed practice necessitates acquisition of knowledge and ITE "should equip teachers to engage actively with the findings of educational research" (Orchard & Winch, 2015, p. 22).

2.2.3 Techne and Phronesis

Despite the case made, above, for the importance of epistemic knowledge acquisition for beginning teachers, much of the policy relating to teacher education focuses on the idea of learning on-the-job. In Aristotelian terms this would be aligned with *techne*, but interpretations tend to drift from the concept of teachable and precise knowledge. Instead, the literature focuses on knowledge acquired through experience – most commonly tacit or craft knowledge.

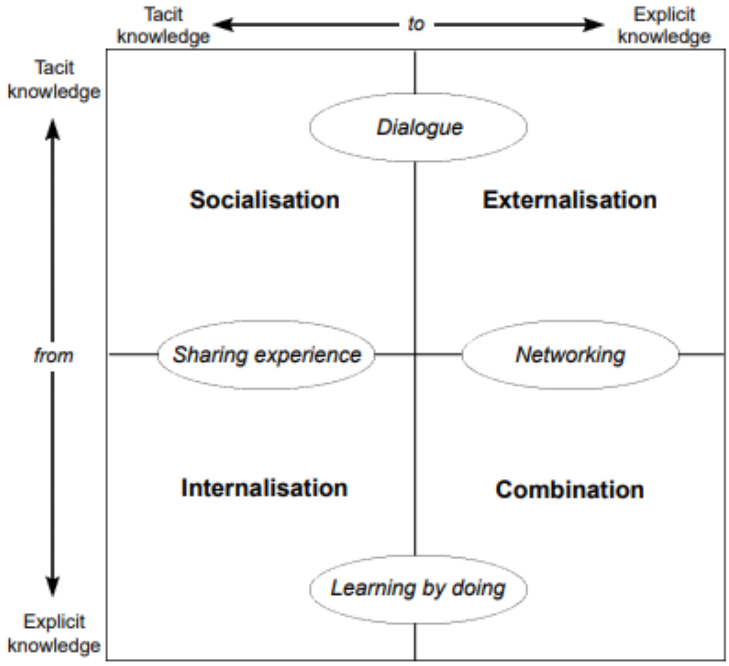
Tacit Knowledge

The term 'tacit knowledge' was introduced by Polanyi (1958) and describes knowledge that is "subject, context-specific and not readily communicated other than by demonstration" (Hegarty, 2000, p. 453). Although it is knowledge gained through experience, it strays from the concept of techne as, rather than being universal, precise and teachable (Nussbaum, 1986), it is almost instinctive; furthermore, individual practitioners may find they cannot explain it or why it works to others (Boyd & Bloxham, 2014). The fact that tacit knowledge can be difficult to explain to others may also lead to it being used uncritically (Eraut, 2004); in contexts where school experiences are limited and reductionist approaches prevail, students may feel they have to accept the status quo.

Examples exist of tacit knowledge being conceived and approached differently. Nonaka and Takeuchi (1995), exploring how tacit and explicit knowledge interact in a business context, suggest four modes of knowledge conversion which act as a spiral, with each mode contributing to the development of knowledge in the next. Tacit knowledge is captured, used as the basis of instruction, and then incorporated into knowledge systems and bodies of theoretical knowledge which then become part of everyday practice and are tacit once again. As seen in Figure 1, Hargreaves (1998, p. 30) has developed this model in the context of education, arguing the development of teacher knowledge, which builds on tacit knowledge to develop explicit knowledge in this cyclical way, is dependent on a school culture which "holds that all teachers are potentially creative in what they do and which promotes tinkering so that they actively try out new ideas" (Hargreaves, 1998, p. 29). This is something which, as noted above, might not be promoted in a reductionist model. However, if it is, tacit knowledge is potentially of value in teacher development if it can be captured, developed and incorporated into knowledge systems. This development moves away from strict definitions of tacit knowledge that can only be communicated by demonstration, towards something that could be precise and teachable (and, therefore, closer to Aristotle's conception of techne).

Figure 1

The Nonaka and Takeuchi model of knowledge creation



Craft Knowledge

Craft knowledge is another commonly referred to understanding of practical knowledge. However, like tacit knowledge, craft knowledge is also about learning from experience and, therefore, strays from the concept of techne as it is not universal, precise or teachable (Nussbaum, 1986). It is knowledge acquired through experience rather than formal training which students use "routinely and sometimes unconsciously in their teaching" (Brown & McIntyre, 1993, p. 17) and it improves with experience and time (Day, 2005). It is easy to take a negative view of craft knowledge; Leinhardt (1990) articulates this, saying it includes "deep, sensitive, location-specific knowledge of teaching, and it also includes fragmentary, superstitious and often inaccurate opinions" (p. 18). However, advocates of the importance of craft knowledge highlight that it is not necessarily anti-professionalism or anti-academia.

In a study exploring teachers' reasoning about their own practice Kennedy (2002) explores the potential for learning through experience, concluding that craft knowledge:

- Derives mainly from experience, but also from the media and advice;
- helps teachers address concerns about student participation and orderly task progress;
- develops because of a desire not to repeat mistakes (but notes that the potential to learn from experience might be limited).

Kennedy argues that knowledge based on experience alone is not enough as craft knowledge does not help address concerns about pupil progress, concluding that additional knowledge is needed to support development. Day (2005) highlights that participants in a research project were engaged in theoretical reflection on their practice but notes that this is "not the same sort of theorising usually found in the academic literature on teaching pedagogy" (p. 27). Consideration needs to be given to how development of teacher knowledge and skills can be enabled when observation and personal reflection does not go far enough.

A more nuanced definition of 'craft knowledge' may help address some of these issues. Grimmett and MacKinnon make a distinction between conservative and progressive/radical views of craft knowledge. The former assumes craft knowledge is "anti-scientific" with the potential to impact negatively on the professional status of teaching (Grimmett & Mackinnon, 1992, p. 389), but a progressive view assumes that teachers can critically reflect on their everyday experience and are involved in a process of continual development. They argue that, in addition to the knowledge (from the disciplines) that forms the basis of teacher education, craft knowledge can support the formation of "skilful, reflective and empowered teachers" (p. 388). It is not the application of theory to practice (Grimmett & Mackinnon, 1992; Leinhardt, 1990) but the "construction of situated, learner focused, procedural and content-

related pedagogical knowledge through action" (Grimmett & Mackinnon, 1992, p. 393). However, as with Hargreaves' view of tacit knowledge in teaching, this position asserts that experience, alone, is not enough in the development of teacher knowledge. Both argue that a foundation in epistemic knowledge, or an approach that seeks to develop epistemic knowledge, offers a more meaningful basis for teacher development. This moves away from an understanding that implies teacher knowledge is based on gut feeling or intuition, instead making the teacher central to the process of assimilating knowledge from the disciplines or recent research with knowledge developed through practice, to develop a clear sense of purpose in the classroom. This balanced view moves from a position where it could be argued that teaching is simply common sense, to focus on professional judgements that allow teachers to identify the best course of action in particular situations. This understanding of knowledge developed through practice may be more in line with Aristotle's concept of phronesis.

2.2.4 Making Judgements

If what is needed is an understanding of teaching that includes progressive craft knowledge supported by a public knowledge base (episteme), an understanding of phronesis may offer a way of bringing this together as it introduces the concept of "practical wisdom" to the discussion (Lunenberg & Korthagen, 2009). Phronesis is not universal, abstract or theoretical; it is related to a specific context, deals with practical matters that are variable, complex or ambiguous and "is essentially perceptual instead of conceptual" (Kessels & Korthagen, 1996, p. 19). As Kessels and Korthagen (1996) summarise:

> to be able to choose a form of behaviour appropriate for the situation, one must above all be able to perceive and discriminate the relevant details. These cannot be transmitted in some general, abstract form (p. 19).

Biesta (2015) argues that what teachers actually need is judgement about how to do things (techne) and judgement about what is to be done (phronesis). He acknowledges the importance of epistemic knowledge but takes the view that the

knowledge science can generate regarding teaching is never sufficient as the challenge of the latter lies not in how phronesis is acquired, but in how the teacher can become a phronimos - a practically wise person. Orchard and Winch (2015) adopt a similar position regarding what is required – a teacher who can "judge the right action in various school and classroom contexts from a more reliable basis for judgement than intuition or common sense" (p. 14) – but, instead, argue this must be supported by a "coherent conceptual framework" and epistemic knowledge from "well-substantiated empirical research". This is the position taken in this study; phronesis comes from combining epistemic knowledge (from the disciplines and research) with progressive craft knowledge; the experience provides opportunities to apply and develop knowledge, and practice making professional judgements in particular contexts.

2.2.5 Powerful Knowledge

I have argued that acquisition of knowledge is important for teachers as an understanding of theory and research can help them reflect on and develop their practice, moving their thinking beyond the 'common sense' and 'intuition' gained from experience. On this basis it could be considered "powerful knowledge". This is a term introduced by sociologist Michael Young who argues "Knowledge is 'powerful' if it predicts, if it explains, if it enables you to envisage alternatives" (Young, 2014, p. 74). This focuses on knowledge itself – what it can do and how it can be organised – both to support the production of knowledge and the acquisition of existing knowledge (Young, 2010). It is distinct from 'common-sense' knowledge gained through experience; it is systematic (as concepts are linked to subjects or disciplines) and specialised (Young, 2014). He believes it enables us to go beyond experience, is conceptual and is always open to challenge (Young, 2010).

For Young, this focus on "powerful knowledge" is a response to concerns about the curriculum. He believes emphasis on individual choice, tacit knowledge and genericism prevents learners from accessing powerful, potentially life-changing knowledge. Although he is writing with the school curriculum in mind, many of these points are worthy of consideration in relation to the ITE curriculum. For example, he is

concerned that learning specific content is becoming less important and the focus shifts to the generic (e.g., trainees being taught about generic approaches to assessment rather than considering progression and appropriate assessment methods in the context of their specialism). This aligns with concerns that the move to school-based training may also mean a focus on generic knowledge and skills, rather than pedagogical understanding relating to specific subjects (Howard & Hill, 2020). He is dismissive of "tacit, information, experiential, non-codified skills and its accreditation as if this was an enormous hidden cultural resource that needs to be tapped and given recognition" (Young, 2010). For some, this might be going too far; it does not acknowledge the potential of progressive views of craft knowledge (Grimmett & Mackinnon, 1992; Leinhardt, 1990) or the fact that trainees value the opportunity to be in the classroom trying out different ideas (George & Maguire, 2019). That said, if we take the view that teacher knowledge is "powerful knowledge" it is helpful when considering the nature and content of ITE courses. Particularly important is the idea that it allows those who acquire it to see "beyond their everyday experience" (Young, 2010). In a model where learning on-the-job is central, knowledge that allows trainee teachers to see beyond their immediate context and provides a basis for exploring alternatives could be extremely valuable. Highlighting the importance of the specialised nature of knowledge in the context of the school curriculum could have implications for the expectations made of the teacher and the way that their role is viewed. This moves away from a conception of a teacher as a facilitator and highlights their role as a specialist in a subject, teaching the powerful knowledge they have, themselves, previously acquired (Young, 2010); they become "curriculum makers" (Lambert & Biddulph, 2015; Mitchell & Lambert, 2015).

In the secondary context, the subject-specific aspects of teacher knowledge are usually acquired prior to embarking on a postgraduate teaching course. However, it could be argued that ITE students need a particular kind of 'powerful knowledge', that links their academic subject to the knowledge they need about education and teaching. Lambert (2014) argues that subject teachers need to explore the relationship between

the school subject and the wider academic discipline, but cautions that "these relationships are not straightforward and are difficult to engineer" (p. 161). Powerful knowledge may also be biased in favour of specific, academic subjects (White, 2012). Therefore, although the concept of 'powerful knowledge' may offer a useful framework for a conceptualisation of the propositional or formal knowledge needed by ITE students, and help in exploring questions of purpose, it may not be comprehensive enough on its own to support thinking about the subject-specific pedagogical knowledge needed by teachers.

2.2.6 Pedagogical Content Knowledge

To focus on teachers as specialists within a particular subject, sharing powerful knowledge with their pupils, an important question must be addressed: What pedagogical knowledge do ITE students need to support them in their development as secondary specialist subject teachers? A conception of the nature of teacher knowledge that pays more attention to this pedagogical question is found in the work of Shulman who argues teachers require knowledge, which he refers to as pedagogical content knowledge (PCK), that is distinct from knowledge of the subject itself. He believed a distinction between content and pedagogical process had led to what he described as the "missing paradigm" (Shulman, 1986), a blind spot in which:

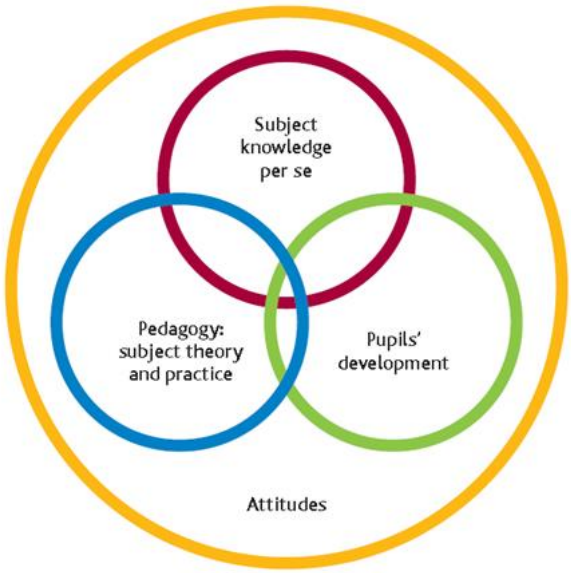
> What we miss are questions about the content of the lessons taught, the questions asked, and the explanations offered...Where do teacher explanations come from? How do teachers decide what to teach, how to represent it, how to question students about it and how to deal with problems of misunderstanding? (Shulman, 1986, p. 6).

Whilst some have argued that Shulman's ideas are underdeveloped or lack coherence (Fenstermacher, 1994; Hashweh, 2005; McEwan & Bull, 1991; Sockett, 1987), a wealth of research has been published developing and extending his ideas, seen in the hundreds of references to Shulman's articles (1986, 1987) in journals across a wide range of professions and disciplines (Ball et al., 2008). In later work Shulman also refines and develops his ideas. A co-authored 1987 article explores the differences

between the practice of one veteran and one novice teacher, and identifies three defined areas within pedagogical content knowledge: content knowledge, general pedagogical knowledge and knowledge of students (Gudmundsdottir & Shulman, 1987). This is offered as a theoretical framework for the analysis of some of their research work and a potentially useful working tool, and its influence can be seen in English policy documentation. As shown in Figure 2, in 2007 the Training and Development Agency for Schools (TDA) guidance offered a framework - "a way of looking at subject knowledge for teaching" - highlighting several areas of interlinked key knowledge, all underpinned and supported by a set of appropriate attitudes. At the beginning of my career as a teacher educator this conception of teacher knowledge was significant as it helped me articulate, for trainees, an understanding of the different aspects of knowledge they needed to develop. There is, of course, a danger that making a distinction between knowledge of subject and knowledge of teaching methods, in this way, is a hindrance rather than a help. McEwan and Bull (1991) highlight this, expressing concern that it could lead to research focusing on the transition from one form of content knowledge to the other (see Wilson et al. (1987) for an example). However, without the distinction there is the risk that subject-specific pedagogy is overlooked.

Figure 2

Teacher Knowledge (TDA, 2007)[1]



Another theme to emerge from the Gudmundsdottir and Shulman (1987) paper is the potential for teachers' own perspectives on their subject to influence the way they approach their teaching and view their work with students. This is considered by Grossman (1990) whose research explores the impact of trainees' own academic study and values on their approach to teaching their subject. Her development of Shulman's ideas is one of the most widely referred to definitions in subsequent studies (Jing-Jing, 2014). The importance of "knowledge of purpose" is considered by Shulman (1987) but is placed outside of his conceptualisation of PCK. Grossman, however, as part of the trend to include new knowledge and belief components within definitions of PCK (Hashweh, 2013), brings this in as a subcategory. For her there were four general areas of teacher knowledge that could be seen as "cornerstones" of PCK:

[1] Attitudes includes the trainees' approach to inclusion and well-being of pupils; enthusiasm for their subject; a commitment to being creative; taking responsibility for their own continuing professional development; and working as part of a team.

1. Knowledge and beliefs about the purposes for teaching a subject at different levels;
2. knowledge of students' understanding, conceptions and misconceptions of particular topics. She argues a teacher must have some knowledge of what students already know and what they might find difficult;
3. curricular knowledge – knowledge of the materials available for teaching particular subject matter and knowledge of the curriculum for the subject;
4. knowledge of instructions, strategies and representations for teaching particular topics.

Grossman believes that these components are less distinct in practice than in theory, but that they offer a structure for consideration of the unique knowledge bases that may be used to develop subject specialist PCK. She argues this is developed through:

- "Apprenticeship of observation"
- Disciplinary background/disciplinary knowledge
- Professional education/coursework
- Learning from experience/classroom teaching experience

All these elements are part of current ITE routes to some extent. Students spend most of their time gaining classroom teaching experience and engaging in observation. Jones and Vesilind (1996) argue that students use their experiences to reconstruct and develop the ideas that they have encountered in their training. They also contend that the construction of pedagogical knowledge is a process that incorporates, not only the development of their conceptual understanding, but also the knowledge they develop of their pupils over time.

The element that is not necessarily an explicit part of the ITE curriculum is disciplinary knowledge, as there is an expectation that students on secondary PGCE courses have already developed this in their undergraduate studies. However, the importance of disciplinary knowledge is a key feature of current discussion about curricula and a prominent discourse within humanities education (Burns, 2019; Counsell, 2011, 2018b; Kueh, 2020). Counsell (2018b) describes it as "a curricular term for what pupils learn about how that [substantive] knowledge was established, its degree of certainty and how it continues to be revised by scholars, artists or professional practice" (p. 7).

Discussion about how this kind of knowledge might inform curriculum design and support effective subject specialist teaching is key in current policy and thinking about the curriculum (Spielman, 2019).

Grossman also notes the potential of professional education to develop PCK, but research exploring this area is limited to a few small-scale studies (Dymoke & Cajkler, 2010). More recently, the potential of academic work to make links between theory and practice was acknowledged in the Carter Review (2015). Some argue that university tutors provide decontextualized, propositional knowledge that trainees utilize in their classroom practice where they test theories and hypotheses to construct their own professional knowledge (Burn, 2007; Korthagen, 2010a). However, this is not an uncontested or unproblematic position and there is also evidence in literature and research highlighting how difficult it can be in practice for students to make this connection (Eraut, 2004; Hodson et al., 2012). Therefore, the potential of academic work to support trainees in making this link requires further examination.

2.2.7 Subject-specific Knowledge

This review has explored both powerful knowledge and PCK as potential conceptual lenses for exploring the nature and importance of the knowledge required by teachers. Studies or articles that bring these two ideas together are limited and, although they sometimes are both referenced in articles exploring specific subject contexts (Jerome & Lalor, 2016) or focussing on curriculum (Deng, 2018b), they are presented as distinct aspects of teacher knowledge. In this study they are initially viewed as separate but complementary frameworks, with powerful knowledge offering a way of understanding the importance of specialist subject knowledge, whilst PCK provides a framework for exploring how this knowledge might be understood and conceptualised in teaching. As noted above, the current policy landscape and move to school-led ITT models does not necessarily support a focus on subject specialism, and it is that aspect of ITE that this study seeks to explore in more detail. The CCF acknowledges the importance of subjects, but there remains a concern that the focus of ITE can all too easily become generic. Young (2010), Fordham (2016) and Counsell (2016) have all

warned against the rise of genericism, concerned that the absence of "curricular reflection" on the powerful knowledge contained within individual subjects and how this can and should be used to support the development of the whole child leaves a vacuum and that "it is a vacuum into which genericism flows" (Counsell, 2016). Discussion of PCK, and more recently powerful knowledge, has done something to redress this and place the importance of subject-specific approaches in the forefront of discussion and debate. However, research and writing has not been evenly distributed across subject areas. As this is the focus of this research, this literature review now turns to consider the three focus subjects – citizenship, geography and history – in relation to both powerful knowledge and PCK.

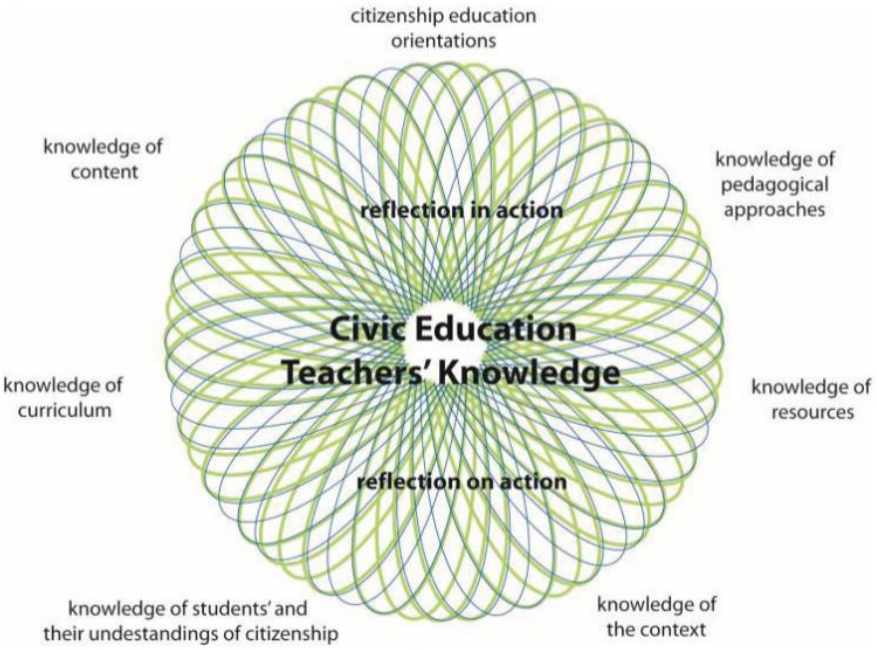
Citizenship

Literature considering powerful knowledge in a citizenship context or the pedagogical knowledge required by teachers is more limited than in other subject areas. Identifying the nature of "powerful knowledge" is challenging because citizenship is multi-disciplinary (Jerome & Lalor, 2020) and there can be differing views about the disciplines on which it is based. For example, Standish and Cuthbert (2017) suggest citizenship draws on the disciplines of history, politics and law; Ashbee (2020) proposes politics, history, sociology, economics and philosophy as an alternative; and, Jerome and Lalor (2016), for a topic such as global warming, might add science to the list. Therefore, more debate and discussion are required to identify and utilise disciplinary approaches. Taking this into account, Jerome and Lalor (2016) offer a three-dimensional view of knowledge for the Citizenship classroom, highlighting substantive knowledge, conceptual knowledge (referencing the work of Shulman and Young) and the concept of a "citizenship lens" as key components. Elsewhere Jerome (2018b) is clear that the ideas that make up the conceptual knowledge need to be identified, but believes that this is a conversation for schools and departments. Whilst this is valid when writing for teachers, perhaps trainees need help in identifying and structuring their thinking. The concepts are clearly there (rights, freedom, justice, etc.) but how is this to be built into a coherent curriculum and pedagogical model?

The issue of developing pedagogical knowledge in citizenship teacher education is picked up by Nogueira and Moreira (2012) in their work in the Portuguese context. Utilizing Grossman's (1990) framework for understanding PCK and drawing on the work of Schön (1983), they offer a framework for Civic Education Teachers' Knowledge, which is shown in figure 3. However, there is no discussion regarding what might be included in each area of the civics education curriculum, the form this might take and, even in their own context, no consideration of specific topics.

Figure 3

Civic Education Teachers' Knowledge framework (Nogueira & Moreira, 2012, p. 1181)



An alternative is offered by Patrick and Vontz (2001) who identify four components of civics education - civic knowledge, intellectual skills, participatory skills and dispositions (which are similar to the procedural concepts for citizenship identified by Davies (2003) in the English context) – which are used by Silva and Mason (2003) as the basis of their work researching elementary school civics education in the US

context. They consider this framework alongside the work of Grossman (1990), Shulman (1986, 1987) and Magnusson et al. (1999) in an attempt to define PCK for teachers of civics. They describe it as an "intellectually demanding and complex activity" (Silva & Mason, 2003, p. 371), arguing that 'knowledge of content' comes first (in the UK secondary ITE context this would be through undergraduate qualifications) and needs to be supported by 'knowledge of the context' and 'knowledge of resources', so that 'knowledge of pedagogical approaches' can be developed. This requires teachers to become "pedagogical and curriculum-decision makers" and involves building knowledge and teaching "powerful pedagogy" to help teachers make explicit connections between the components (pp. 373–374). The questions raised for this study relate to how the PCK described here, as required by Citizenship teachers, can be developed. They describe a complex understanding and set of skills and we should consider how trainees can be supported in developing these within the context of a one-year PGCE course.

Geography

It is easier to make the case for geography as a distinct discipline. Standish (2017) argues that this is important as geography shares some substantive content with other subject areas and it is the focus on disciplinary concepts that prevents geography teachers "straying into other subjects or non-educational aims, including the promotion of good causes, such as fair trade or environmentalism" (Standish, 2017, p. 97). Given this, there is more clarity in ITE programmes when it comes to considering the scope of and appropriate approaches to geography education, and in much of the geography literature the term powerful disciplinary knowledge (PDK) is used to emphasise the powerful knowledge that is unique to the discipline (Lambert, 2016). One of Young's collaborators, Lambert, is a geography specialist who has led on developing these ideas more explicitly in the context of the subject (Lambert, 2011, 2014) and this has been taken further, in the Australian context, by Maude who proposes a typology identifying five types of powerful knowledge in geography (Maude, 2015, 2016) that indicate how learning about selected content should be

approached. This is a potentially powerful tool for ITE students as they start to take the content knowledge acquired in their undergraduate studies and consider how to teach this to secondary school pupils.

However, how trainees can take powerful disciplinary knowledge and develop pedagogical approaches that allow pupils to access it, is another significant challenge (Rawling, 2018). Hong et al (2018) argue that geography has yet to make the "transformative shift with reference to its conception of teachers' knowledge" that has been seen in other subject areas. To address this, drawing on the work Shulman, they suggest a model for PCK in geography, offered as a way of helping researchers better understand the nature of knowledge in geography teaching. Lane (2015), in the Australian context, has also used PCK as a framework to explore the knowledge of experienced geography teachers, focussing on their ability to deal with students' preconceptions and misconceptions, and concludes that teachers need to be supported in "reconstructing their epistemological beliefs about learning and teaching" (Lane, 2015, p. 55) if they are going to be able to engage with students' ideas. He argues that experience has a part to play in helping teachers develop PCK, and suggests issues with the accuracy and depth of teachers' substantive content knowledge impacts on their ability to develop the PCK required to identify and address students' pre-conceptions (Lane, 2011).

This raises challenges for trainee teachers. Can they move beyond gaps in their subject knowledge to develop pedagogical knowledge? It also raises questions about the training; what are the implications for a trainee who has an inexperienced mentor or who is teaching lessons for a non-specialist host teacher? In their study focussing on four trainee teachers, Reitano and Harte (2016) conclude that all demonstrated the use of PCK in their teaching of geography although, perhaps unsurprisingly, with differing levels of sophistication. They conclude this can be addressed through explicit modelling of geographical PCK, coupled with opportunities for trainee teachers to experiment in a supportive environment, and argue that this makes the role of the university tutor, mentor and host teachers even more important. Jo and Bednarz

(2014) reach a similar conclusion when researching the development of spatial thinking in geography, arguing that explicit learning is essential when developing PCK and that pre-service teachers must have opportunities to observe exemplary classroom practice. This revisits some of the challenges arising from Grossman's (1990) work about how PCK is developed. There is a disciplinary basis for geography education that can support the identification of powerful knowledge and inform the development of subject-specific pedagogical approaches, but the research indicates that trainees need a significant amount of support to develop this knowledge and understanding.

History

It is easy to make the case for history as a discipline; historical argument is based in specialised knowledge and abstract concepts and, as such, can be distinguished from informal historical knowledge. Believing this is powerful knowledge, Counsell (2017) argues that helping to develop pupils' understanding of the "distinctive properties of disciplinary knowledge" has been the aim of history teachers for many years. Many have published work on this, often linking their explicit consideration of how to achieve this with previous publications, which adds up to "a coherent discourse of some power" (Counsell, 2011, p. 203). However, accepting that the subject content is powerful knowledge is the first step. ITE students must consider what an effective pedagogy, that allows for development of this, might look like. Literature exploring pedagogical knowledge in history echoes some of the issues raised in the geography literature. Concern about gaps in subject knowledge, the role of mentors (linked to the importance of observing exemplary classroom practice) and the need to address student preconceptions are all considered.

Monte-Sano and Budano (2013) explored the extent to which particular types of historical understanding were present in the thinking and practice of both experienced and pre-service teachers. Based on both a literature review and their findings they identified four components of PCK they believe are important for the teaching of history, considered how these can be addressed in the secondary context and analysed

what the barriers to their development might be. They conclude that 'attending to students' ideas about history' and 'framing history' were more challenging for novice teachers than the other aspects of PCK they identified ('representing history' and 'transforming history'). Further discussion of these issues is found in some of Monte-Sano's earlier research where she highlights agreement among researchers that experts (teachers) and novices (school pupils) think differently about history (i.e., that novices see history as a set of fixed, facts and experts approach history as an interpretative discipline) and that "addressing this divide is the key to advancing students' historical understanding" (Monte-Sano, 2011, p. 260). Her project, focusing on three trainee teachers, led her to conclude that the abilities of the trainees, the differences in the mentoring they received and the relevance and focus of their degree qualification are all factors in their development.

The importance of trainees' prior knowledge (arising from their degree qualification), and its impact on the development of PCK, is picked up elsewhere in the literature (Grossman, 1990; Wilson & Wineburg, 1988). Burn (2007), focussing on secondary history in the UK, acknowledges it is unlikely any graduate will have studied all the substantive content they will be required to teach (see also Burn et al., 2015). Bain and Harris (2009), from their US perspective, argue that quantity of knowledge alone is not sufficient and that many teachers they have worked with are unable to "fit the pieces together or make them cohere around intellectual problems or big questions to drive inquiry" (p. 35). There seems to be a suggestion that history teachers, themselves, are in danger of taking a novice rather than expert view of history teaching; they have the content knowledge, but do not know how to use this effectively to make meaning for their pupils. In a later study, Harris and Bain (2010) asked both pre- and in-service history teachers to order a series of seemingly random world events and analysed the different ways in which the teachers completed this task. For them, the ability to make connections between events demonstrates that teachers have sufficient and flexible PCK to enable them to see a variety of approaches that could be used to meet the needs and abilities of their pupils. Wilson and

Wineburg (1988) suggest a clear link between the way that teachers' undergraduate training influences their subsequent teaching, leading them to believe that their subject content knowledge was "as much a product of their belief as it was an accumulation of facts and interpretations" (p. 537). If this is the case, it is important to consider how trainees' conceptualisation of knowledge within the discipline influences the way they construct teaching and learning to, in turn, support the development of their students' disciplinary thinking.

2.2.8 Towards a conception of knowledge

This discussion, in the context of individual subjects, highlights the different challenges faced by each subject area. In each case a unique disciplinary basis shapes understanding of the subject and has implications for the pedagogy needed to address this in the secondary classroom. The knowledge required to do this goes beyond a conservative view of craft knowledge. It requires trainees to become "intelligent consumers of research" (Carter, 2015, p. 53) and recognises that knowledge of academic disciplines brought by an individual teacher is potentially 'powerful knowledge' that supports reflection, on both the unique contribution of each subject to the curriculum and on what knowledge is required to be a subject specialist teacher. This does not deny the part experience has to play in the development of teacher knowledge, but asserts that neither epistemic knowledge nor craft knowledge, alone, is enough. This research aims to explore whether trainee teachers develop similar perspectives during their training year (RQ1/2) and whether there is any evidence of them developing phronesis and becoming a teacher who can ask "what is educationally desirable" (Biesta, 2015, p. 19) through engagement with both episteme and their practical experience in a thoughtful and critical way (RQ3). The goal should be "teachers as 'multi-dimensional selves' who bring rich interactions of social, cultural, historical, political and personal issues to schools, classrooms and research studies" (Leat et al., 2015, p. 283). This review now moves on to consider how they can be supported in this.

2.3 Connecting theory and practice

The changing landscape necessitates re-engagement with the long-standing academic debate around the theory/practice divide in teacher education (Korthagen, 2010b). The emphasis on learning on-the-job serves to heighten this distinction, with the importance of theoretical aspects of training being questioned, leading to continuation of debates about the 'transfer' of theoretical knowledge to a practical context.

2.3.1 The Theory-Practice Divide

The traditional view is that a body of theoretical knowledge can and should be taught to trainee teachers before they embark on their classroom practice, to be applied once they start teaching (Korthagen, 2010a). Clandinin (1985) calls this the 'sacred story of theory-practice' in which "theory is above practice…[and] practice is applied theory" (p. 28). Even if the view that theory is above practice is not accepted (e.g., it could be seen as supporting rather than 'above' practice), the reality is that making connections between theory (which can be abstract) and practice can be difficult for trainees. Kessels and Korthagen (1996) argue that this is an issue for both the student and the teacher educator. The latter may have concerns about how to address the gaps and make connections to students' existing knowledge, conscious there may be a risk of overloading them with too much information (Feiman-Nemser, 2001). For their part, the students can become confused about what is important and find that much of what they have learnt is not directly useful once on placement (Ure, 2010).

Hennissen et al. (2017) identify six potential causes of the gap between theory and practice. These reflect teachers' views and preconceptions about learning and the fact that, whilst theory appears rational, practical experiences have an emotional element and, therefore, theory cannot always be easily applied to problems. They also acknowledge that trainee teachers cannot always apply theory because of their limited experiences and that they are often influenced by a process of socialisation into their schools' practices. All of these causes underline the personal element of the process. They each highlight something about the way that teachers think, use and respond to knowledge, and require active engagement in or response to situations involving other

individuals (usually pupils). In exploring student teachers' attitudes to theory, Hobson (2003) finds most of his respondents made a clear distinction between 'theoretical' and 'practical' work, but he also identifies a group of participants – 'understanding-oriented learners' – who want to develop a critical understanding of the education system and of teaching and learning strategies. When describing this group, he uses words and phrases such as "engage", "deliberate", "reflecting" and "seeking to improve". We need to consider how, through ITE provision, we can encourage trainees to develop this approach. Moving from theory to practice is not a straightforward, objective, context and variable-free activity. Any response that aims to bridge the gap between theory and practice will need to be mindful of the human and personal nature of the process of teaching. How we frame a particular problem is dependent on our disciplinary background, role, experience, interests and political perspectives (Schön, 1987).

It has been suggested that problems caused by the theory-practice divide can be avoided if teacher educators prioritise what beginning teachers need to know (Ure, 2010). Some suggestions for what these priorities might be are very practical – knowledge of learning, student development, assessment and classroom management (Darling-Hammond & Bransford, 2005). Others have suggested additions which also encompass visions and values, such as the development of professional identity and a vision or philosophy of teaching (Kosnik & Beck, 2009). One of the main responses to this issue has been to focus on reflective practice to offer students a way of connecting one aspect of their training with the other. A key exponent of this approach, Schön (1987), advocates a reflective approach to counteract what he terms the "technical rationality" view of professional knowledge. He suggests reflection-in-action and reflection-on-action are a more productive way to help teachers develop their own practice and this has become a widely accepted approach (Pollard, 2008). However, reflective practice is not without criticism and some researchers have found that problems arising from a lack of clarity regarding the concept in ITE are common (Hagger & McIntyre, 2006; Hobson et al., 2006). Therefore, the move towards a

reflective approach and away from theories as part of teacher education does not necessarily offer a solution to the problem of the theory-practice divide; it may simply create a new set of challenges. Also, we need to consider whether a reflective approach, alone, is enough. Reflection in and on action may be helpful when delivering and reviewing one lesson and planning the next but, at the start of the planning process, or when considering next steps, beginning teachers may need to draw on theory to understand possible approaches and identify alternatives. This then returns to the potential divide between theory and practice.

2.3.2 The 'Transfer' Problem

The concept of "transfer" has been used to consider "the extent to which learning is transferred from one context to another" (Leberman et al., 2006, p. 1) and suggests "a simple pattern of learn-it-here, apply it there" (Perkins & Salomon, 2012, p. 249). It is, for many, seen as the goal of education; to be confident that learning has occurred means that the school pupil can demonstrate that learning later and/or in different circumstances (Perkins & Salomon, 2012). The fact that this transfer must take place has been a fundamental assumption of the education system, but it is contested. In their review of literature, Bransford and Schwartz (1999) note that transfer can be hard to identify and is not always successful. Therefore, use of the term "transfer", which implies separation between the place of learning (in this case the university) and the application of learning (the classroom), is unhelpful as it suggests that knowledge and practice remain distinct and separate (Leinhardt et al., 1995). If the development of teacher knowledge requires trial and experimentation followed by reflection and revision, the idea of transfer from one place to another does not seem to do the process justice.

Hager and Hodkinson (2009) argue "it is more realistic to view "transfer" as renovation and expansion of previous knowledge via the experience of dealing with new situations in new settings" (p. 620) and offer four alternative conceptual lenses for understanding learning. Two of these exemplify some of the challenges already discussed; the 'propositional learning lens' adopts a traditional view of knowledge

acquisition and transfer and the 'skill learning lens' focuses on learning as the use of a skill in a new context. However, they also identify the "participation in human practices" and "learning as transformation or reconstruction" lenses; it is these that may offer insights for the development trainee teachers' knowledge. The participation in human practices lens focusses on the idea that what is learnt is shaped by the context in which it is learnt and that the learning (and the learner) will change as the context changes. As classroom practice is such a large and vital component of teacher education it seems inevitable that learning is shaped by the context, and that learning continues when the student moves to a second placement in which they review and extend their learning to adapt to the new context. Another aspect of "human participation" in this process that should be considered is the importance of the perspective or stance of the learner for achieving effective transfer (Goldstone & Day, 2012). Learners should be encouraged to frame their learning in an "expansive" fashion (Engle et al., 2012) and, crucially, adopt an attitude that seeks to adapt, rather than simply apply, knowledge (Chi & VanLehn, 2012). This recognises that the attitude or mindset of the student is crucial. It requires them to have an attitude that new knowledge is there to be applied (rather than simply adopted) (Schwartz et al., 2012) and be motivated and disposed towards drawing out connections between theory and practice (Perkins & Salomon, 2012). It is crucial that the view of transfer or transformation adopted does not view the student as a passive by-stander who is taught theory and then expected to apply this in a disinterested and objective way in a new context. The reality is that these students are individuals, who bring their prior knowledge and experiences to their work. This is likely to influence their approach when they are required to engage with knowledge, use it effectively, adapting and developing it as their understanding and skills develop.

Hager and Hodkinson's fourth lens – the learning as transformation or reconstruction lens - assumes that the learner is integral to the learning and that learning is an evolving process from which new understanding emerges; this also resonates in the ITE context. The fact that classroom practice is so dependent on the skill and

knowledge of the teacher means that trainees must be integral to the learning and, as they develop, the learning evolves. However, transformation implies that trainees must do something bold with their knowledge in the new context that allows for change, conversion or revolution in thought and practice. Instead, perhaps there should be a stage that comes before this where the focus is on integration of their knowledge and experiences. Eraut (2004) suggests a model for "transfer" of knowledge that also references transformation and integration, consisting of five interrelated stages:

1. The extraction of potentially relevant knowledge from the original context(s);
2. understanding the new situation;
3. recognising what knowledge and skills are relevant;
4. transforming them to fit the new situation;
5. integrating them with other knowledge and skills to think/act/communicate in the new situation.

Eraut is writing about transfer from HE settings to the workplace (rather than teacher education) and argues that HE often takes for granted and focuses on stages one and three, whilst workplace settings (in this case school-based training) will give attention to stage three, but take for granted stage two. For Eraut, the problem is that both parties ignore the challenges of stages four and five, which he views as interrelated, although he lists transformation before integration. However, it may be that integration comes first, as the student draws on their knowledge and experience to decide on a course of action; that results in transformation where knowledge is utilised and/or assimilated in the new situation.

2.3.3 Integration of Knowledge

Leinhardt et al (1995) also argue for the 'integration' of knowledge. They distinguish between professional knowledge acquired in practice which is procedural, specific and pragmatic, and knowledge acquired in the university setting which is declarative,

abstract and conceptual, arguing that academics have devalued the former and policy makers, and even some school colleagues, may not value the latter. Therefore, integration (rather than transfer) of knowledge is required; this involves the examination of knowledge associated with one context while using the ways of thinking or knowledge associated with another. They describe this as theorising practice (where principles are abstracted from particulars) and particularising theory (where learners are asked to particularise abstract theories) but acknowledge that it is not always easy to achieve this as the constraints of the practice settings do not always allow for the reflective and analytical thought required to integrate knowledge in this way.

Others have also written about integration of knowledge in this context. Darling-Hammond (2006) talks about the need to organise trainees' experiences so that they can "integrate and use their knowledge in skilful ways in the classroom" (p. 305), but Brouwer and Korthagen (2005) offer a more detailed exposition of integration in the context of teacher education. For them "integration" refers to:

1. Arranging competence acquisition as a gradual process in which each step forms a preparation for the next;
2. coordinating the acquisition of theoretical knowledge with practice in teaching skills; and,
3. arranging learning as an inquiry into one's own actions (p. 158).

This is based on a study of several teacher education programmes which made deliberate attempts to integrate practice and theory. They describe programmes based on a cyclical model which moves between university and school-based periods based around different kinds of increasingly complex teaching activity, highlighting the importance of support and cooperation between the university supervisors and teachers in school. Whilst it could be argued that many current UK teacher education programmes have been established on a cyclical model, and the importance of this is acknowledged (Spielman, 2019), opportunities for cooperation and collaboration between university staff and teachers can be limited. However, if the school and

university inputs are to work together effectively, close cooperation between school-based mentors and university-based teacher educators is essential (Korthagen, 2010b).

The role of school-based mentors, therefore, becomes crucial to a consideration of the process of integration. Mentors should "have a strong grasp of subject-specific pedagogy" (Carter, 2015, p. 8) to support this process. Evidence indicates that high quality mentoring is crucial for teacher development (Hobson et al., 2009) and is more effective when mentors are subject specialists (Hobson et al., 2007; Hobson & Malderez, 2013; Smith & Ingersoll, 2004), but that it is not always as good as it should be (Hobson & Malderez, 2013; Spielman, 2019). Whilst research indicates that trainees understand and appreciate the support, advice and feedback received from their mentors (Mutton et al., 2010) and regard this relationship as "piviotal" to their success (George & Maguire, 2019; see also Spielman, 2019), elsewhere it is noted that sometimes university-based teacher educators and school mentors may have different priorities (Price & Willett, 2006). Jackson and Burch's (2019) small-scale case study highlighted that those working with trainees in schools demonstrated a "cautious and varied" attitude to theory (p. 146) and Brown et al (2015) found that some mentors were reluctant or lacked confidence in talking to trainees about subject-specific pedagogy, quoting one who felt they were "not experts in…the pedagogy behind it because we don't have that time to reflect on what we're doing and why we're doing it" (p. 24). This resonates with the findings of earlier research from Zanting et al (1998) who highlight problems mentors have in articulating tacit knowledge because, by definition, it is difficult to put into words. They suggest mentors might be reluctant to engage in this kind of conversation, believing their task is to focus on development of teaching abilities and create opportunities for the trainee to put theory acquired at the university into practice. Even if they are not reluctant, time can be a factor (Ofsted, 2020) and busy mentors may rely on knowledge from their professional practice and personal experience, focusing on what works rather than looking for new solutions to problems (Jones & Straker, 2006). In this way, challenges arising from the context

pose a potential threat to the process of integrating theoretical and practical knowledge.

2.3.4 Theory, Practice and Integration

The approach taken in this study does not deny the possibility of a gap between theory and practice. It seems obvious that there will be some disconnect between what students learn in a university setting and what they will learn from their classroom practice, but the position taken argues for the usefulness, and therefore inclusion, of theoretical aspects in the training programme. Whilst learning through experience and reflection are important, some structure is needed, in the form of theoretical ideas, to be used as a framework for that reflection (either to support or be rejected in the light of those conclusions). Otherwise reflective practice may become little more than lay thinking (Furlong et al., 2000). The issue is that, traditionally, the theory-practice relationship is viewed as deductive (where the theory comes first and is used to inform practice), although the current context often supports an inductive view (where experiences are later linked to theory). Whichever view is taken, this then leads to a focus on bridging the gap. As an alternative, this study adopts the position that students should be aiming to integrate their theoretical and practical knowledge. The reflection arising from this process not only develops understanding, it also develops skills that support the continual development, and even creation, of new knowledge throughout their careers. If this is the aspiration, in response to the research questions, we need to consider how beginning teachers can be supported to integrate their knowledge in this way. This research aims to explore how they make connections between their subject specialist knowledge and their practice (RQ2) and what they feel is most effective in helping them to make those links (RQ3). It is anticipated that mentors have a role to play in this, but there may be other factors that support the trainees in making these connections.

2.4 Conclusion

This research is set in the context of a changing policy landscape. Whilst many of the structures of ITE view teaching as a craft, I take the position that ITE should develop teachers who have agency in the context of teaching as a profession. Following Priestley et al (2013), I am assuming that agency is something that people do rather than something that they have. They argue "agency will be enriched if people have a broad repertoire of responses upon which they may draw" (p. 191), citing knowledge, skills and beliefs and values as the content of this repertoire. ITE provision needs to support the development of knowledge and skills that allow teachers to become transformative agents (Menter, 2017) who can take responsibility for shaping, planning and teaching the curriculum that their pupils need, particularly in relation to their work as subject specialists.

To argue that teacher knowledge goes beyond techne does not seek to deny the part played by experience but suggests a progressive view of craft knowledge, where research, evidence and reflection might be used to support a process of continual development. Phronesis is seen as a more helpful way of understanding knowledge developed through experience as it offers a way of conceptualising how epistemic knowledge (from the disciplines and recent research) is merged with knowledge gained from classroom experiences to develop professional judgement in which trainees can "choose a form of behaviour appropriate for the situation" (Kessels & Korthagen, 1996, p. 19). However, to take the view that both theoretical knowledge and practical experience are needed in ITE to support the development of teachers as professionals requires engagement with the long-standing debate around the theory/practice divide (Korthagen, 2010b). This has informed the approach taken to research questions that focus on trainees' perceptions of the value of subject-specific pedagogical knowledge (RQ1), how it influences their practice (RQ2) and how it is developed over the year (RQ3). It is anticipated that mentors have a part to play in this process, but this is complex and may be influenced by other factors.

The methodological approach adopted for this study, adaptive theory (Layder, 1998), allows the researcher to draw on extant theory and concepts to structure the early phases of the research and provide a starting point for analysis. Therefore, a number of the ideas explored in this literature review became 'orienting concepts' for this study (see figure 6, chapter 4). These are drawn from existing theory on the basis that they have "established pedigree" for explaining behaviour and processes (Layder, 2013, p. 134). The orienting concepts were developed from three key areas: teacher knowledge in policy and research; differing perspectives on the knowledge required by teachers; and the connection between theory and practice. The latter focuses particularly on perspectives that conceive of the integration rather than transfer of knowledge between contexts (Brouwer & Korthagen, 2005; Darling-Hammond, 2006; Eraut, 2004; Leinhardt et al., 1995). This, along with understanding of tacit and craft knowledge, became orienting concepts that could shape the research tools and support the initial analysis exploring how trainees make connections between their theoretical knowledge (episteme) and practice. Hobson's (2003) categorisation of participants' views about the usefulness of theory is also used as an orienting concept as it offered a conceptual lens for more nuanced analysis of differing perspectives on this relationship.

In relation to teacher knowledge, the work of Shulman (1986) and Young (2014) are used as orienting concepts to explore participants' perceptions of the importance and potential value of subject-specific pedagogy. As noted above, these offer separate understandings of teacher knowledge. Powerful knowledge is used for framing exploration of participants' understanding of the value, epistemological questions and structure of the discipline(s) that underpins their subject. PCK (following Grossman, 1990) is used to focus on the participants' development of pedagogy in a subject context. There is potential for some overlap between these two ideas; awareness of the disciplinary underpinnings of their subject has the potential to impact on both participants' understanding of the powerful nature of the content and how they approach the curriculum or lesson planning in their subject. However, the

methodological approach adopted allows these two ideas to be used as separate conceptual lenses, whilst also allowing them to be considered together to explore any possible connections. Therefore, both aspects have been considered in the reviews of literature for the three focus subjects – citizenship, geography and history. Each subject faces different challenges, highlighting the possibility that this is an important aspect of training, precisely because each subject has different needs and concerns.

Literature that focused on policy was used to identify contextual factors that might influence the study, rather than to establish orienting concepts. It is beyond the scope of this study to examine policy as text or discourse (Ball, 2006); instead, the literature is used to identify the external structures which may impact on the participants' experience. Policy priorities, such as a focus on learning on-the-job or on research-informed practice, may influence the content of ITE provision and structures, such as the organisation of school-led ITE models, and affect trainees' experience and agency (RQ4). The potential challenges of working within local, prescribed professionalisms (Kennedy, 2002; Whitty, 2014) are identified as contextual factors rather than orienting concepts, but they establish context for discussion and analysis, highlighting the systems and structures which may affect the development of teacher knowledge.

The orienting concepts were brought together in the design of the project, initially to inform the design of the research tools, and then to provide a starting point for initial analysis of the generated data. Although they were developed from three distinct areas of focus, the approach allowed connections between these areas to be explored (e.g., discussion of the theory-practice divide may be set in the context of both ideas about knowledge transfer and the nature of teacher knowledge). Acknowledgement of these connections also supported the identification of, and further investigation into, emergent ideas. In this way the study set out to explore whether trainee teachers find value in their subject-specific ITE provision and the extent to which they can integrate this aspect of their training with their work in the classroom.

Chapter 3 - Methodology

3.1 Introduction

The research set out to consider the developing subject-specific pedagogical knowledge of students following a Postgraduate Certificate in Education (PGCE) course, using the orienting concepts identified in the literature review. Given the ongoing debate and changing context, I was interested in whether trainees were aware of subject-specific pedagogical knowledge in their teaching and how this developed over the year. However, the research also sought to discover how the participants understood and conceptualised their experiences of their training year. Therefore, a methodological approach was needed that allowed deductive analysis of the data based on the orienting concepts whilst, at the same time, allowing for the possibility of emergent ideas that might be identified through inductive analysis. As a result, the adopted methodology follows the thinking of Layder (1998) who argues for an approach that he terms 'Adaptive Theory'. This approach allowed me to acknowledge my own reflexive position and explore the data in the context of ideas arising from the literature whilst, at the same time, being open to the possibility that new ideas and themes may arise from the data which might, in turn, lead to the development or adaptation of existing theories. This chapter defines my own perspective to explain and justify the methodological approach taken. It also explores the choices made in the design of the project, ethical considerations and explains the approach taken to the analysis of the data.

The study focused on the experiences of eight PGCE students during their training year. Four research questions (RQ) had been identified for this study. They were:

1. On entering Initial Teacher Education [ITE], what perceptions of, and attitudes towards, subject-specific pedagogical knowledge (e.g., particular approaches to aspects of their subject, or understanding of subject-specific pedagogical issues) do trainees in humanities subjects have?

2. Can trainees identify ways in which their understanding of specialist subject pedagogical knowledge and its relationship to classroom practice develops over their PGCE year?
3. What do trainees think is most effective in helping them to make links between the theories explored in their university-based training and their classroom experiences?
4. Do university-led trainees and school direct trainees have different views regarding the importance of subject-specific pedagogical knowledge and its usefulness in their classrooms?

3.2 Adaptive Theory

To address the research questions, this project seeks to explore the experiences of trainee teachers with the intention of developing insight into meaning they attribute to their experiences. This intention is underpinned by my ontological view that the social realm has multiple realities which are constructed though our lived experiences and our interactions with others (Creswell, 2013). In this sense, the approach is influenced by the social constructivist tradition. This ontological position usually leads to an understanding of epistemology which argues our knowledge of the world is not objective but, rather, something that we construct for ourselves (Wyse et al., 2017, p. 117) and that, in a research context, the researcher and the researched co-construct knowledge (Creswell, 2013). Researchers, therefore, try to gain multiple views of a phenomenon to better understand it, acknowledging that "their interpretation of the studied phenomenon is itself a construction" (Charmaz, 2006, p. 187), and adopt an inductive approach to analysis, seeking emergent ideas, obtained through qualitative research methods. There is an extent to which this reflects my own epistemological position. Implicit in my approach is a recognition of the axiological position often aligned with the social constructivist paradigm - that individual values should be honoured (Creswell, 2013, p. 36). The search for understanding requires us to explore the intentions of individuals and the interpretations they give regarding their actions

and motivations (Pring, 2000). For this, the voice of the participants needs to be clearly heard as it is important that their responses are not disregarded in the construction of interpretations influenced by my own perceptions.

However, I am also conscious that, whilst the participants may construct their own views of reality, they are working in the context of "social phenomena" (Layder, 1998, p. 140) that influences these experiences. These phenomena are "structures, processes, settings and resources" – in this case school and HEI systems, ITE curricula and the demands and structures of a PGCE course – which can be distinguished from human behaviour and social activity and, as such, are more objective phenomena; they may impact on the behaviour or perspectives of the individual, but they are not constructed by them. This, therefore, requires a more nuanced epistemological position which places emphasis on the experience and perspectives of the participants and acknowledges the subjectivity inherent within this whilst, at the same time, recognising that this social activity takes place in the context of a more objective social setting with external phenomena which can shape these experiences and perspectives. The project draws on an understanding of contextual factors that help develop understanding of these "social phenomena" whilst seeking the perspectives and understandings that participants have of this context.

This epistemological position – that there are multiple interpretations of the social realm which can be shaped, not only by the participants and researchers, but also the "social phenomena" within which the data were generated – also requires me to be conscious of the ways in which, as the researcher, my own background, experiences and worldview may have impacted on the design of the project. I have shaped the questions, based on my academic interests and the context within which the research was conducted. Braun and Clarke (2013) describe reflexivity as an "essential requirement for good qualitative research" (p. 37). I am conscious that my starting premise, based on my experiences as a secondary RE teacher and teacher educator, is that there is a body of theory that can and should be learnt by trainee teachers and I have ideas about what the content and nature of this should be, particularly in relation

to subject specialism. It is inevitable that these ideas have influenced my approach to the research. I am aware of my belief that knowledge of subject specialist pedagogy is crucial and this research sets out to explore whether trainee teachers from different subject areas share this view. Similarly, my perspectives on the current policy context require reflexive consideration. Changes to ITE in recent years have led to a significant shift in the way that PGCE courses are structured and viewed, and this has impacted both on my role as a teacher educator, and the way that it is regarded by others (Smith et al., 2013). I acknowledge that I consider the academic element of teacher education to be important. This is not simply because it forms the basis of my professional role but because I believe, based on experience, that understanding theoretical perspectives can make our students more effective teachers in the longer term. I, therefore, embarked upon this research convinced of the importance of theory in developing teachers' knowledge and skills and, at the time, concerned that the move to the School Direct model of teacher training may, ultimately, remove this element from ITE provision. However, a potential pitfall for me would be the blind acceptance of this without question or challenge. Instead, I need to use my "theoretical and technical resources to avoid the distortions" (Becker, 1967, p. 247) and maintain, as far as is possible, an objective approach (Newby, 2010) when examining this position. The research needs to be open to exploring the view that trainee teachers might take on this and so, whilst acknowledging my position, I need to be open to others taking a different view and be willing to acknowledge and explore this.

This recognition of both the subjective and more objective elements is important for a more detailed clarification of my ontological position. I take the view that social activity is influenced and shaped by the social phenomena and, at the same time, the social phenomena themselves are reproduced, sustained and transformed by the social activity. It is a perspective that recognises that individuals are operating within a system; both researchers and participants are influenced and shaped by that context and that they, in turn, can impact on the context. This acknowledgment recognises the epistemological position taken in this research that acknowledges there are,

potentially, multiple realities. It seeks to find out about the experiences of the participants (subjective knowledge) who are operating with a setting and context (objective knowledge) and there is the potential for each to impact on the other. Layder's Adaptive Theory offers a methodological approach that allows for this, based on his ontological position that the social world includes "both objective and subjective aspects" (Layder, 1998, p. 141). He argues for a moderate version of objectivism that is not associated with positivism but, instead, assumes the subjective and objective aspects of society "both condition and influence each other since they are deeply interwoven" (Layder, 1998, p. 142). Therefore, adaptive theory is a synthetic approach which "both shapes, and is shaped by the empirical data that emerges from the research" (Layder, 1998, p. 133). It allows for deductive analysis of the data which acknowledges the influences of the context and which builds on and develops existing orienting concepts whilst, at the same time, allowing inductive analysis to seek emergent ideas based on the experiences of the participants.

3.2.1 Knowledge claims

In considering the conclusions that might arise from this approach, Morgan (2007) characterises my views and perspective when he says "I do not believe it is possible for research results to be either so unique that they have no implications whatsoever for other actors in other settings or so generalized that they apply in every possible historical and cultural setting" (p. 72). If there was not a possibility that we could develop ideas and theories that could have relevance elsewhere, the purpose of undertaking the research at all would have to be questioned. However, it would also be inappropriate to suggest that the results from a relatively small-scale study could be applied universally. Whilst any conclusions from this project are likely to be most relevant to the specific courses explored through the study, it is hoped that they will have relevance and application across the whole ITE programme and that they may also be of interest to colleagues in other universities or contribute in a small way to wider debates about teacher knowledge and the construction of curricula. Adaptive theory does not claim absolute certainty or objectivity in its findings, but it does hold

with the view that social inquiry seeks to produce "ever-more adequate knowledge" (Layder, 1998, p. 142). Holding this moderately objective element within the ontological position, therefore, allows for the claim that some development of theoretical knowledge is possible and achievable.

Bassey (2001) suggests searching for "fuzzy generalisations", which he defines as a conclusion "that is neither likely to be true in every case, nor likely to be untrue in every case: it is something that *may* be true…A *fuzzy generalisation* is expressed in a tentative way: *If x happens in y circumstances, z may occur*" (p. 10). Some have suggested that this may not be a particularly unique form of generalisation (Hammersley, 2001), but research that produces fuzzy generalisations is of value, particularly to other practitioners who are using research to inform changes to their own practice (Pratt, 2003, p. 31). Bassey argues that educational research is something to be read, argued about, reflected on, and then ultimately be rejected or reserved for later use by teachers. It is not an admission of frailty in the research, but does demonstrate awareness of the variables and "is an invitation to teachers to enter into discourse about it." (Bassey, 1999, p. 51).

3.3 The Methodological Approach

Adaptive theory can draw on a range of different approaches, paradigms and epistemological positions (Layder, 1998) but, given the nature of the RQs, all the methodologies used in this study were qualitative. Denzin and Lincoln (2011) define qualitative research as "as set of interpretive, material practices that make the world visible" (p. 3). It is a naturalistic approach that might draw on a variety of methods (e.g., case study, personal experience, life story, interview, etc.), aware that each practice makes the world visible in a different way, sometimes giving rise to the use of more than one method in a study. These are used to "study things in their natural settings, attempting to make sense of or interpret phenomena in terms of meanings people bring them" (Denzin & Lincoln, 2011, p. 3). As this study set out to

acknowledge the context within which the participants were working, but with the intention of understanding the meaning that they attributed to their actions and experiences, the use of non-empirical data would ensure the voices of the participants were heard. This approach also acknowledged that both the researcher and participants are involved in reporting on their experiences and interpreting or giving meaning to it and the generation of qualitative data allows for this. The presentation of findings should include "the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change" (Creswell, 2013, p. 44).

Elsewhere, Denzin and Lincoln take this further, referring to qualitative researchers as bricoleurs who deploy "whatever strategies, materials, methods and empirical materials are at hand" (Denzin & Lincoln, 2008, p. 5). Given the nature of this project, and my own role within the programme in which the research is based, it made sense to construct the research methods from "the tools at hand" (Kincheloe, 2004; see also Layder, 1998) – in this case discussion with students at key points in the academic year and an exploration of their work – and engage with the complexities (different subject specialisms and different ITE routes) to develop the project in a way that acknowledged my part within the research. The bricolage approach allowed me to acknowledge and explore this further, whilst striving for rigour in the research processes and analysis of the data (Kincheloe, 2001). It recognised that the research questions were seeking to address complex activity where different participants may have very different experiences for a variety of reasons. As a result, this project used interviews as the main method of data generation; nevertheless, some of the available documentation and resources were used in the interviews to aid discussion.

3.3.1 A Longitudinal Study

This focus on the "tools at hand" also supported the development of this project as a longitudinal study. Longitudinal studies "follow the same individuals over time in order to measure change over time" (Wyse et al., 2017, p. 402). As RQ2 and RQ3 both focussed on the participants making links between their learning and their practice and

what supported them in making any identified connections, I had the opportunity to explore whether their perception and understanding of their experiences changed during this intense, one-year ITE course. The project was also likely to consider elements and issues arising from the participants' experiences of the "social phenomena" they encountered whilst on their course. Therefore, a longitudinal study also enabled exploration of the development of interconnections between agency and structure over a period of time.

Menard (2002) sets out a definition of longitudinal research which refers to both the data and methods of analysis used. He defines it as research in which:

a) "Data are collected for each item or variable for two or more distinct time periods;
b) the subjects or cases analysed are the same or at least comparable from one period to the next; and,
c) the analysis involves some comparison of data between or among periods. At a bare minimum, any truly longitudinal design would permit the measurement of differences or change in a variable from one period to another." (p. 2)

This project generated data for each participant in three distinct time periods, allowing for analysis of each participant from one period to the next. This is, therefore, a longitudinal study based on a prospective panel design (Menard, 2002) where a "panel" of participants are asked about a number of variables at more than one point in time (Salkind, 2010). The opportunity offered by this approach is that the research can assess change over time at an individual level (Wyse et al., 2017); in the context of this study there is an opportunity to explore how different variables influence the experiences of individuals.

There are, however, potential disadvantages to a longitudinal approach. Wyse et al (2017) suggest that "panel conditioning" can be a consequence of participation in a longitudinal study, when participants are influenced by the fact that they are in the study and change their views, habits or actions as a consequence of this. In this instance, panel conditioning might lead participants to reflect, in new ways, on their

teaching and explore new avenues for developing their thinking which, whilst potentially positive for them, could impact on the findings. Wyse et al also point out that the data collected in longitudinal studies are bound by the interests and questions of the time. This could be a particular issue in educational research where both policy and practice can change and develop very quickly. However, this research aims to look at the perceptions and experiences of the participants and is looking to make "fuzzy generalisations". It is important that the context of any conclusions made is acknowledged whilst, at the same time, efforts are made to explore whether the data have anything to say about broader principles and the experiences of trainees beyond that context. As Layder argues, whilst adaptive theory does not argue for absolute conclusions, its very nature encourages "the continual checking and revising of emergent theory as the research progresses" (1998, p. 176). Therefore, researchers should not feel pressure to be "tentative" about their findings.

3.3.2 Orienting concepts

To identify the underpinning conceptual lenses that, over time, may potentially both shape and be shaped by the project Layder (2013) suggests that *orienting concepts* (which have proven value from the established knowledge in the field) should be used to help structure the early phases of the analysis. An example of this is seen in the work of Bessant and Francis (2005) who offer two diagrams when discussing their action research case study focussing on the transfer of 'soft' technologies. In the first they share their "initial map" of orienting concepts (figure 4) where large circles indicate the principal theories used to underpin the project, and the smaller circles are ideas that had been used to frame other aspects of the research and discussion. In the second diagram (figure 5) they show how their "map" has changed as they pull together their conclusions at the end of the project. Some domains were reduced or increased in size, and new extant theory domains emerged as well as one theoretical domain identified by the researchers.

Figure 4

Bessant and Francis' Initial map of orientating theories (2005, p. 95)

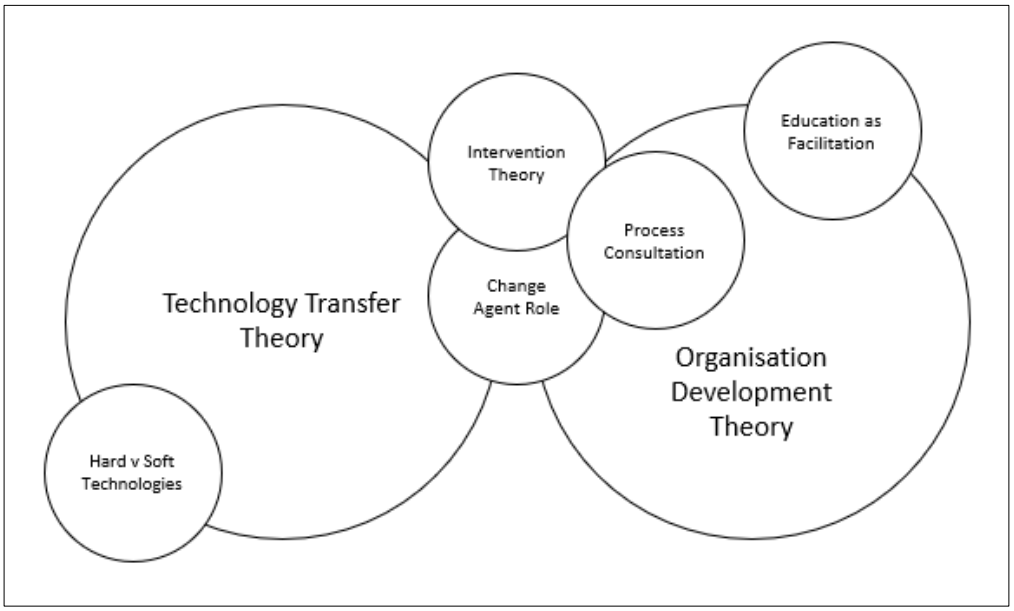
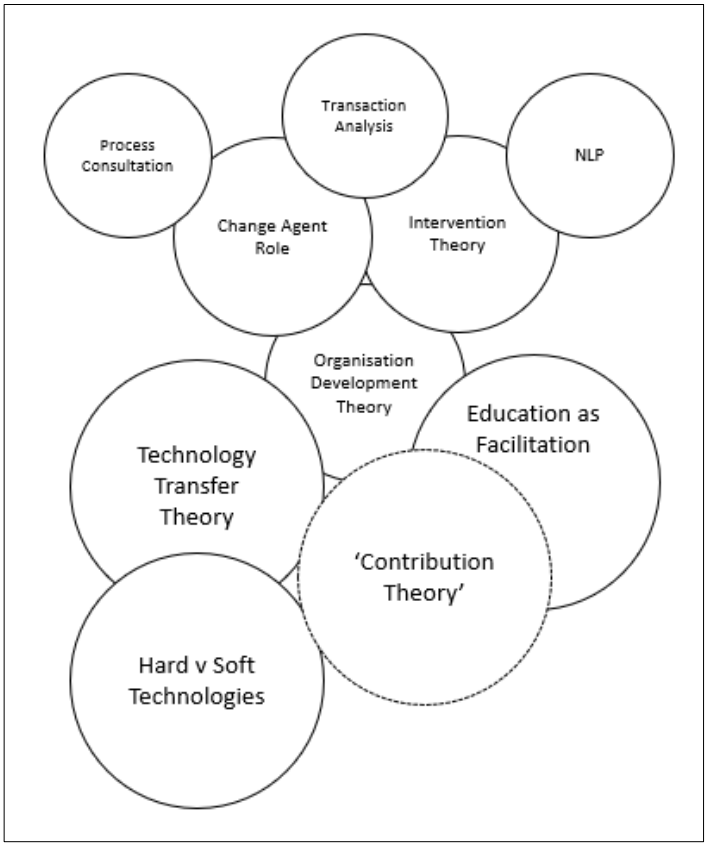


Figure 5

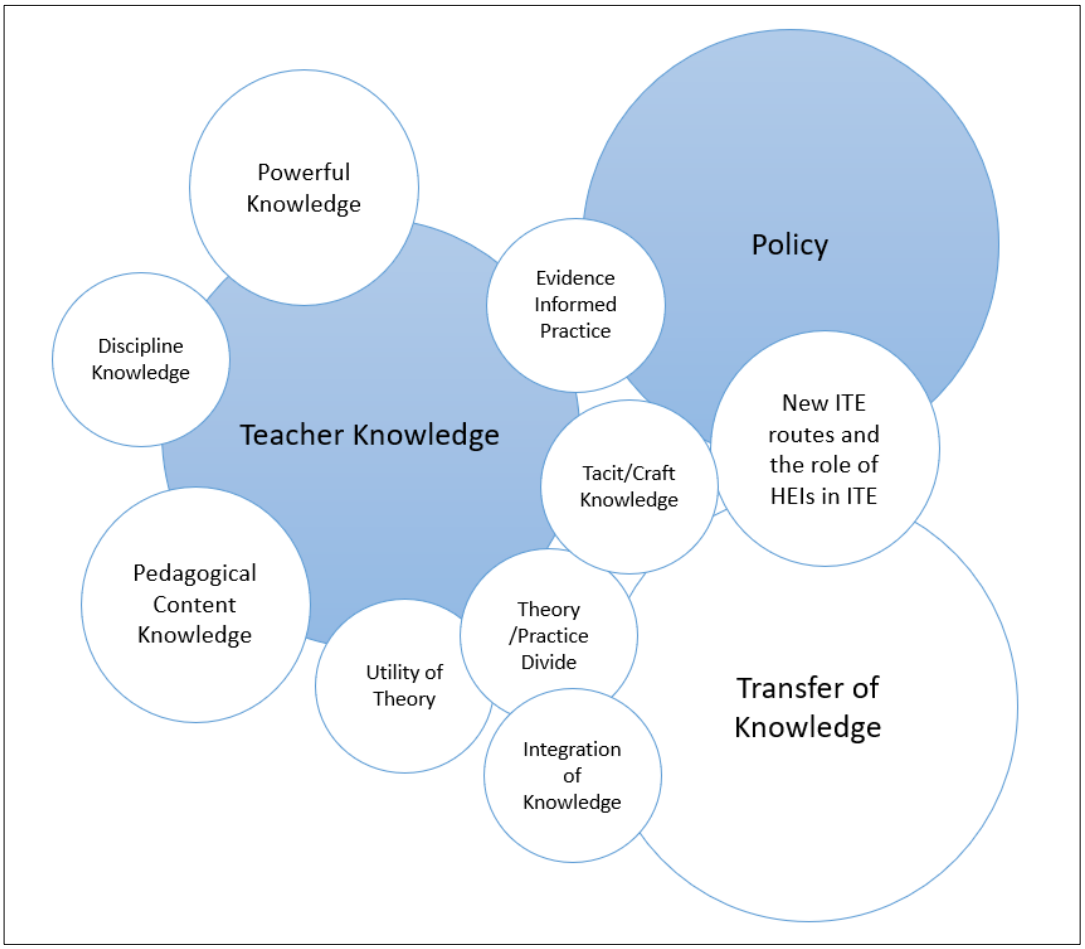
Bessant and Francis' Post-intervention conceptual map (2005, p. 108)



Given the three areas identified in the literature review that have been drawn together to structure the conceptual lenses for this research, the opportunity to reflect on the relationships and connections between them served as a starting point for the design of the project and the approach taken in the analysis. A map showing the orienting concepts that underpin this project (as identified in the literature review) was produced (figure 6). The two large circles (shaded blue) are areas of influence, rather than specific theories. It is acknowledged that there are many different conceptions of teacher knowledge to be explored, but particular perspectives are identified from this discourse to be used as orienting concepts. Policy is highlighted as it recognises external considerations that influence ITE and this is used to identify contextual factors that have an impact on provision rather than specific orienting concepts. However, all three underpin the smaller circles which do relate to specific theories or ideas. It should be noted that some are simply that: ideas rather than theories. They may allude to current research/thinking that has not necessarily developed into a theoretical model (e.g., 'new ITE routes and the role of the HEI') or the particular view adopted of a relevant area (e.g., transfer being seen as the integration rather than straightforward transfer of knowledge). All of these were explored in the literature review phase, and they informed the writing of the questions for the interviews, the discussions around the assignments and the other tasks used in the interviews. The orienting concepts were later used as a starting point for coding the early data, although it was not the intention that these would constrain the analysis (Layder, 2013). Instead they were to be used as a framework for understanding the social phenomena in which the research was situated, whilst remaining open to the possibility for modification and development of the concepts in light of the data (Layder, 2013). Therefore, there was also an intention to produce a post-analysis conceptual map at the end of the project to help ensure that the identification of these concepts had acted as a guide to the analysis and not constrained it.

Figure 6

Initial Map of Orienting Concepts



3.4 The Project

3.4.1 Selecting Participants

The cohort from which the participants were to be drawn was a broad and varied group and the process of recruiting participants was one of "purposeful selection" (Maxwell, 2005), as I needed to select individuals for what they could tell me about both different subjects (history, geography and citizenship) and different training routes. The latter was important for RQ4 and I hoped to generate data from participants following three routes - university-led (core), School Direct and School Direct salaried routes. I also hoped to recruit participants with a mix of age and gender. I set out to recruit eight participants knowing this could potentially generate

more data than required for a longitudinal study of this scale, but this acknowledged the fact that, sometimes, those who start the PGCE do not complete it or opt to take a break in study. Attrition rates can have an adverse effect on the findings and outcomes of longitudinal studies (Menard, 2002); they are particularly susceptible to this given the commitment required over an extended period and the number of contacts required with the researcher for data generation (Wyse et al., 2017). Therefore, the decision to recruit eight participants was intended to ensure that I ended the year with at least six complete data sets. However, perhaps the fact the time commitment only lasted for the duration of the course and that interviews were arranged to ensure that inconvenience was kept to a minimum meant that, in the event, no participants withdrew from the study. It may also be the case that willingness to participate in the study in the first place may mean that the participant group was a set of individuals who were less likely to withdraw from the research (Wyse et al., 2017).

Literature that focuses on participant recruitment is limited and Arcury and Quandt (1999) point out that how participants were located, selected or recruited is not often explained. They offer a five-step process which supports recruiting participants across multiple sites (i.e., places, organisations and services, used by those on whom the research will focus). Although the context is different, as shown in table 1, most of these steps can be transferred to this project.

Table 1

Steps in participant recruitment

Steps identified by Arcury and Quandt	This context
1. Identify the characteristics specific to sampling	Focus characteristics were subject specialism, ITE route, age and gender
2. Generate a list of 'sites'	'Sites' were the subject-specific teaching groups
3. Contact the 'gatekeeper' for each site, explain the study and ask for help in recruiting the participants	Gatekeepers were tutors for the three subject groups
4. Participant recruitment. For this it is suggested that two procedures can be used 1. The site gatekeeper can contact individual members who the researcher and gatekeeper think would be suitable for the study 2. The researcher can address a gathering of the site members, explain the project and then approach individuals who meet the criteria	Procedure two was trialled first with procedure one discussed with tutors as a potential next step if more participants were needed.
5. The researcher maintains a table recording the characteristics of participants in the sample.	See below

(Adapted from Arcury & Quandt, 1999)

With regard to recruitment (step 4) I arranged with the subject tutors for each subject to attend a session to explain the purpose of my study and ask the students to consider volunteering. It was made clear that expressions of interest would not be considered a commitment and anyone who was interested should contact me directly. This initial appeal generated some volunteers, particularly from the history and

citizenship cohorts. The response from the geography group was slower and so I followed up my initial approach with an email to this cohort which successfully recruited more participants. Had this been unsuccessful the next step would have been to approach individuals who matched under-represented characteristics. However, in the event, this was not necessary.

I was fortunate in that, between them, the eight volunteers represented the characteristics identified as important for the study - all three subjects, all three routes, both genders, and a mix of younger and mature trainees (in university terms anyone over the age of 25 is considered a mature student). Table 2 summarises the participants' characteristics. I considered this to be a balanced group of participants. Two male and six female, but this ratio is reflective of the wider humanities cohort and I did not have any particular interest in gender-specific issues; therefore, this imbalance was not an issue. The distribution was good across subjects; two Citizenship trainees and three each from Geography and History reflected the fact that the Citizenship cohort was smaller. The four participants, aged 25 or over, would be considered 'mature' in terms of the university's own definition; this potentially allowed for exploration of the influence of prior experiences on trainees' perceptions of their training. In this vein it was also interesting that the three geography participants came to the course immediately following the completion of their undergraduate studies, having had only observation experience in schools. Finally, these volunteers represented the various routes well. Three were on the university-led course, three were on the school direct programme and two were on the school direct salaried route. The latter is usually a very small group within the humanities cohort and, as such, they were over-represented. However, I was keen to have the views of more than one student from this route within the study because of their potential for offering a different perspective on the areas under investigation.

Table 2 - *Details of Participants*

Name	Age	Subject specialism	ITE Route	Degree qualification(s)	Prior experience
Mark	25	History	SD Salaried	History BA (Hons) 2:1	4 years as a level 3 TA
Diana	27	History	Core	History BA (Hons) 2:1 MA International History	1 year as a supply TA and 4 years as a LSA in independent schools
Jane	34	History	SD	History BA (Hons) 2:2	Work in retail
Abby	23	Citizenship	SD	Education Studies with Psychology and Counselling BA (Hons) 2:1	Relationships and Sex Education support worker and Young Women's Support worker. 3 separate 6-8 week school placement as part of UG studies
Liz	28	Citizenship	SD Salaried	Journalism BA (Hons) 2:2	1 year as a classroom supervisor
Libby	22	Geography	Core	Geography BSc (Hons) 2:1	5 days school observation experience as a condition of her offer
Alice	21	Geography	Core	Human Geography BA (Hons) 1st	Experience in 3 schools after graduation as a condition of her offer
Dan	22	Geography	SD	Geography BSc (Hons) 2:1	Primary and secondary observation during degree

3.4.2 Ethical Considerations

All participants gave informed consent before participating in the study**.** They understood that they were agreeing to take part in three interviews across the academic year and that they would also be asked for permission to access one of their assignments. They were told comments made in interviews would be anonymised and they were given information about how the data would be stored and for how long. It was also made clear to them that they had a right to withdraw up to the point where data generation was complete. This information was given to them on the participant information sheet (appendix 1) and they were asked to sign a consent form at the start of each interview (appendix 2). The form signed at the second interview point also gave consent for their assignment to be used. It was made clear to the participants why they had been asked to be involved (Newby, 2010); they each understood that I was interested in their perspective as a representative of a particular subject specialism and training route.

Ethical approval was secured to carry out the interviews in either the participants' placement schools or at the university. Whatever the location, the interviews were conducted in a private room. In school, the participants usually booked either a meeting room, an office or secured an empty classroom for our use. For interviews conducted at the university I was able to book private meeting rooms. Whilst the interviews conducted at the university were never interrupted, this was not always the case in schools. In the event of an interruption, we stopped the interview and resumed when we were alone again. Ensuring that the setting is familiar for the interviews and is quiet are two key factors identified by Bryman (2016) as important preparation for interviews and, in each of my interviews, I think that this was essential for ensuring a relaxed environment where the participants felt able to talk honestly and openly.

Whilst the study focussed on my own area of academic interest, humanities education, for ethical reasons I did not focus on my own specialist subject - Religious Education (RE) – as I would be the academic tutor for all the RE PGCE students and there would

be issues of bias and validity when asking them to reflect on and share opinions about their ITE experiences. Therefore, the project focused on students from three other humanities subjects - history, geography and citizenship. It should be noted that there was still potential for conflicts of interest here; whilst I was not directly involved in the training of any of the participants, I retained overall responsibility for their training in my role as lead tutor for the humanities subjects. This could potentially be an issue should participants experience problems or wish to raise concerns about their PGCE experience as, in this event, I may need to be involved. Therefore, it was necessary to consider this prior to embarking on the generation of data.

3.4.3 Ethical Challenges

Although every care was taken to ensure that ethical issues had been addressed and potential issues minimised, in a situation such as this (where I had a dual role in relation to the participants) some conflicts or unexpected challenges were, perhaps, inevitable. At the mid-point of the year, one of the participants was struggling with her teaching practice. In my role as lead tutor for Humanities I was being kept informed about her difficulties and concerns of those working with her that she may not complete the course. I was not concerned about her failing or withdrawing from the course from the point of view of the research; the decision to start with eight participants had been designed to offer a buffer for such a situation. However, I did go into interviews two and three knowing more about her experience and progress than she might have realised. I made the decision not to share the fact that I knew anything about her situation unless she referred to it in the interview and, in that circumstance, to let her tell me about her experiences rather than indicating that I knew anything or offering any of my own perspectives. In the event, she did acknowledge that she had experienced a difficult time and correctly assumed that I knew of her situation. I tried to be empathetic in my response and adopted a supportive and encouraging position in response to what she told me. However, it did highlight the ethical problems that can result from a dual role. Gergen (2003) challenges us asking “is the research subject exploited by the research or treated as a mere object?” (p. 185). I was determined

that this should not be the case (i.e., that negative experiences would be seen in terms of the research as "interesting" or an "opportunity") and this, therefore, determined the approach that I took in this situation.

Some of the ethical challenges experienced were not necessarily negative (although they had the potential to be). In questioning humanities PGCE students about their experiences of their course, it was inevitable (and anticipated) that they would mention their experiences of working with my colleagues. I saw the confidential aspect of the interviews as something that, therefore, was not only important to my participants, but as something that might also help me if they expressed any dissatisfaction with their training experience. However, in the event, they only had good things to say about their subject training and some of the comments were enthusiastic and effusive in their commendations of my colleagues' support, experience and knowledge. Nevertheless, the confidential nature of the interviews meant that these positive comments could not be passed on and it was disappointing not be to be able to share this positive feedback.

3.4.4 Interviews

Given the nature of the RQs, and the opportunity to conduct the research as a longitudinal study, it was determined the main source of data generation would be semi-structured interviews with participants. Some RQs would either need to be addressed at the beginning (RQ1) or the end (RQ3) of their training. RQ2 was something that could be addressed throughout the whole year and I was interested in whether their views on this would change. I was also interested to know if their views in relation to RQ4 developed as the year progressed. Therefore, the participants were interviewed in three waves (Salkind, 2010) - the beginning of the course (September), at a mid-point (January/February) and at the end (June).

A key challenge was thinking about how to set the tone of the interviews. Denscombe (2017) points out that research interviews are different from conversations as, when someone agrees to take part, they tacitly acknowledge that:

- They give consent;
- their words can be used as data;
- the agenda for the discussion is set by the researcher.

In this case, points one and two were not tacit acknowledgement - all participants gave informed consent (appendix 2) and permission for their words to be used as data. Given this, and the fact that the agenda for the discussion was set by me as the researcher, it was the case that the participants were not telling me things that would have come up in conversation in a different context. Therefore, participants' awareness of the fact that their words were data may have shaped their responses. This also made me conscious of "the interviewer effect" - the fact that people respond differently depending on their perception of the interviewer (Denscombe, 2017, p. 209). Denscombe highlights factors (e.g., gender, age and ethnicity) that could be relevant but, in this case, a bigger issue was my professional role as lead tutor on their course. Participants may have felt there were things they did not want to share (e.g., details of difficulties, issues with placements, etc.) given my role as a tutor with an overview of their training and with a management role within their course. The problem of being an interviewer in a dual-role is the challenge of trying to simultaneously protect participants from harm whilst seeking to obtain good quality data (Allmark et al., 2009).

However, it is also true that "the interviewer effect" can be positive. Participants might speak candidly, secure in the confidential nature of the research interview, but keen to share (and even offload) details of their experiences with someone who understands. Tillmann-Healy (2003) suggests some degree of involvement (even friendship) might even be necessary. It is perhaps the case that those who volunteer for a research project are likely to be personable and keen to talk and may have volunteered having decided I was someone they would be happy to make time to speak to. The researcher-participant relationship developed over the course of the year and this may be due to the background knowledge that I had which, as Holstein and Gubrium note, can be "an invaluable resource for assisting respondents to explore

and describe their circumstances, actions, and feelings*"* (1995, p. 45). I don't think the relationship could be described as friendship; nevertheless, it is perhaps more like colleagues than student-teacher.

A common response to these issues might be to advise an interviewer to remain "neutral or non-committal" (Denscombe, 2017, p. 210). However, it is perhaps inevitable that this neutral stance does not seem possible, or even desirable, as co-creation of knowledge and understanding requires engagement from both sides. There is precedent for a more engaged approach in the work of some researchers who focus on vulnerable or under-represented groups with an aim of helping or empowering (rather than dispassionately learning from) them (Denscombe, 2017). This project did not have a help or empowerment agenda but the combination of a desire to understand the experiences of trainee teachers better and improve their experiences, coupled with my involvement and my overwhelming desire to see them succeed, means that some of this resonated with me. The relationship between researcher and participant is usually seen as hierarchical (with the researcher in control) (Braun & Clarke, 2013); however, my focus on breaking down that barrier so that the participants felt they could speak to me honestly and openly led me to become more 'involved'. I showed sympathy when things were not going well, expressed shared frustration when they felt their experience had not been as they should have expected, and was honest about my genuine enthusiasm when they told me something that I found particularly interesting. All of this was done to help redress any power balance issues and encourage them to engage in a process where I could learn from them and, together, we could engage in the co-creation of new knowledge and insights. I wanted to them know I was sensitive to and interested in what they had to say (Holstein & Gubrium, 1995).

Semi-structured interviews were selected as the main method of data generation as a rigid questionnaire would not have allowed the flexibility to pick up and explore issues raised in responses. However, as perspectives on existing ideas and theories were being sought, more structure was needed than in an evolving interview. Semi-

structured interviews gave me the opportunity to use both "pre-set" and "on the spot" questions (Savin-Baden & Howell, 2013, p. 359). The former allowed for consistency across the project and allowed me to address some of the ideas explored in the literature which had been identified as orienting concepts. Across the interviews there was an exploration of PCK which included their understanding of their specialist subject (following Grossman's (1990) definition), exploration of the participants' experience of the relationship between theory addressed in sessions and their classroom experiences (exploring integration of knowledge as a model of transfer), and the participants perceptions of the relevance of theory to their practice (Hobson, 2003). This supported capture of data on themes important to the study if they were not raised by the participant, whilst "on the spot" questions allowed the flexibility to follow up with additional questions in response to their answers. Questions could be omitted, or additional questions added, allowing unexpected or interesting points to be pursued. Newby (2010) highlights four key advantages to semi-structured interviews: that they reflect research questions; can clarify misunderstandings; allow for the exploration of issues; and, provide rich data. Each of these were important for this study; this approach allows for data generation in line with the research questions and drawing on the conceptual ideas that had been used to frame and develop the study, but with opportunities to clarify misunderstandings and include further exploration as part of the process. It also allowed for the generation of rich data which, in a small-scale study, may help to offer a more comprehensive understanding of the questions being explored. Newby is also mindful of the disadvantages of this approach, highlighting issues of time, cost and the need to train interviewers. Each of these are valid, but with a lone researcher focusing on doctoral research, these are not necessarily issues; a single interviewer at least gives consistency across the data generation process. However, Newby also talks of the "need for scepticism" as another issue (2010, p. 342), highlighting the need to acknowledge potential issues with the bias (as noted above) and the validity of the findings in this scenario.

3.4.5 Transcription

After each wave of interviews the recordings were transcribed to support the analysis process. Most qualitative data comes in the form of language, so a common initial task is to turn this into written text (Lapadat, 2000) and, for practical reasons, a transcriber was employed to undertake this process. Whilst some literature notes the issues inherent in engaging a third party to transcribe research data (Tilley & Powick, 2002), in this instance it was the only available course of action due to the demands on the time of the researcher. Although these concerns are noted, the nature of this project means that these issues can, to some extent, be mitigated. This is qualitative data that arises from a context and has been constructed through dialogue (which has been led and steered by the researcher) and, therefore, prior to transcription it is already a construction in which the researcher takes a position, making choices that fit their theories and purpose when designing and conducting the interview. This is a process that continues as the data are transcribed and analysed, but regularly returning to the audio descriptions and adopting an approach to analysis that seeks to explore the data from multiple angles should ensure that any decisions of interpretation made by the transcriber will be examined again in the analysis.

It is also important to consider how the data arising from the interviews are to be used in this project. Many of the issues around transcription relate to how the work should be conducted and what conventions should be used (e.g., how laughs, coughs and sighs or interruptions, overlaps, pauses and dialects should be handled (Lapadat, 2000). However, the purpose of having transcribed data for this research project was to have a text version of what was said to complement the audio recordings that were still used in the analysis phase. Laughs, coughs and sighs did not need to be recorded; I as the researcher would pick these up when listening again to the recordings. However, it was useful to have a text version of the data to support this and to aid the writing process. The transcriber did, of course, make some decisions such as the approach to formatting the text on the page and to indicate where there were pauses in the conversation and where there was laughter. She also made the decision to

adopt what Bucholtz (2000) would term a 'naturalized' approach to transcription in which the transcription included features of written language that are not present in the spoken word (e.g., the use of commas and full stops). For Bucholtz, the issue is that details of the spoken form are lost as it is transformed into a written form. However, in a study where the focus is on *what* is said, rather than *how* it is said, as is the case here, this is less of an issue.

One way of ensuring the validity of the transcript would have been to ask the participants to be involved in the transcription process, which could be done by asking the participants to review the transcripts, making corrections and clarifications as appropriate (Mero-Jaffe, 2011). Lapadat (2000) goes further, arguing that giving transcripts to interviewees allows for clarification and the opportunity to stimulate discussion on various topics mentioned in the text. Perhaps there was a missed opportunity, here, to ask the participants to review the transcription of their first wave interview in the second interview, and their second interview in the third. However, as well as lengthening the time needed for each interview (giving them time to read transcriptions that were, in some cases, 20 pages long), asking them to review the transcript from their final interview would always have been an additional task for participants that would also have been hard to organise (as they completed the course and left the university within weeks of the final interview). In this study, time was an issue; participants had already agreed to give up time for three separate interviews; asking them to review transcripts may have been a burden that was the difference between the decision to participate in the study or not and, even if this were not the case, there would have been logistical issues that would have been difficult to overcome.

3.4.6 Analysis

The use of adaptive theory allows for an approach to analysis that is both deductive and inductive, using pre-existing ideas to develop a hypothesis which can be subjected to scrutiny via research (Bryman, 2016), whilst also offering a way for the emerging

data to be reflected onto the theoretical ideas. The sources used in the adaptive theory process are characterised by Layder in the following way.

Table 3

Sources used in adaptive theory

Theoretical	General theory – theory that applies to generic features of social life
	Substantive theory – theory or relevance only to particular substantive areas (e.g., in this case, education)
Empirical	Extant data – all previous findings of research – both large and small data sets. Not simply social research data, but popular literature, self-help and motivational materials, novels, journals, diaries, magazines, adverts, photographs, etc.
	Emergent research data – the immediate findings and information that arise from the current research project

(Adapted from Layder, 1998, pp. 163–166)

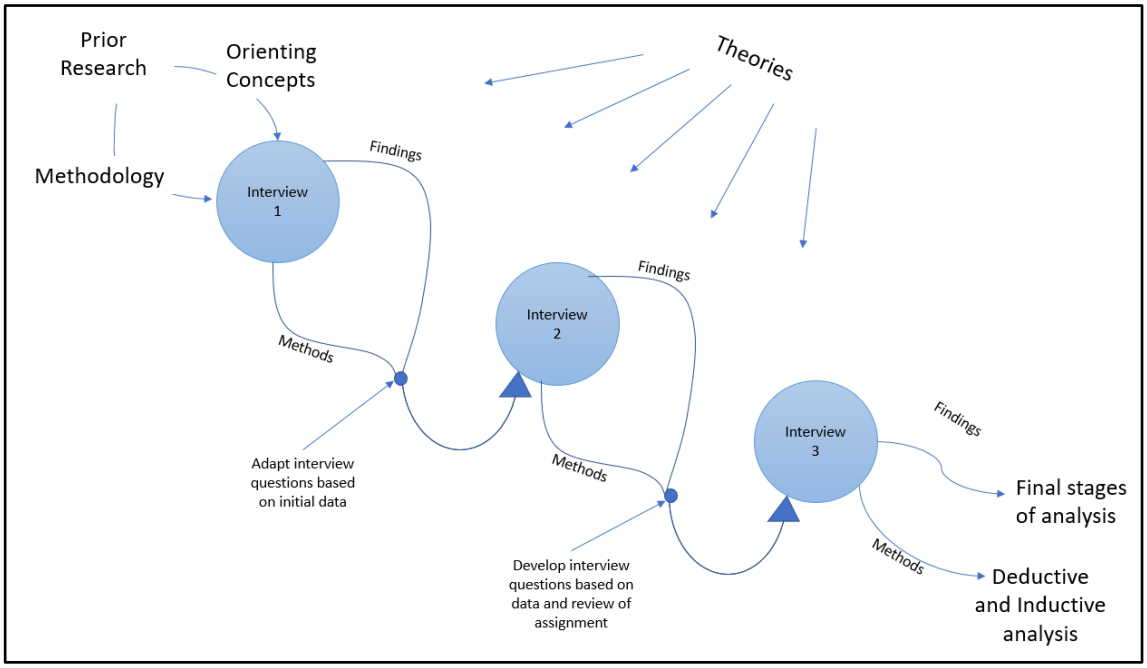
The methodology adopted for this project and data generation was firmly based in existing theoretical models, particularly substantive theory. Deductive analysis was based on the orienting concepts underpinning the research, whilst being open to inductive analysis of issues that were not sought or anticipated, but that offered new, interesting perspectives and lines of enquiry. Theory-generation (arising from analysis) is not confined to a particular stage in the research (Layder, 2013) and this was important as it allowed for emergent ideas to be pursued immediately; the nature of the research questions (particularly RQ2 and RQ3) required an approach that allowed new ideas and themes to be identified to inform later rounds of data generation.

However, whilst the principles that underpin adaptive theory meet the ontological and epistemological concerns of the project, a clear approach to analysis needs to be determined. Grabowska et al (2017) offer a diagram to explain their use of adaptive theory in their longitudinal study. Below is an adapted version of this relating to this research to offer a visual representation of the process (Figure 7). It shows research

feeding into the first wave of data generation, the methods for each subsequent wave being adapted in the light of the findings with theories impacting on all aspects of the study at every stage.

Figure 7

Application of adaptive theory



(Diagram adapted from Grabowska et al., 2017)

3.5 Data Generation and Analysis

3.5.1 Interview 1

In each interview, the first question was designed as a 'settling' question. The participants were asked to tell me either about themselves or how everything had been going since the last time we spoke, giving them a chance to get used to speaking and being recorded by talking about something they felt comfortable with (Savin-Baden & Howell, 2013). This was then followed by questions that allowed me to generate in-depth data on themes which addressed the research questions. The questions for the first interview (appendix 3) were written with a focus on understanding more of the background of each participant and gathering some of their

initial impressions of, and expectations about, their training. The intention was to gauge their views as they started their course but, by the time the participants had been recruited and the interviews arranged, most participants had experienced an initial block of taught input and were settling into their school placement. As part of the interview process participants were also asked to complete a short form (appendix 4) outlining some basic information about their background and experience. Questions addressed their choice of ITE route and their initial views regarding expectations and experiences of taught sessions. They were also asked some initial questions that related to one of the key orienting concepts – PCK – that focused on their understanding of the purpose of their subject, key debates and common pupil misconceptions.

Participants were also asked to place themselves on a continuum (appendix 5) based on the work of Hobson (2003) to see how, at that point in time, they would define the relationship between the taught elements of their course and their classroom experience. This framework identified three possible perspectives adopted by trainee teachers - the proceduralist apprentice, the education-oriented apprentice and the understanding-oriented learner – which were presented on a continuum. This was given to participants in the first interview, and they were asked to mark where they would place themselves on this continuum and then, in the discussion, explain their perspective. This continuum was used as it was recognised in the literature review that Hobson's model had potential as an orienting concept to help explore how trainees viewed the expectations they had of their training. Holstein and Gubrium suggest that offering participants "pertinent ways of conceptualizing issues and making connections" (1995, p. 39) is helpful, but are clear that it is up to the interviewer to direct and harness these responses to ensure that they address the research questions. I was unsure whether, particularly in the early weeks of the course, the participants would be able to articulate their perspective or whether I could ask them questions that would enable me to accurately identify their perspective. Therefore, I decided to share this model with them and allow them to consider which, if any, of the

described positions resonated with their views and experience. This proved to be an interesting approach as it allowed me to explore the reasons for their responses and, through the reintroduction of this model in the final interview, observe whether their views had changed and understand, in some detail, the reasons for their views.

3.5.2 Initial analysis

Following the transcription of each interview, there was a brief initial review of the data. The data were not coded at this stage; instead I sought to immerse myself therein, reading through transcripts to become familiar with the depth and breadth of their content (Bazeley, 2013) and a brief research memo was written for each interview (see an example in appendix 6). Some of these were very simple, taking the format of short notes highlighting ideas that either related to an orienting concept (whether supporting/illustrating it or not) and any emerging ideas. A separate memo was also written drawing together key points from across the eight interviews (see an example in appendix 7). The concept of a research memo was developed by researchers adopting a grounded theory approach "as a way of theorising and commenting as you go about thematic coding ideas and the general development of the analytic framework" (Gibbs, 2007, p. 30). This was a helpful strategy in the context of an adaptive approach as this process brought to light some emergent data which could be used to inform the writing of the question prompts for the next interview. Following the first wave of interviews this approach led me to recognise the number of references to peer support in the data from the first set of interviews and allowed me to explore this further in subsequent rounds of data generation.

3.5.3 Interview 2

Following this initial review of the data from the first interview, the interview guide for the second interview was written (appendix 8). This allowed some lines of questioning to be dropped and others added in light of participants' responses. For example, in the first interview, questions had been included about participants' experiences of generic aspects of their training but through the initial analysis it became clear these responses would not help address the RQs. Therefore, this was not pursued so the

focus could be on lines of enquiry more closely linked to the orienting concepts. This interview particularly addressed two key orienting concepts: PCK (to see how their thinking was developing); and, conceptions of knowledge transfer. This felt like an appropriate time to begin to address the latter as the participants had experienced just over a term in school and might be able to begin to evaluate connections between their taught sessions and their classroom practice. Also, based on initial analysis of the data from the first interview a question that focussed more particularly on the importance of their peer group was included so that this could be explored further. At this interview, permission was also sought from each participant for me to access and review the assignment they submitted in early January and the feedback received from their tutor.

After the second wave of interviews more analysis memos were written following the pattern established after the first interview. The participants' assignments were also reviewed. An extract was identified in each which was then added to their participant sheet for the final interview (appendix 9). As previously noted, it was not the intention to engage in documentary analysis of the written assignments; they were another way to immerse myself in the data and give me insights into the participants' thinking which could then be picked up in the interviews.

3.5.4 Interview 3

The guide for the final interview was also written following some initial analysis of data generated during the second interview and, as this was the final interview, some of the questions were retrospective (asking the participants to reflect on their experiences across the year) and they also revisited areas of discussion from the first two interviews (appendix 10). In relation to the latter, aspects of PCK were revisited for the third time, as was the concept of transfer but, this time, through more direct questions about working with their mentors. Participants were also asked to look again at the continuum used in the first interview and mark on it their current position. They were then shown their response from the first interview and the discussion focused on if/how their perspective had changed and why.

Retrospective questions particularly focused on their preparedness as a subject specialist and ways in which the course had supported them in developing subject-specialist pedagogical knowledge. Questions about their experience of completing a subject pedagogy assignment supported this aspect of the discussion. The assignment had been mentioned in the second interview, but this was considered in more detail with each participant being shown a short extract from their work as a stimulus for discussion. The assignment was completed by the participants as part of their PGCE qualification and, in terms of a bricolage approach, was one of the "tools at hand" (Kincheloe, 2004, p. 2). The task required participants to focus on their subject specialism, responding to the question "What makes an effective citizenship/geography/history lesson?" They were required to complete a literature review and then evaluate a small number of lessons they had taught in the light of the literature, to explore effective teaching in the context of their subject. I wanted to be able to access this as the research questions focussed on subject pedagogical knowledge; this is what was being explored in the assignments and it, therefore, offered another way of exploring the extent to which they made connections between pedagogical theory and their classroom practice. I hoped that this would give me an opportunity to understand, and then explore in the interviews, participants' emerging and developing views on subject pedagogy. The intention was not to engage in textual analysis of these submissions in an abstract way, but to use them as an artefact in the third interview. For the trainees, this piece of work was a 'document-in-use' (Rapley, 2007) and, as such, I did not want to make judgements about it but explore, through discussion with them, its relevance and importance in their developing thinking and whether or not it had continued to impact on them once the submission date had passed. However, there is a potential issue in that I was taking the assignments out of their context; these were written to satisfy assessment criteria and, as such, might outline not what the participants thought but what they believed the marker wanted from them. The interview gave a chance to discuss this, ask about the process (and burden) of completing the task, explore the extent to which it was a developmental

tool and find out whether it had any significance for them going forward. Therefore, in the final interview, all participants were presented with a short quote taken from their assignment in which they said something about pedagogical approaches to teaching their subject. They were given time to read this and then asked to explain why this was important to them, whether their perspective had changed and whether this was something they are conscious of in their teaching. It was hoped that this would act as a tool to elicit meaningful responses from the participants in discussion of the pedagogical underpinnings of their subject and how important it was to them that they had developed some kind of pedagogical content knowledge (Shulman, 1986, 1987) during the course of their training year.

In this interview participants were also shown a diagram to act as a stimulus for discussion about their view of subject knowledge (appendix 9) to support the conversation about their preparedness as a subject specialist. This diagram (Figure 2), which was originally published by the TDA (2007) to conceptualise subject knowledge, had been important in the development of my own conception of teacher knowledge, and I wanted to explore the extent to which participants were aware of the different kinds of knowledge they acquired during the year. They were asked about how their knowledge had developed and then were shown the diagram. Using this as a stimulus they were asked to indicate which of these aspects of knowledge they had in their minds when responding.

3.5.5 Coding

After the final round of interviews were complete and the data transcribed, the process of coding could begin. The amount of data that had been generated by eight participants led to the decision to use the available software – NVivo – to support this process due to the need to find a way of managing the data and ideas (Bazeley & Jackson, 2013). It was mainly seen as a way of storing and organising 24 audio recordings, 24 transcriptions, eight assignments and numerous research memos. Beyond this and the use of some nodes (codes) the more advanced features of the

program (e.g., the use of cases, attributes and classifications or the addition of reference material) were not utilised to support the analysis.

In qualitative analysis, a code is a "word or short phrase that symbolically assigns a summative, salient, essence-capturing and/or evocative attribute for a portion of language based or visual data" (Saldaña, 2016, p. 4). This allows data illustrating similar points to be brought together for the purposes of analysis. The approach taken to coding was concept (rather than data) driven (Gibbs, 2007) with the initial codes being rooted in literature and previous research following a deductive approach. This approach is exemplified by framework analysis (Ritchie & Lewis, 2003) in which the researcher builds up a list of key themes or ideas and then identifies data that exemplify codes in this initial list. This is where the map of orienting concepts (figure 6) was used; the ideas summarised on the map became the basis of the initial set of codes (table 4).

Table 4

Initial top-level codes for data analysis

Code	Description
Craft/Tacit Knowledge	References to knowledge acquired through experience (which may be considered 'instinctive')
Evidence Informed Practice	Reference to theory/research that is used to inform classroom practice
Integration of Knowledge	Examples or comment on knowledge and skills being merged with experience (e.g., in a new context)
Justification for Subject	Reference to understanding and beliefs about the purpose of a subject on the curriculum
PCK	Evidence of one of the four characteristics of PCK as identified by Grossman
Powerful Knowledge	Knowledge of subject and pedagogy that goes beyond 'common-sense'
Subject Knowledge *per se*	Mention of their subject-specific content knowledge (or lack thereof)
Theory-Practice Divide	Compartmentalisation of theoretical training and practical classroom experience
Transfer of Knowledge	A "learn-it-here, apply it there" understanding of the relationship between they and practice
Utility of Theory	Comment regarding whether or not theoretical training is considered useful/valuable

However coding is a cyclical act (Saldaña, 2016) and, as new ideas emerged, a number of codes were added as the analysis progressed (Table 5). It was also recognised that more detailed analysis was needed in some areas (e.g., in the discussion of PCK in specific subject areas); consequently, subcategories were added to some codes to allow more detailed analysis of codes that had a large amount of data attached

(appendix 11). For citizenship and history, conceptions of PCK found in the literature were used to set up additional codes to explore subject-specific pedagogical understanding. When the analysis was being conducted no suitable parallel conception of PCK could be found for geography. Using the citizenship and history codes as a starting point, a set of categories was established for the analysis of the data relating to geography.

Table 5

Additional top-level codes

Code	Description
Choice of route	Reference to the advantages or disadvantages of a particular ITE route
Citizenship	Comments specific to teaching citizenship
Geography	Comments specific to teaching geography
History	Comments specific to teaching history
Mentor	The role played by the mentor in supporting development
Non-specialist teaching	Comments made about experiences of and attitudes towards teaching as a non-specialist
Peer support	Reference to support from peers

3.5.6 Analysis Memos

Mindful of the fact that "coding is just *one* way of analysing qualitative data, not *the* way" (Saldaña, 2016, p. 3), as noted above, I produced analysis memos drawing together data on emerging themes from the outset. When the final round of interviews was complete, all 24 were reviewed (using both the audio recording and the transcript), and a one-page summary of each interview was written as an analysis memo (see example in appendix 12). This allowed each interview to be re-examined in detail and, given the longitudinal nature of this study, allowed me to look at each participant as an individual and reflect on how their thinking and understanding had

developed during the year. This process allowed some participants to particularly stand out because of their experiences and the impact that this had on their thinking. In one case, this was because the participant had clear ideas about subject pedagogy but was teaching in a context that did now always allow him to explore this. In another instance it was because the participant did not start the course with a conception of pedagogical knowledge but, by the end, both recognised this and could articulate the difference this understanding had made to her practice. As a result, I wrote two analysis memos in the form of case studies to allow me to think about their experiences in more depth.

The process of writing this first stage of analysis memos gave me confidence that I was aware of the contents of the data. This is what some would term the familiarisation stage (Braun & Clarke, 2013; Xu & Zammit, 2020) and was particularly important as I had not transcribed the data myself. This process of reading, rereading and writing about the data gave me an opportunity to become more familiar with it and notice details and ideas that could be pursued to see if they were significant in any way (Saldana, 2011). I could then move on in the analysis and focus on ideas from the original orienting concepts map. As the initial coding of the data followed a deductive, theory-driven approach, early analysis memos pulled together data and analytical reflection based on some of the orienting concepts. For example, there was an analysis memo for each of the three subjects that explored the data about PCK in that context. However, others collated emergent data to identify themes that would help address the research questions in some way (Xu & Zammit, 2020), like memos collating data around the importance of peer support, tutor support and powerful pedagogical knowledge. Again, to ensure immersion in the data and that every angle had been explored, these memos often looked at the data from different perspectives. For example, some memos cut across a single time period (for an example see appendix 13) and others focussed on a particular idea of theme across the year (for an example see appendix 14). They attempted to bring the data together in a structured way that could then be used as a stimulus for another review of the raw data to see if more

connections were to be made or if new additional insights could be added. They also started to link data to the literature to analyse the extent to which findings illustrated theories found in the literature and the ways in which it offered new insights or ideas to be pursued. As my collection of analysis memos grew, the process of writing helped to clarify my thinking about emergent areas as I explored the data from a number of different angles. As Gibbs (2007) suggests can sometimes be the case, some of this writing subsequently evolved to provide a foundation and structure for the formal composition of the findings, analysis and discussion in chapters four and five.

3.5.7 Emergent Theories

For the next stages, I broadly followed the thematic analysis approach developed by Braun and Clark (2006) which, as it allows for both inductive and deductive coding (Xu & Zammit, 2020), fits well with the adaptive approach. As part of the process of writing analysis memos, new ideas had started to emerge. Braun and Clark (2006) describe this aspect of inductive analysis as searching for "themes", which are defined as something important about the data in relation to the research questions. In this project, two key emergent ideas were ultimately identified – Integration of Knowledge and Powerful Subject Pedagogical Knowledge. The former results from deductive analysis and is rooted in existing theories, the latter is rooted in existing theory, but resulted from more inductive analysis when several ideas came together to be conceived in a new way. In both cases they address different aspects of particular research questions (particularly RQ2 and RQ3), drawing together data from multiple codes (Table 6). There were overlaps between these two themes. For example, some pieces of data are related to two separate codes that have been used to develop different themes. In the development of the themes, efforts were made to use data in relation to one theme or the other but, occasionally, data are present in the analysis of both themes. This highlights that the two areas identified as emergent themes are interrelated and acknowledges that the participants' experiences and views must be explored in multiple ways in an effort to ensure that their words are not used to construct meaning that they would not themselves recognise.

Table 6

Codes supporting emergent theories

Emergent Idea	Integration of Knowledge	Powerful Subject Pedagogical Knowledge
Coded Data	Craft/tacit knowledge	Citizenship
	Theory-practice divide	Geography
	Utility of theory	History
	Transfer of knowledge	PCK
	Mentors	Justification for subject
	Peer Support	Powerful knowledge

The identification of these themes was the end of a long process where a number of other avenues of enquiry were explored. Braun and Clark (2006) describe this process as having two levels. In the first, the collated data are reviewed again in relation to the theme to check that a coherent pattern is emerging. If it is, analysis moves to the second level to review the theme in relation to the entire data set to check the coherence of the emergent idea in relation to all findings and giving an opportunity to code additional data in relation to that theme that has been missed in earlier coding stages. As part of this process of refinement, some themes and lines of enquiry were dropped. For example, a consideration of what could be learnt from the participants' experiences of non-specialist teaching was left aside; some interesting data had been coded against this, but were not significant enough to offer a distinct emergent theme. This was also the fate of the 'choice of route' line of enquiry that had been pursued in relation to RQ4, but for which there was insufficient data to offer any new insights. There were also potential themes that were merged with other ideas to respond to the RQs as part of a larger theme. For example, mid-way through the analysis I considered whether I should pursue an emergent theme focussing on the importance of a learning community for the participants. However, when this was reviewed against the data, I

concluded that these ideas should be merged with other findings as part of the 'integration of knowledge' theme.

At this final stage I wrote two final analysis memos – one for each emergent theme. These helped me to shape the ideas, with reference to both existing literature and the raw data. This process was important in these final stages for helping me to define the themes and decide what each one should be called. The 'powerful subject pedagogical knowledge' theme had several names before I decided that this best captured the essence of the ideas emerging from the data.

3.6 Conclusion

This project, in response to the research questions, set out to explore the experiences of eight secondary humanities PGCE students following an ITE programme at the same university. For this longitudinal study the qualitative data were generated in three waves of semi-structured interviews over the course of the one-year programme. Following an adaptive theory approach (Layder, 1998) the data were then subjected to deductive analysis, drawing on the orienting concepts whilst, at the same time, being open to emergent ideas identified through inductive analysis of the data. This approach allows for the acknowledgement of the researcher's reflexive position, but the thematic approach taken to analysis supported exploration of the data in a way that tested emergent ideas and allowed some to be pursued whilst others were left to one side.

The findings, analysis and discussion are presented in the two chapters that follow. Given the methodological approach and the nature of the findings it was determined that it was best to present the data with the analysis and discussion in this way, structured around the two emergent themes – 'Integration of Knowledge' (chapter four) and 'Powerful Subject Pedagogical Knowledge' (chapter five). As far as possible, the voices of the participants are used to ensure that the findings are clear and that analysis is based on what was actually said. Following the adaptive approach, the

analysis and discussion seeks to explore links between the data and existing theory, but there is also some "conceptual innovation" (Layder, 2013, p. 182) in response to the research questions.

Chapter 4 - Integration of Knowledge

4.1 Introduction

In the literature review I explored the idea that we should conceive the development of teacher knowledge as something achieved through the integration of theory and practice (Brouwer & Korthagen, 2005; Darling-Hammond, 2006; Eraut, 2004; Leinhardt et al., 1995). I suggested that both a deductive view (where theory comes first) and an inductive view (where experiences are later linked to theory) were unhelpful as they highlight a potential gap between the school and university settings and lead to a view of knowledge as something to be transferred from one context to another. Instead, I argued we should view this relationship as one of integration, with a focus on assimilating theoretical knowledge with knowledge gained from practical experience. This chapter seeks to explore this from the perspective of the participants to understand how they conceive the relationship between theory and practice, and if this changes or develops over the year.

The chapter is structured in two main sections. In the first, following the adaptive approach (Layder, 1998), analysis of the data is presented using ideas from the literature as orienting concepts to explore the participants' understanding of the relationship between theory and practice. They do experience some tension between the university and school settings, but the data indicate this does not manifest itself in the way often characterised by the literature (Bransford & Schwartz, 1999; Leinhardt et al., 1995). The longitudinal nature of the study allowed for exploration of changes in the participants' thinking over the year, noting how some start to use theoretical ideas, adapting them as necessary at the planning stage, based on knowledge of their classes. Many participants develop the view that each element of their training informs the others.

The second section explores factors that might support the "integration of knowledge". If participants use knowledge gained from both the university and school settings to support and develop their practice, it is important that we consider what supports this integration. Ideas emerging from analysis of the data are considered –

the part played by mentors, tutors, peers and academic work. It is argued these factors support students in reflecting on their experiences, drawing together both the university content and classroom experience.

4.2 Exploring the relationship between theory and practice

Questions asked in the interviews intended to explore whether participants experienced a 'divide' between theory and practice in the way characterised by the literature. The challenges of being socialised into school systems, dealing with the complexity of teaching, overcoming preconceptions and needing to identify concrete solutions in the classroom (Korthagen, 2010b) are identified as factors that can result in a 'transfer problem'. The analysis of data in relation to this was relevant to all four research questions but, specifically, sought to understand how participants related pedagogical knowledge to their practice over time (RQ2) and what supported them in making links between practice and theory (RQ3). In the early stages of analysis, an Nvivo a code was set up that was called "theory-practice divide". Data were added to this when a participant talked about what had been learnt via school experience and university sessions in a way that compartmentalised knowledge in terms of theory and practice. However, examples of different ways of conceiving this relationship were also explored. A code called "transfer of knowledge" was used to identify explanations of how things learnt in university sessions had been used in schools, and the "utility of theory" code picked up comments on the usefulness of theory. The "integration of knowledge" code was in place to capture any comments indicating that participants had merged different kinds of knowledge in some way. Finally, there was also a code ("craft/tacit knowledge") that could be used to note instances where the participants talked about knowledge acquired through experience. These codes were used from the outset as they were linked to the orienting concepts, with the expectation that, through the cycles of analysis, new ideas would emerge and new codes would be added.

The longitudinal nature of this study allowed for consideration of whether participants' views on theory developed and/or changed over the course of the year, and the use of the continuum based on the work of Hobson (2003) was one explicit way of exploring this in the first and final interviews (appendices 5 and 9). It was used as the stimulus for questions about the relationship between university sessions and classroom experience and, in the final interview, to explore whether these views had changed. In this section of the chapter the data are presented chronologically to explore the development of the participants' views of the relationship between theory and practice over time (RQ2). As far as possible, their words are used within the chapter to articulate their perspectives, with similarities and differences highlighted in the context of the individual participants' circumstances and considered with reference to the relevant orienting concepts identified from the literature. Initially the view that teaching is a craft, best learnt "on the job", is very much in evidence but as the year progresses, there are examples of participants explaining how knowledge gained about pedagogical theory influences, and potentially improves, their teaching.

4.2.1 Initial Expectations

Several participants embarked upon this course anticipating classroom experience would be the most important aspect of their training. This view is articulated by Mark* who, with four years of prior classroom experience, said of his expectations:

> *I thought I'd learn more the realities of teaching and the workloads in terms of marking and assessment and how you get through the day-to-day...* (I1)+

This was also the view taken by Libby who had more limited classroom experience. She expected her time in school to be the most useful part of the course stating, "*I think you learn by doing in the profession*" (I1). Here two participants, with differing amounts of classroom experience, join the course with the view that teaching is a

* All names have been changed to ensure participant anonymity.

+ For each piece of data, it is indicated whether it was generated by the first (I1), second (I2) or third (I3) wave of interviews.

craft, acquired through practice and improved over time (Day, 2005), and have no reason to question the dominant discourse that learning "on the job" is best (Gove, 2010).

Other participants agreed they would learn more from the classroom but felt that development of theoretical knowledge was a necessary part of their training. For example, after a few weeks Jane was developing the view that time in the classroom alone would not be sufficient. When asked what she anticipated would help her most she said:

> *Time in the classroom, obviously, the practical. But you can't do practical with no theory can you? …you need to know the other stuff to be able to plan lessons. You can't just, like observing a few lessons, you just don't really know what you're doing* (I1).

She seems to acknowledge that, alongside craft knowledge, frameworks are needed to support planning and evaluation (Grimmett & Mackinnon, 1992). A similar view was taken by Alice who felt that "*you can't get good at something unless you actually practice it and actually try and apply those skills*". However, she also commented "*I am quite glad that you get the time to think about it because then when you go in you do have something to draw on, you're not just going in blind*" (I1). Even though craft knowledge is acknowledged here, from the outset it does not appear that these participants intend to use this unconsciously (Brown & McIntyre, 1993). They are starting to think that it needs to be merged with theory and research, demonstrating a more progressive view of craft knowledge (Grimmett & Mackinnon, 1992; Leinhardt et al., 1995).

To explore this relationship further, data from the first interview were reviewed to look for evidence of participants demonstrating support for one aspect of their training (theoretical or practical) over the other, and similar ideas were grouped together (see appendix 15). In the event, a review of these comments suggests it is not a dichotomy, as often conceived in the literature (Fenstermacher, 1994; Korthagen & Kessels, 1999);

they do not necessarily think that one is more important than the other, although they acknowledge the divide and demonstrate both inductive and deductive perspectives. For example, when Diana comments "*that's not to say [theory] isn't important, I think it is, but I that that's possibly going to come a bit later"* (I1), she is not rejecting the idea of learning about and using theory but describing an inductive view of the relationship between that and practice. Similarly, Mark seems generally inclined to value the theory because it supports his work in the classroom saying "*they're the sort of things I probably wouldn't have thought about looking at and only through the three or four sessions we've had so far I've realised what value they can add towards how I plan myself in the classroom*" (I1). This offers a more deductive view of the relationship between theory and practice where the university training is an important basis for his work in the classroom.

However, some participants, rather than taking an inductive or deductive view, appear to view the theory as something that worked with their practical experience to support their development as a teacher. For example:

> *…to me [theory] is more of a foundation, to be able to build on that, to come back to it and bounce between the two … the people that have done theories and done research and all that, they're the experts in it…I think it's just a big cycle isn't it, you're just going to keep coming backwards and if you can't work on your feedback and research what people have done and put that in place and work on your feedback and the research, it's not going to work is it?* (Liz, I1).
>
> *I think having the background information and being able to use it in your own way is more important than having the background information and sticking to it to the letter* (Alice, I1).

These ideas about the chance to "bounce between the two", viewing it as "a big cycle" and recognising that you can "use it in your own way", all indicate an emerging view that the theory is there to inform and be used and, importantly, developed in a way that supports their teaching. Liz's comment includes a clear sense of constantly moving between theory and practice to hone and develop her classroom skills; Alice is

recognising that theory can be used and developed (Chi & VanLehn, 2012). This suggests that, at an early stage, some trainees are motivated and disposed to draw out connections between theory and practice (Perkins & Salomon, 2012) and adopt the view that they are not separate, but can be developed together.

There are comments that distinguish between different content areas of teacher knowledge, indicating the participants' perception that some things are better learnt in university and others in practice. Dan does not dismiss the importance of knowledge but argues it is more useful when he is "*seeing things in action and applying knowledge"* (I1). Alice recognises the place of knowledge acquisition in university sessions (see above), but she also says:

> *there are some aspects of the uni stuff that I think 'Yes, it would have been better to have just seen it in practice.' You know like when you're sat in a lecture theatre and someone's explaining something to you…like SEN and stuff, it's quite difficult to think about unless you actually know it* (I1).

Libby agrees, arguing that behaviour management and lesson planning and delivery are best learnt on placement. However, she references the challenges she is facing in the classroom and recognises that the "*core skill of teaching isn't so much about the educational practice as it is tailoring the educational practice to the children"* (I1). She feels that the experience is important because it helps her understand how she will need to adapt her knowledge and develop her skills for different contexts (Darling-Hammond, 2006; Eraut, 2004).

Several participants do not dismiss theory but feel it is not a priority for them at this point. Abby is focusing on behaviour management, whilst Diana is concerned with gathering ideas, trying them out, and developing her own classroom persona and teaching style. They are not taking the view that theory is "above" practice (Clandinin, 1985), but nor do they suggest that practice is above theory. It seems to be more about time and place. Some things are best learnt through experience and some via university inputs; they need to focus on different things at different times. Even if it is

not being demonstrated clearly at this early stage in the academic year, there is scope for an integration of theory and practice as no participant questions the value of either, although they may place more emphasis on one or the other.

4.2.2 Tension

Some early evidence of tension between theory and practice was noted. Literature often alludes to this tension being caused by a disconnect between theory provided by the university and opportunities for practice provided in schools (Korthagen, 2010b). However, the participants were not necessarily struggling with preconceptions, a lack of concrete experience or the challenge of dealing with many variables (Hennissen et al., 2017). For some, tension was caused by enthusiasm for ideas they were learning in university sessions and a lack of opportunity to trial these ideas in a classroom setting. For example, Mark had been particularly enthused when introduced to the enquiry approach and was keen to incorporate this into his lessons. However, in the first interview, he said:

> *at the end of the day…'We've got to get through this sort of material by this date' and even though I'd like to create some resources and get that enquiry aspect into my lessons, we're basically being told that we have to do collaborative teaching…we are all going to teach the exact same lesson using the exact same PowerPoint, using the exact same resources.*

He was disappointed that he was picking up lesson plans that said, "*read these pages, answer these questions*". When trying to identify the causes of the theory/practice divide in teaching Hennissen et al. (2017) talk of trainee teachers being influenced by the socialisation process, when they focus on learning the existing practices at a school. Mark has to participate in this socialisation process and adopt the school's way of doing things, but this is something he is conscious of and unhappy about. He wants to pull away from it and try a different pedagogical approach that is clearly defined within his subject area. Theoretical ideas or alternative pedagogical approaches are not necessarily being consciously rejected by the department or school, but it does seem that rigid structure, driven by local professionalisms (Whitty, 2014), creates a

situation where the trainee is not allowed to apply pedagogical theory and try new ideas.

Mark was not alone in experiencing this tension. Abby noted "*I find that the curriculum that I've been given is quite rigid*"(I1), whilst Libby highlighted that a school might be receptive to the idea, but dismissive in practice. She explained:

> *I'd learn a really great theory at university, and I would say 'Oh we could do this' and then they'd be like 'Good theory but it's not going to work with this particular group of children'* (I1).

This is different to Mark's experience. It is not school or MAT structures that are the constraining factors. Instead, Libby's mentor can point out the contextual factors that could influence the strategy she wants to employ and, instead, encourage her to replicate strategies they use with their pupils (Jones & Straker, 2006). However, for the participant, it becomes an experience of tension where they want to utilise theory they have learnt, but this is dismissed in the school context.

As the year progressed the tension remained. In the second interview Mark talked about the lesson plans and resources for each lesson he was expected to follow without making any changes; he said "*my hands are tied behind my back to a degree in terms of I've got to do certain things*". However, he felt that university sessions had helped him to see alternative, and even better, ways of doing things. At one point he describes the lesson plans he has been given as "*awful, absolutely awful"* (I2) and explains that he is trying to think not only about the content he is teaching but, also, the concepts (*"things like chronology and interpretation and cause and effect"*). He appeared frustrated that he could not use his knowledge and understanding to address some of the problems he was experiencing in the classroom admitting *"I do as much as I can to sort of ignore those restraints"*. He shares an example:

> *[our university tutor] will tell us how important it is to have smart outcomes…so you can really get levels of differentiation between the outcomes. Whereas at [school]…teaching is strictly challenge and aspirational outcome … let's say*

> *we're teaching a lesson on…Motte and Bailey castles, a challenge would be to explain what a Motte and Bailey castle is and after the starter the kids should get that, but then yet they've jumped from very extremely basic outcome in the challenge to something aspirational like 'To be able to evaluate the history of castles throughout the Middle Ages.' and I'm like 'Well there's no way in one hour the kids are going to be able to evaluate the entire history of castles'* (I2).

He draws together different aspects of teacher knowledge – theoretical knowledge, knowledge from experience and knowledge of his students (Grossman, 1990) - in questioning some of the approaches he encounters. He has developed professional scepticism, has knowledge of the curriculum and learning, and he wants to be able to implement what he has learnt in his classroom practice (Rose & Eriksson-Lee, 2017). Attempts to integrate his new knowledge with this practical experience are causing frustration; he would ideally like to challenge the guidance he is given and the constraints within which he is working, but there is no scope for this.

There are other examples of theory-practice tension through the year; some are resolved and others are not, but these generally related to prescriptive approaches where participants were not given freedom in their lesson planning (Kennedy, 2002). Abby (I2), spoke of her frustration at being required to use the accelerated learning cycle approach which she found restrictive. However, this was a "local" professionalism (Whitty, 2014) and when these constraints were removed, in her second placement, she felt that she was learning how to teach "*properly*" as she could choose her own approach. Diana wrestled with the expectation in her second placement school that pupils would be taught GCSE skills and to GCSE assessment criteria from year 7; this had left her wondering *"how do I make GCSE stuff relevant for Year 7?"* (I3). This tension exists because the participants think that what they are learning is useful and appear frustrated that their schools do not encourage or are not the right context for trying some of these ideas in practice. Jane had also felt this kind of constraint when she was given lesson objectives, resources and activities and believed she was expected to use them, but then realised she had imposed this on

herself rather than it being the requirements of the placement. When this came to light she was told to plan a lesson from scratch and recalled *"I planned it myself, no TES, no nothing, just me and it worked really well"* (I2).

4.2.3 Seeing Value in the Theory

At the mid-point in the year there was evidence that some participants who were originally less convinced about the potential usefulness of theory covered in university sessions, were starting to reassess this and acknowledge that this could impact positively on their practice. This was the case for two geography participants. Libby initially thought the classroom-based elements of the course were the most important, but now felt *"there was a lot I hadn't even considered…you start to think you're doing all right then you come to uni and get all these new* [ideas]*"* (I2). Alice admitted that she had dismissed early ideas shared in university sessions as in her school "*that's not really how it's done*" (I2), but she starts to see the value in some of the ideas and tries them out in her classroom. However, she sometimes still saw a disconnect between theory and practice. For example, she talks about using her professional judgement to reject ideas because she knows they will not work with the pupils in her class. She says *"some things that we do* [in a university session] *you think 'That's nice in theory but it's not going to work with these Year 8s that can't be quiet for more than 30 seconds at a time'…then there's other things where you just take them straight across and they work really well"* (I2). She acknowledges there are ideas she can take from sessions that develop her classroom practice but, here, she deems them useful when they can be used without any changes, rather than adopting an integrated approach acknowledging that ideas need to be adapted and developed (Chi & VanLehn, 2012).

Others make more explicit links, citing examples of ways in which theoretical ideas influenced their planning. For example, Abby talks about some reading she had done which helped her with scaffolding:

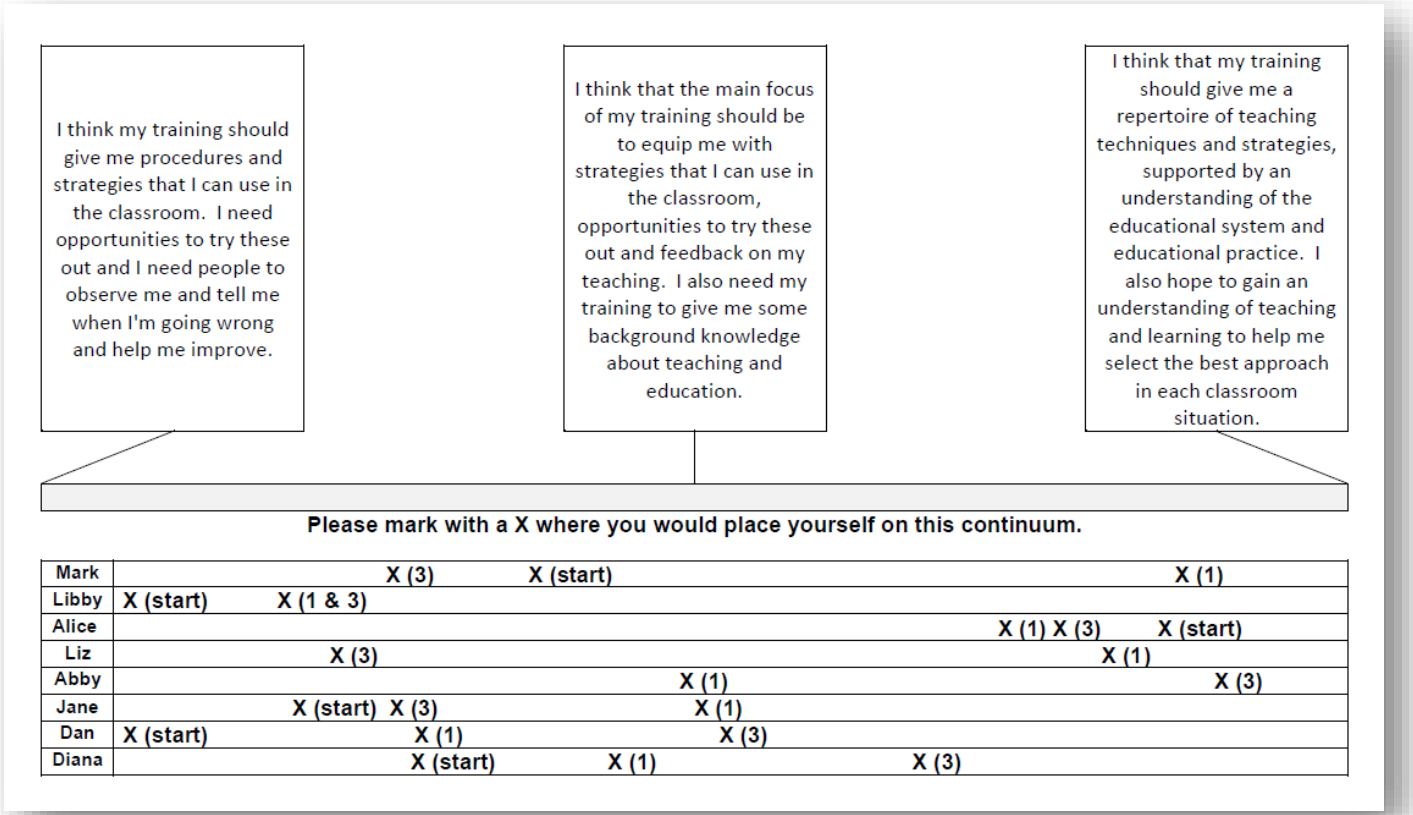
> *I'd looked at how children actually acquire the knowledge and how they actually process it and the fact that they only pick up stuff that they really need to know…then I could use that in the lesson…I did a text sourced-based lesson so I actually was able to tell students 'You need to pick out these bits of information* (I3).

Diana gives an example of how subject sessions were useful in giving her practical ideas "*to actually try to get that bridge between the theory of how it works and the classroom*", adding that whatever you learn in university you have to "*go and try and experience it*" (I3). She cites Vygotsky as an example; she was aware of his ideas prior to starting the course but felt that the referencing of them in university sessions helped her to develop her classroom skills. Here, although she hints at a transfer model view of theory-practice, she demonstrates her motivation to draw out connections between theory and practice which is more characteristic of an integrated perspective (Perkins & Salomon, 2012).

In general, the emerging picture seems to be one of participants who, as they spend more time in the classroom, appreciate both what they have already learnt, and opportunities to further develop their theoretical knowledge. There was an attempt to capture participants' summative reflections on the relationship between theory and practice by revisiting the continuum (based on Hobson's work) in the final interview. Participants were asked to mark the position that most accurately reflected their current view before being shown where they had placed themselves in the first interview, and then asked to explain their current thinking and account for any shift in their position. In figure 8, responses from both the first (1) and third (3) interviews are shown for all participants. Where a participant stated in the first interview that their views had already shifted since the start of the course, their estimation of where they would have put themselves at the start is also shown (indicated by the word 'start' in brackets). Most trainees moved on the continuum between the first and final interviews.

Figure 8

Participants' continuum responses based on Hobson (2003)



For Dan, Diana and Abby there has been a shift from questioning the theory, to generally valuing it. However, several participants still place themselves towards the procedural apprentice or education-oriented apprentice end of the spectrum. This was interesting (and perhaps, for a teacher educator, a little disappointing) as comments made elsewhere in the data had given the impression that they found their theoretical knowledge valuable and useful. However, in further reviews of the data it was noted that the reasons given for their positioning was interesting. For example, Dan viewed theory and practice as being complementary, but still makes a clear distinction between them. He credits the university subject input with giving him an "*overall view of geography education*" (I3), mentioning, specifically, examples like exam specifications and long-term planning as aspects of this, but his mentor and colleagues in school were more helpful in giving practical teaching ideas. He suggests that developing pedagogical knowledge in subject sessions helped him "*make sense*" of what was going on in the classroom; however, for him, they are distinct. His responses suggest he would be described by Hobson (2003) as an "education-oriented apprentice" (which is where he places himself on the continuum in this final interview) who draws a clear distinction between the theoretical and practical whilst appreciating the potential importance of background knowledge.

Three participants moved towards the proceduralist apprentice/education-oriented apprentice end of the continuum – Jane, Mark and Liz. In the case of Jane this may be connected to the fact that she was finding the classroom challenging and, although she appreciated the background knowledge, said "*I need the strategies…I need opportunities to try them out and I need people to observe me and tell me where I am going wrong*" (I3). The responses from Liz and Mark were more surprising. Mark had talked a lot in all three interviews about how much the university sessions had helped his understanding and supported evaluation of his school experience. However, this response suggests that he values "procedures and strategies" over an "understanding of teaching and learning" (Hobson, 2003). When asked to expound this he said that he valued the background information and ideas he had been given, but that "*obviously*

I've learnt the most from observations of my teaching and what other trainees have said about you could try and do X, Y, Z, I think that's where I've really improved the most" (I3). Liz thinks that understanding teaching and learning and the wider education system is important but said "*I feel like I know it*" and felt that, at the end of the year, she needed practice and observation feedback as her focus was "*all about shaping how you teach*" (I3). She felt "*comfortable*" with the theory and now wanted to develop confidence and techniques. When reviewing Hobson's categorisation of trainee attitudes, I had concluded that "understanding-oriented learners" with their appreciation for both theory and practice, were those who would be capable of schematising experiences and engaging in theory-building and, based on earlier responses from Liz and Mark, I might have assumed that would fit this profile. However, perhaps it is the case that, in appreciating different kinds of knowledge, they recognise that sometimes they need to shift the focus back to their practical experience so that they can apply and develop their knowledge further. This illustrates that a dichotomous view of knowledge is too limiting; perhaps Liz and Mark are demonstrating phronesis. They are able to perceive and discriminate the relevant details to choose a strategy appropriate for the situation (Kessels & Korthagen, 1996). This is something that cannot be taught; nevertheless, it is not something they could have achieved without a grounding in theoretical ideas. To become a phronimos (Biesta, 2015) they need time and experience.

4.2.4 Summary - Towards Integration

Based on the data it cannot be claimed that all participants fully integrate their theoretical and practical knowledge, but this does not mean one aspect of knowledge is valued over the other. Dan was very positive about what he had learnt from both school experience and university sessions. In his second interview, he credited the former with developing his understanding of why particular activities worked, but felt that university sessions helped him to understand bigger picture issues, like how to approach medium- and short-term planning. The theoretical and practical knowledge he has acquired are working together, but his comments do not point towards

integration. In a similar vein, Diana felt that she had not consciously referred to theoretical ideas when planning her lessons, but felt that it informed her work in the classroom subconsciously (I2). This may be an example of a progressive view of craft knowledge; the assimilation of knowledge based on research with a sense of purpose in the classroom to develop skills (Grimmett & Mackinnon, 1992). She did make a distinction between the "*ideal*" as presented in university as opposed to the "*reality"* of school. Her mentors did not feel that the "ideal" would necessarily work, but they were not necessarily dismissive and encouraged her to have a go (she describes the attitude: *"That's what you should aim for, this is what's probably actually going to happen"* I2). Nevertheless, she felt the university input was useful as a source of ideas that would inform and be developed through her teaching. It appears that there is evidence, here, of some integration of knowledge; it could be argued that she is "coordinating the acquisition of theoretical knowledge with practice in teaching skills" (Brouwer & Korthagen, 2005, p. 158).

There are responses that actively reject a theory-practice dichotomy, adopting the view that both theoretical background and classroom strategy are important and see the two as intimately connected. As Mark says "*I just feel like I've learnt the most from taking some of these things but just applying it myself and seeing how I've experienced what you've taught us basically*" (I3). This view is shared by others. For example, when asked about how she had developed her pedagogical knowledge over the year Alice talks about a particularly difficult class where she and the host teacher had worked together. She recalls *"I found* [the class] *really difficult at the start and we've tried loads of different things and now it's finally starting to work"* (I3). Abby gives another example where she also highlights the importance of knowing her pupils and, with support from her mentor, had been trying to make more effective use of cross curricular links. She says *"it's…how do you bring that out and bring it into citizenship which has been quite interesting. That's helped inform my knowledge of how students' minds work"* (I3). The theories are important but they must be tried, tested, reviewed and reworked in their own classrooms (Chi & VanLehn, 2012; Darling-Hammond, 2006;

Eraut, 2004). There was also a particularly interesting response from Libby here. She says *"all the techniques that you pick up are really important and understanding teaching is important, the best approach in each classroom situation,* [but] *you're never going to know what that situation is until you're in it"* (I3). Theory is important because you cannot predict the circumstances in which you might find yourself. Having had two school placements she is aware that *"every school context is different as well"* and she understands what works in one school may not necessarily work in another (demonstrating the importance of a substantive second placement as highlighted by Kelly and Pitfield (2014)). Libby appears to be moving towards a position where she thinks that theories, because they potentially give her tools for problem solving, have the potential to help her perform better in the classroom (Schön, 1983). Perhaps this is another example of the development of phronesis, as she starts to develop her ability to judge the best course of action in a given situation (Biesta, 2015).

Whilst divergent views were expressed in relation to how useful the participants find the theoretical elements of the course, there are none who reject this aspect of their training or feel a sense of disconnect between the development of their theoretical and practical knowledge that is often assumed to exist (Cochran-Smith, 2015). They do see a distinction between theory and practice, but they do not necessarily set the two as opposites and, when there is tension, their instinct by the end of their training is to try and pull the two together; not reject one in favour of the other. It is true that many, initially, drawing on instinct or swayed by dominant discourses, value the practical experience over the theory. However, the longitudinal nature of this study is important as it appears that their views evolved and developed over the year. What emerges is the idea that their classroom experience helped them to see the relevance of the background knowledge and theory. By the end of the year the majority seemed to feel they had a better understanding of teaching, learning and how to select the best approaches in the classroom and all participants indicate that they value both academic input and school experience and appreciate and that each informs the other.

Their strength of feeling and the point at which they come to recognise this can vary, but they do start to integrate the two sources of knowledge, using one to support and develop the other. At times it could be argued that this is inductive; on other occasions it could be seen as a deductive process. However, not all participants subscribe to this dichotomous view, with some talking about their experience in a way that suggests the development of phronesis is the result of learning theory and merging this with their experience-based knowledge. Both aspects of their training are useful and it is a continual, cyclical process of development and refinement where the two come together to develop their knowledge, understanding and skills.

4.3 Developing the theory-practice relationship

Having argued, based on the data, that the participants' understanding of the relationship between the theoretical and practical aspects of teaching develops over the course of the year, this analysis now focuses on what influences any changes in perspective (RQ3). In the research design it was assumed that the influence of their mentor and their academic work might be factors and specific questions were, therefore, asked about these aspects. In NVivo there was a specific code for data relating to their mentors, but comments about the assignment they had written added additional data to codes already mentioned (e.g., utility of theory). However, as the research progressed, it also emerged that their peer group and the way university sessions were taught might also be significant; consequently, in line with adaptive theory, in later interviews questions were added about these areas and, on the second round of analysis, a code was added specifically for data relating to "peer support". Data referencing the impact of university sessions were highlighted under pre-existing codes (e.g., "justification for subject", "PCK" or subject-specific codes), but the analysis was developed through the writing of memos. In the second section of this chapter we consider each of these potential factors to see what they each might contribute and how they might support the integration of knowledge.

4.3.1 Mentors

In the final interview the role of mentors in helping to make connections between theory and practice was explicitly explored (appendix 10). The participants are positive about the help, advice and support they receive from mentors (for example, Liz describes hers as "*unbelievably supportive*" I3), but the advice tends to be about generic strategies based on direct observations of teaching, rather than discussion of subject-specific pedagogy. This resonates with previous findings from Jones and Straker's study (2006) that mentors can focus on teacher behaviour and skills as prescribed by the QTS standards (DfE, 2011) at the expense of other aspects of professional development.

A key issue influencing some participants was being allocated a mentor who was not a subject specialist, despite previous studies showing that mentoring is more effective when mentors have the same subject specialism as their trainee (Hobson et al., 2007; Hobson & Malderez, 2013; Smith & Ingersoll, 2004). The most extreme example was for Mark, a historian, who did not receive any subject specialist mentoring. The mentor for his main placement was a PE and maths teacher and the mentor at his short, complementary placement was a scientist. He acknowledged that "*they struggled to comment, per se, on the subject content*" and *"usually the general gist was that, from what they could at least appreciate, the subject knowledge was fine and my targets have usually been set around other teaching standards"* (I3). The exception would be when he identified an area for development that related to subject content knowledge (rather than pedagogical knowledge). Unlike participants in other research projects, Mark did not present this as a criticism (Hobson & Malderez, 2013); nevertheless, he did not always have the opportunity to work collaboratively and engage in professional discussions about the 'what', 'how' and 'why' of teaching his subject on a regular basis whilst in school (Zanting et al., 1998).

Another participant who encountered a non-specialist mentor was Dan, a geographer. His main placement mentor was also a geographer, but in his short, complementary placement his mentor was a history and RE specialist. He commented that the

approach of the latter was to focus on "*my teaching pedagogy rather than my geography subject knowledge, so it's like, am I doing questioning, right? Is he differentiating?*" (I3), going as far as to say he felt he was teaching this mentor geography. However, his geography specialist mentor explicitly addressed subject pedagogy. He felt she expected him to have the content knowledge so that their discussion could focus on how to teach that content and its concepts to his pupils. In approaching her role in this way, Dan's mentor was helping to make practical knowledge explicit (Zanting et al., 1998), leading him to the conclusion that "*the biggest support has just got to be having a geography specialist as your mentor*" (I3).

Even when the mentor is a subject specialist it does not necessarily ensure that subject pedagogy is discussed. Both citizenship participants had mentors who talked to them about the content knowledge needed to plan lessons, but whose feedback focussed on more generic skills. In history, Jane talked about discussions with her mentor that: focused on routines, checking if pupils were off task, assessment for learning (AfL), questioning, behaviour management, etc.; all things which are highly relevant; however, she did not mention discussion of strategies or approaches to teaching particular topics or concepts. When asked about target-setting in relation to subject knowledge and pedagogy she did feel that pedagogy was addressed in target-setting, but the example she gave was "*ensuring that there's a range of activities*" (I3). This is relevant, but it does not engage with subject pedagogical debate in relation to teaching history. When talking about her progress against the QTS standards Jane said *"it really has been touch and go about whether I would get there*" so it may be, for that reason, discussion and targets tended to focus on practicalities rather than meta-discussion of pedagogical ideas. However, there could be numerous reasons for lack of focus on pedagogy, as noted by Hobson et al (2009) who indicate that this is a common issue. Alice had a similar experience; when asked about lesson feedback and target-setting, she talks about meetings where *"we talk about all my observations over the week, we look at what's common and pick* [the targets] *that are coming across*" (I3). When asked about targets relating to subject pedagogy she had not had any

because *"it's always come out as a strength"*. As there have been no issues with her content knowledge, subject had never been a focus in target-setting, yet it is clear from responses to other questions that they did discuss strategies and representations for particular topics (Grossman, 1990). The same is also true of Diana; she uses the word "*dialogue*" to characterise her lesson observation feedback discussions but, in relation to targets set by her mentor, she said *"we tend to focus then around the teaching standards"* (I3). She is not the only participant to mention the QTS standards (DfE, 2011) in this context suggesting some mentors adopt a competency-based approach, focusing on what trainees can do rather than what they know (Biesta, 2013).

However, Libby offers an example of a very different experience. She also talks about feedback that focused on differentiation and behaviour management, ensuring challenge and appropriate assessment for learning. However, when discussing the development of her skills, she describes a discussion with her mentor about her pedagogical approach to teaching geography that was a turning point in her teaching. She recalls that her mentor had said:

> *…so these are the underpinning theories of geography and every lesson you need to make sure one of them is underpinning your lesson' and he said that to me and then that's when I got better at teaching geography…* (I3).

Zanting et al (1998) argue that the explanation of practical knowledge of this kind is valuable to trainees for several reasons, including that it helps integrate theory with practice, and that one of the ways to achieve this is through making thinking about teaching explicit when discussing trainees' lessons. This is a point that had already been made to Libby in university subject sessions, but when a mentor reiterates it in the context of a discussion about her own teaching it becomes a pivotal point in her development.

The variations in the mentoring received by the different participants is potentially an issue as Ofsted report that "mentoring is critical for developing trainees' knowledge, understanding and practical application" (Ofsted, 2020, p. 20). The fact that the focus,

for some, is on generic observations rather than discussion of subject-specific issues is also a concern; effective mentors should be "subject experts" and have "a strong grasp of subject-specific pedagogy" (Carter, 2015, p. 6). Generic skills are important, but it drives the conversation back to craft knowledge and skills, rather than focussing on powerful knowledge and subject-specific pedagogy. Reitano and Harte (2016) argue for explicit modelling of geographical PCK (an argument I would want to make for any subject); Dan's experience of being mentored both by a specialist and a non-specialist offers insights into what a difference this can make; and, Libby's experience of specialist mentoring offers an example of how it can support integration of knowledge. However, whilst some participants encountered explicit modelling from their mentors, others did not, and Mark was solely reliant on host teachers for this. From a history context Monte-Sano (2011) discusses the dangers of mentoring that does not support pedagogical thinking and exerts influence on lesson plans, warning of the potential impact on the development of trainees if they are not given the opportunity to engage in broader pedagogical discussion. However, as the year ended Mark was demonstrating himself to be a practitioner who thought deeply about subject knowledge and pedagogy. Therefore, although good mentoring (of the kind experienced by Libby) can be key, there are clearly other factors that support the integration of theory and practice for the developing teacher.

4.3.2 Peer support

In the first interview, unprompted, many participants mentioned the support received from their subject peer group in the HEI context. Therefore, this was explored in more detail in the second interview (appendix 8). As this was an emergent idea, peer support had not been reviewed in the literature. Therefore, at the analysis stage, additional literature was explored so the findings could be considered in the context of current research. In the early stages of analysis, a code was set up in NVivo called "peer support" and, in the later stages, sub-codes were added to look at three emerging aspects – moral support, teaching support and subject knowledge and pedagogy support.

Moral support

A clear theme when participants were talking about their peers was the importance of moral support. There was evidence that all participants felt that interactions both within and outside sessions were important, and they very quickly established ways of keeping in touch whilst they were on placement. The word "support" was used often. For example:

> *the major thing is the support network; just seeing each other on a Friday gives you a chance to have a bit of a rant and we've decided that we're going to try and meet up at least once a week…just to keep ourselves a bit sane* (Alice I2).

The different sizes of the subject groups meant that this took different forms. Liz said of the four citizenship students *"we're like a little family … we speak to each other during the week*" (I2). With a small group it was easy to include everyone in regular check-ins, but within larger cohorts, smaller friendship groups formed to offer regular support. For example, Alice said *"like when I've been planning lessons late at night I can message one of the other geography girls and we're like 'Look I've got to do this'"* (I1). In general terms there is a sense that they are all in this together and having peers with whom you can share the highs and who understand the lows is very important. When asked who she would turn to if she was worried about anything, Libby said her first call would be to a "*friend on the course"* (I1). Diana found comfort and reassurance in the similar experiences of her peers (e.g., *"if you've had a really bad week at school…invariably somebody's had a similar experience or exactly the same experience quite often"* (I3).

Social media played an important part in the building of this support network. All the participants were involved in a subject WhatsApp or Facebook group. This is not uncommon within the profession, but research suggests that such groups do not usually engage with discussion of teaching practice, reflection on practice or feedback (Kelly & Antonio, 2016). However, whilst this may be the case in open groups, these peers in a closed group did appear to find support that went beyond moral support.

Within the subject groups, they felt comfortable in asking for help with content and pedagogical challenges. For example:

> *nearly every day someone puts on 'Does anyone have anything on this?' and we're all quite good at swapping resources now which is nice* (Alice, I2).

> *We have set up a Facebook group, which was quite useful when the assignment was going on, because people were posting 'I've done this, is this right*?' (Diana, I2).

It appears that these groups offer "safe spaces of reflection" (Lamb et al., 2013, p. 28) as the participants are not only asking for practical and moral support but, also, engaging with discussion around academic work and classroom strategies. Mercieca and Kelly (2018) found, in their research specifically exploring beginning teacher engagement with private groups on social networking sites, evidence of moral support and the sharing of resources; nevertheless, this did not necessarily lead to discussion about practice. However, some of the data indicate that their peer groups did develop to become another place where theoretical training and classroom practice were discussed and potentially developed and integrated. The fact that everyone in the group knew one another in person before connecting with them via social media may have influenced this and enabled more depth of discussion. The Carter review (2015) highlights the importance of secondary school trainees having the opportunity to come together in subject-specific peer groups. Although the reasons for this assertion are not expounded in the report, perhaps the subject-specific nature of the groups is another significant factor as it gave a specific context for the development of interactions that went beyond moral support.

Teaching Support

The fact that peer groups shared a lot of practical ideas was a point made by all the participants (appendix 16). They highlight that, as they often teach the same content (including GCSE specifications) it is inevitable that they can exchange ideas, sharing "knowledge of instructions, strategies and representations for teaching particular

topics" (Grossman, 1990, p. 9). This involves swapping ideas and resources, and there is a spirit of openness with an attitude that is "what is mine, is yours" and vice versa. Dan (I2) notes that the existing relationship is important in allowing them to feel comfortable in asking questions and making requests; furthermore, Libby talks about the pooling of ideas, indicating why it is so important that they can learn with others training in their subject (Carter, 2015). It may be that being part of a group where everyone was at a similar stage in their professional development (Lamb et al., 2013), supported this spirit of collaboration.

Generally, this is a sharing of outcomes – resources that have been developed and ideas that have been trialled – rather than something that necessarily develops their pedagogical thinking. Yet, there is evidence from the data that discussions sometimes go beyond this and that participants also started to address questions of content and pedagogy in their interactions with one another. This peer supported learning group may prepare teachers for the "kind of professional development that is much more grounded in collaboration and exchange with colleagues than is common in many schools" (Korthagen, 2010a, p. 104).

Subject Knowledge and Pedagogy Support

The participants and their peers supported one another with filling gaps in their subject knowledge. This is a particular theme with the geographers who tended to view their peers as human or physical geographers and, among whom, there appeared to be an understanding they would help one another address substantive gaps in their knowledge. For example, Alice said

> *X was quite good at helping me understand, when we were on the fieldwork what was going on with all the coastal stuff. …he's always like 'Do you understand?' and I'm like 'No.'…I do the same for him with human sometimes* (I2).

For some participants, development of substantive content knowledge was the main focus when looking to peers for support. When asked if conversations ever move into

the question of *how* to teach the content Dan said "*the actual 'How do I teach?' I don't think is addressed between us lot, it's more just the content I would say, is an honest answer*" (I2). It may be the case that the gaps experienced by geographers in their content knowledge meant that this needed to be the focus. However, for other participants the conversation moved beyond *what* to teach and started to address *how* to teach particular topics. For example, when asked whether the focus was on the what or the how, Diana replied:

> *How to teach it I think, because to know about the period I can go away and read the books, but it was things like, for example, it was a lesson on the Hitler Youth and I was thinking 'How do I begin to approach this?' And I said this and X, one of the other girls, basically said 'Have you thought about comparing it to Scouts.' And I was like 'Ah, that's good.'* (I2)

There is a similar example from Libby who describes a conversation with one of her peers about a lesson he had taught where he felt the pupils were just not "*getting it*". Based on her experience of teaching the same topic she was able to point out to him the misconceptions that she had encountered and suggest that that may have been the issue for his class. She notes her peers might be able to "*identify the misconceptions for you before you teach it, if you're teaching the same topic*" (I2). Being aware of and being able to identify misconceptions is a cornerstone of PCK (Grossman, 1990) and the fact that they are discussing this suggests pedagogical conversation in addition to support with content knowledge within the group.

It also appears to be the case that the citizenship trainees supported one another with developing pedagogy as well as content knowledge. When asked about pedagogical support Liz said:

> *we've got a boy, we've got someone who has got a faith and then we've got two people that don't, I think that works quite well. To be able to see it from a male point of view, or someone with a faith's point of view and actually how certain things you need to be wary of when you're tackling certain subjects* (I2).

This implies that the citizenship group supports the development of one another's knowledge and pedagogical understanding in a different way. This diversity helps members of the group think about the things they are teaching and the different perspectives that their pupils might have in response to any given topic. This is something unique to citizenship as it is based on the nature of the subject. The historians and geographers look to their peers to help them understand new content knowledge and for ideas about how to teach a given topic. However, citizenship, with its more personal and contested content, presents this group of students with very different challenges as they work to become "pedagogical and curriculum-decision makers" (Silva & Mason, 2003) and they find ways to support one another in developing knowledge and understanding in different ways.

Peer support is, potentially, another key factor supporting the integration of knowledge. Whilst within the peer groups participants do not tend to focus on explicit discussion that evaluates lessons in relation to theory (as was sometimes seen in work with their mentors), they do build a professional community which, as noted elsewhere, is important for beginning teachers (Carter, 2015; Ellis, 2007; Smith & Ingersoll, 2004). Each subject cohort forms a Community of Practice (CoP) (Lave & Wenger, 1991) who "share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger-Trayner & Wenger-Trayner, 2015, p. 1). The three elements that are crucial in defining a CoP are a shared domain (in this case the PCGE course), a community (who engage in discussion to help one another and share information) and a shared practice (teaching the same subject) (Wenger-Trayner & Wenger-Trayner, 2015). It is likely that the participants were members of more than one CoP during this year. For example, they may have formed a CoP with trainees from different subjects or with teachers from their department whilst on placement. However, the former does not offer subject support and the latter may have a different dynamic as other members of the community are "experts" (Burn & Mutton, 2015). These additional communities may have much to offer the participants, but this peer group offers unique support in that they share an

understanding of their subject that goes beyond common sense (Young, 2014) and they support one another to solve problems, develop confidence and address gaps in knowledge in a subject context.

4.3.3 Support from tutors and university subject sessions

There is also evidence from the data that the university subject sessions, including the support and ideas received from tutors, were another factor in helping participants integrate the theoretical inputs (i.e., from sessions, wider reading and assignments) with classroom experience. Initially some participants were clear about the fact that they did not think the university sessions were going to be useful. For example, Abby said "*I did think it was going to be an 'Oh my God I've got university on Friday, can't be bothered' type thing"* (I1). However, even in the early interviews, the participants were able to articulate what it was that they were going to get out of university sessions. Abby went on to say:

> *it's been the best part of the week, sometimes it's the bit that I've really looked forward to…this is my time, this is when I get my questions answered and I get to focus on the assignment and get that quality time* (I1).

This comment notes how valuable she found these subject days. Other participants, when asked about the university sessions, single out the input of their subject tutor as being particularly important in their development. For example, Mark explained:

> *the support we've had from [the university] in general but particularly from the history session on the Friday with [the history tutor], could not have prepared me any better really* (I3).

This example is interesting as Mark is the participant who did not have a subject-specialist mentor but was very engaged with questions about subject pedagogy. His circumstances perhaps forced him to engage in this reflection; nevertheless, he frequently references things his tutor has said about approaches to teaching history. Burn (2007) argues that gaps in mentoring cannot be filled by tutors as the "distinctive

contribution" (p. 458) of mentors is crucial for the development of pedagogical knowledge. However, it may be the case that, in the absence of specialist mentoring, a subject tutor can support the reflection needed to develop subject pedagogical understanding and engagement.

Many participants mentioned the pedagogical approach used to teach them as students. The tutors modelled some of the theory they were teaching so that participants could understand and potentially develop this in their own classroom contexts. Korthagen argues that teacher educators need "the ability to skip the theory for a while, to first create suitable learning experiences, and to promote reflection on these experiences" (Korthagen, 2010a, p. 104) and to give students a "guided induction into the tricks of the trade" (Korthagen, 2010b, p. 420). However, what they gain from these subject-based theory sessions may go beyond 'tips' and 'good ideas', as several participants highlight developing pedagogical understanding as a key learning point from these sessions. Abby says that her Citizenship subject sessions have not been about developing her knowledge, "*it's more been like pedagogy and actual activity-based, how to put things into a session"* (I3), implying that content knowledge is assumed and that sessions do not simply list things they can try, but couch this in the context of discussion about approaches to lesson planning and lesson structure. Pedagogical ideas are mentioned by more than one participant. For example, Mark talks about the *"enquiry-driven approach and investigating sources*" (I1) in history and in his final interview he comments that his tutor cautioned him against taking a "*very narrative approach*", instead making sure that lessons were very focussed on *"a key concept like causation, significance, interpretation, etc."*. In Citizenship, Liz notes that her tutor had *"gone into a lot of detail about things like dialogic learning*" (I1) and in geography Dan talks about how their tutor introduced them to *"different aspects of pedagogy… like the enquiry-based approach to learning, how valuable fieldwork is…"* (I2). The sessions seem to give them a clearer understanding of the issues involved in the teaching of their subject and the way they are taught as it helps them anticipate and appreciate misconceptions their own pupils

might experience. They also see that their training gives them an understanding of the bigger picture or *"an overview"* (Dan I3). They have both practical ideas they can use and a broader understanding of pedagogical issues to help them think about the adaptions they might make and the larger purpose they are trying to serve. Diana illustrates this point in a comment she makes when reflecting on her own teaching in relation to a comment made by her tutor:

> *I know I'm quite a creative person and quite like doing stuff like that, and then I sat in one of the sessions and [my tutor] said 'I've seen so many lessons that are fun and engaging and interesting but don't actually teach any history.' and I thought 'Oh…'* (I2).

She goes on to say that through this she had come to realise "*you can make it creative and fun but also have some history in there quite easily",* but the fact that she is able to recognise and articulate this is down to her being able to reflect on her own classroom experience whilst integrating this with knowledge and understanding gained from her tutor.

In general, participants seem to value their subject sessions. Burn (2007) notes that tutors can only give "indications of possible teaching strategies" and "tentative suggestions" (p. 458) as they cannot take account of the trainee's own school contexts. However, the participants appeared to take responsibility for extracting ideas, transforming them to fit their situations and integrating them with existing knowledge and skills (Eraut, 2004). Liz says "*there's nothing that I've learnt in [my tutor's] sessions that I think 'Well that's ridiculous, I would never use that'"* (I2). They give examples of strategies that they have taken from a university session for use in their lessons but talk about how they adapted and developed them to suit their pupils in their context. For example, they might run an activity but change the stimulus material (Liz, I2), try activities as they were presented to see how they worked and then develop them (Alice, I1), or adapt the structure for a different topic (Alice, I2). If integration is about coordinating the acquisition of theory with practice in teaching skills (Brouwer &

Korthagen, 2005), the modelling of ideas in university sessions seemed to help participants engage in this process by offering them strong foundations of professional knowledge and the skills to take responsibility for their ongoing professional development (Smith, 2005).

4.3.4 Academic Assignments

The participants allowed me to review an assignment which explored subject-specific pedagogy in the context of their classroom expression. To some degree, the interview questions were prompted by the work of Grossman (1990), who argues that one of the ways in which beginning teachers develop their pedagogical knowledge is through professional coursework, and more recently, the Carter review noting that "structured assignments" should be used to support trainees as they "apply theory in the classroom and reflect upon their experience afterwards" (Carter, 2015, p. 28). In the second interview, participants were asked about the process of completing the assignment and how, if at all, it had supported their development. Each assignment was then reviewed to form the basis of questions in the final interview. The assignments have not been used as data; their purpose was to serve as a starting point for reflection and discussion in the interviews. Here, the data generated by the second round of interviews is used in particular; the focus of the analysis is on whether the assignments played any part in supporting the integration of knowledge.

Although they had found it difficult to make time to complete the assignment, several participants commented on how helpful the task had been. Some are honest about the fact that, if it were not for the assignment, they would not have done any academic reading (e.g., Mark, I2). Dan talks about how difficult it was to find the time to work on it, but says:

> *Once you got started and once you were engaging with the literature it was actually quite useful for you to develop that knowledge and you could get different ideas and obviously reading through things that had never come to you before but can inform your planning. So, ultimately, I think it was useful as more of a learning opportunity for us* (I2).

Several participants articulated how it had helped both their understanding and their classroom practice and gave specific examples of this; for example, developing their awareness of how to select sources for use in the classroom (Mark, I2), helping them think about specific pedagogical approaches (particularly the enquiry approach (Alice, I2)) and helping them to get a balance in lessons between content and skills (Diana, I2). Diana also comments that she had taken in some of the pedagogical theory "subconsciously" in the university session. When she came to write the assignment, she realised just how much this input had influenced her teaching. This critical review of her practice had built her confidence as she realised that what she was doing in the classroom was supported by educational theory (Dymoke & Cajkler, 2010). She commented *"I feel as if I'm not making it up as I go along, there's actually some kind of basis for what I'm doing"* (I2). The process of engaging with the task required them to make explicit links between theory and research and their classroom practice (Carter, 2015), whilst drawing on disciplinary knowledge to inform their planning and teaching (Grossman, 1990).

However, for some participants, the assignment serves a different purpose as, through the task, they start to make a distinction between generic and subject-specific pedagogy. The target-focussed nature of the course leads some to think about generic issues (like effective differentiation or AfL) first when considering their targets for improvement. For example, when asked about theory Jane comments:

> *well would it be anything different to anybody teaching science? Everybody had the same lectures about the theories and everything in the beginning didn't they? I mean, yes, [our tutor] gave us some subject-specific material but, yes, you need to know the theories I think* (I2).

She is focussed on the generic and is not appreciating subject-specific theory with it's potential to help her see beyond everyday common sense and present her pupils with powerful knowledge (Young, 2010). Completion of the assignment also helped Libby to make this distinction for herself and appreciate the existence (and importance) of

subject-specific pedagogy. She explains how she had written a first draft but then decided to start again:

> *I ended up with a big section on AFL and then I was reading back through it and wasn't geography-specific at all. So then I was like, I found it really hard to make it geography-specific and I also had a big bit about differentiation which also wasn't geography-specific. So then I think I was like, a few days before the assignment and I thought 'You know what?' and then I just started a new document* (I2).

Alice understood this distinction, but felt that assignment helped bring subject pedagogy into clear focus. She says:

> *…think it made me think a lot more about the specific approaches to geography, the enquiry approach in particular is something that I hadn't really put into any of my planning or looked at. It was in there vaguely but not fully and I think after the assignment I decided that that was something I was going to focus on a bit more and try and put in* (I2).

Dan makes a similar point:

> *…now I've done assignment I realise that using the stuff about background and bringing all the stuff about pedagogy is quite important. The enquiry-based approach, challenging my HAPs has all come from academic stuff* (I2).

There is a clear link for Dan and Alice between the assignment and practice; Dan later admits *"my assignment made me change ways that I did things"* (I3) and credits it with being a key factor in helping him engage with pedagogical questions. It may be that, without it, they may never have engaged with the subject pedagogy which they later felt had a positive impact on their practice. They demonstrate some of the characteristics of understanding-oriented learners (Hobson, 2003) in that they can see how teaching techniques and strategies are supported by an understanding of educational practice to help them select the best approach in every situation. However, whilst some participants feel that the assignment is an important factor in

the development of their ability to integrate theory and practice, Abby felt that she may have reached this understanding without the assignment as *"I reflect anyway, regardless of whether there was an assignment or not"* (I2). However, she does acknowledge that the assignment *"contextualised"* this reflection and gave *"a focus"* and, therefore, perhaps accelerated the process. It appears that this assignment is an effective tool for helping students integrate theoretical and practical knowledge in a subject-specific context, even though they might be at different stages in their understanding and thinking.

4.4 Conclusion

Brouwer and Korthagen (2005) talk about "integration" of theory and practice as a deliberate strategy, although it is difficult to manage the experience of individual trainees in the level of detail they envisage. The reality of a large programme with over 300 trainees on different routes, starting with different levels of experience, in schools offering different levels of expertise and support, means that there is not necessarily a sense of "arranging competence acquisition as a gradual process in which each step forms a preparation for the next" (Brouwer & Korthagen, 2005, p. 158) in a detailed way. That said, the programme the participants followed was carefully structured with a clear attempt to support trainees progression through the year, although this was largely managed with reference to the QTS standards (DfE, 2011); a competency based approach that focuses on checking skills rather than on the development of knowledge.

Despite acknowledgement of the potential for tension between theory and practice (Korthagen, 2010b), Jones and Vesilind (1996) argue that trainees would reconstruct and develop the ideas they had encountered in their training, using their developing understanding of both the classroom and their pupils to inform this. The data from this project did support this perception; all the participants were taking ideas from their university sessions and developing them for use in their own classroom (Chi &

VanLehn, 2012; Darling-Hammond, 2006; Eraut, 2004). Yet, the data do not imply a simple, deductive view of the relationship between theory and practice. Sometimes the theory comes first but, sometimes, the experience does and sometimes the two are taken together. More emphasis could, therefore, be based on the idea of integration of theory and practice. In the final interview one of the participants explained:

> *…you can prepare us best you can with the information you can give us and all that sort of thing but until you actually do it yourself and realise why those things are useful you don't really appreciate why these things are important or how they actually take place* (Mark, I3).

He is pointing out that, without experience, the "*information*" [theory] they are given on the course is useless. But, when the two are taken together, they can see that theory is important, and it helps them to understand what is happening in their classroom. The prevailing view on starting the course may have been that more would be learnt in school but, over the course of the year, the value of theory to give broader understanding, context for their work in the classroom, and as a source of ideas that were used as starting points, is appreciated by all the participants. There appeared to be several factors working together that influenced this development in their thinking. The role of mentors and university tutors, their academic assignments and support from their peers were identified as key components.

Nevertheless, some participants struggled to integrate theory and practice when they were subjected to local professionalisms (Whitty, 2014) and accountability structures (DfE, 2016a). They found ways through this, supported by mentors and academic tutors (although for some participants one played a more prominent role in their development than the other), suggesting that strong subject-focussed support is crucial. The data support findings from earlier research that subject specialist mentors are most effective (Hobson et al., 2007; Hobson & Malderez, 2013; Smith & Ingersoll, 2004) although, in common with these findings, these data also indicate that a

specialist mentor is no guarantee that subject pedagogy will be discussed in an explicit way. However, some mentors played a key role in helping participants understand how to integrate their knowledge, bringing theory and practice together to develop their classroom practice. There is also evidence that, for some, the university tutors supported the development of their thinking in taking them beyond their context and allowing them to appreciate alternative approaches (Young, 2014).

The other factors with potential to support the integration of knowledge have been explored in existing literature, although previous research has often been in the context of knowledge transfer or with an alternative focus. For example, much of the literature relating to academic assignments in PGCE courses has focused on the challenges of writing at masters level (Brooks et al., 2012; Dymoke & Cajkler, 2010; Thomas, 2013). Findings from these studies echoed participants' comments about the practical challenges of completing assignments in a busy year, but the data from this project also indicate that the process helped them integrate theoretical ideas and their classroom practice. For some it supports critical reflection on their practice, giving them the ability to problematise their experiences and develop confidence in their skills (Brooks et al., 2012; Dymoke & Cajkler, 2010); for others it leads to the realisation that they need to give more thought to what it means to be a subject specialist. Grossman (1990) and Carter (2015) note the potential of tasks such as these in supporting beginning teacher development and for some participants it appears that this potential was realised as they came to see that theory offered understanding and ideas (Hobson, 2003) which could then be trialled, reviewed and built upon.

Alongside this were university subject sessions which gave the participants a peer group who understood their subject area and who were in the midst of similar experiences (Carter, 2015; Korthagen, 2010a). Again, previous research picked up on this aspect of ITE, but usually with a different focus (for example, exploring a particular initiative (Lamb et al., 2013) or considering the use of social media in creating supportive networks (Kelly & Antonio, 2016; Mercieca & Kelly, 2018). The data from this project do not contradict these earlier findings, but the focus on integration of

knowledge considers peer support from a different perspective. It seems clear that a CoP (Lave & Wenger, 1991) was formed in each subject cohort. Although it seems likely that each participant was also part of at least one other CoP, the one formed within their subject group kept conversations about how to approach subject-specific challenges going beyond the university teaching room or their classroom setting. They developed "pedagogic space" (Lamb et al., 2013, p. 30) with a group who shared the same focus, were reading the same articles, teaching the same topics and developing the same skills. For some participants this was an important factor in helping them to integrate theory and practice.

Chapter 5 - Powerful Subject Pedagogical Knowledge

5.1 Introduction

In the literature review I argued that, whilst craft knowledge acquired through experience is important, teachers also require knowledge which supports engagement with research (Coldwell et al., 2017; Goldacre, 2013a; Rose & Eriksson-Lee, 2017) and recognises the potential of the powerful disciplinary knowledge that they bring to the classroom from their undergraduate studies (Burns, 2019; Counsell, 2011, 2018b; Kueh, 2020; Young, 2014). In highlighting disciplinary knowledge, I also argued there were differences between subject areas which may influence classroom pedagogy. This chapter, therefore, seeks to analyse the data to explore the participants' perceptions of and attitudes towards subject-specific pedagogical knowledge (RQ1), the extent to which this influenced their classroom practice (RQ2) and the ways in which it was developed (RQ3). As differences between data generated in the three subject areas became apparent in the early stages of analysis, the discussion focusses on each subject separately. It initially explores the way participants view their own subject discipline within the context of the school curriculum and whether they make a distinction between *what* and *how* they are teaching as a basis of identifying subject-specific pedagogical approaches. It then moves on to consider whether they can identify subject-specific pedagogical issues in their own teaching, before finally reviewing the data for implications of this kind of knowledge for the participants' professional development.

In light of the findings, a new conceptualisation of teacher knowledge is offered: Powerful Subject Pedagogical Knowledge (PSPK). This brings together an understanding of teacher knowledge based on Pedagogical Content Knowledge (PCK) (Shulman, 1986, 1987) within each subject and Young's concept of Powerful Knowledge. The extant theory was developed following the adaptive theory approach (Layder, 1998); the analysis and discussion drew on data coded in NVivo using a code "PCK" which was set up based on Grossman's (1990) definition and, in later rounds of

analysis, subject-specific sub-codes (appendix 11) based on subject-specific interpretations of PCK found in the existing literature (Monte-Sano & Budano, 2013; Silva & Mason, 2003). From the outset there was also a code called "justification for subject", which collated data when participants made comments about the purpose of their subject, and one called "powerful knowledge". The data linked to these codes inform the analysis and discussion, leading to the development of existing frameworks to offer PSPK as a way of conceiving teacher knowledge. It is argued this is 'powerful' knowledge in that it gives teachers confidence to demonstrate agency in their classrooms, making informed decisions about practice in their subject, supporting reflection on their experiences and, in some instances, informing "professional scepticism" (Rose & Eriksson-Lee, 2017) in relation to their experiences. It is particularly noted that PSPK develops over the course of the year and that there are differences regarding how it manifests itself in different subjects. However, it is argued it is important for individuals to develop understanding of PSPK to support progress through their ITE year.

5.2 A sense of purpose

I have argued, drawing on my experience as a teacher, teacher educator and the review of literature, that there is such a thing as subject specialist pedagogy. Initially the data were analysed to explore whether participants had a clear understanding of the purpose of their subject and the extent to which they were aware of epistemological debates in their subject area and classrooms. This draws on responses from the first and third interviews, where participants were asked about the aims and purpose of their subject as it is acknowledged this can impact on their pedagogical approach (Grossman, 1990; Wilson & Wineburg, 1988). The first interview addressed the perceptions and attitudes of the participants as they started the course and whether, from the outset, they were conscious of subject specificity in their classroom practice (RQ1). In the final interview the focus moved to explore whether participants

were conscious of subject pedagogical knowledge impacting in any way on their classroom practice (RQ2).

5.2.1 History

Monte-Sano (2011) highlights the expert/novice divide in history teaching, concluding teachers should approach history as historians (as an interpretative discipline) rather than novices who see history as "what happened". The data indicates history participants were aware of this distinction from the outset. In his first interview Mark says he was dealing with "*those basic historical skills, thinking about time and how we look at time and how we use it, thinking about how we could look at a source and decide 'Is there some bias here? Is it reliable?*" He generally appears to adopt a view – shared by his peers – that "*you can have whatever idea you like about history as long as you can justify it using evidence*" (Mark, I3). When talking about developing pupils' skills there is an implicit understanding that historical knowledge needs to be examined and questioned. Broadly, this is talked about in terms of the "*skills of enquiry*" (Jane, I1), with repeated use of terms like "*reliability", "bias*" and "*analysis*" and questions regarding "*how do you get people to investigate the past?*" (Diana, I1). There is also awareness of the impact of epistemological discussions on debates about curriculum. For example, Diana raises the question of whether "*should we be very Britain-focused; should we be more world-focused?*" (I1) and Jane, drawing on her degree, talks about 'history from below', which focuses on the "*people who experienced history rather than wrote it*" with questions like 'How would you have felt if this was happening to you?' (I1). She has seen examples of pupils exploring questions like these in lessons at her placement school.

Diana highlights a key question for her as a history teacher. She says *"it's that whole 'Is history just saying what happened in the past? Is it teaching children to interpret what happened in the past?'"* (I2). As the result of previous study she, like Mark and Jane, is aware of epistemological debates within the subject and is demonstrating an expert rather than novice perspective (Monte-Sano, 2011). They understand history as a discipline (Counsell, 2017), believing there are different ways of knowing in history and

that their teaching should reflect this. They also acknowledge debates about approaches to teaching history. For example, when talking about the curriculum Mark says *"if you compare the 2014 curriculum with the ones that have gone before it, it is very, very, very fact-driven, very narrative, and I think that's where students get really bored and really disengaged"* (I1). However, they all appear to have adopted an approach which recognises the importance of the skills, and they are determined to support their pupils in accessing sources and then developing the skills required to engage with questions of reliability and bias in relation to these sources.

5.2.2 Geography

The geographers are all able to articulate the purpose of their subject, initially focussing on its potential to help pupils understand the world in which they live. They mention skills (Alice and Libby, I1) and "*knowing what's happening in the world*" (Dan, I1) so that pupils "*have an understanding of the … processes…both physical and human and how they interact together*" (Libby, I1). This practical application is sometimes applied to specific examples such as migration or climate change which, Standish (2017) argues, demonstrates a lack of disciplinary focus that risks allowing geography to stray into "other subjects or non-educational aims" (p. 97). However, underpinning this is the aim of introducing pupils to new ways of thinking about the world (although, initially, this focuses on substantive concepts like climate rather than being conceived in terms of 'big ideas' such as place and space, etc.). This, combined with the idea that they want to give pupils knowledge of the world and the ability to follow and engage in debate, does suggest, according to Maude's (2015) typology, the participants are recognising powerful knowledge within geography and are committed to making this accessible to their pupils.

Alice and Libby considered themselves human geographers, whilst Dan felt his degree was more "*rounded*" (I1) with elements of physical and human geography within his undergraduate modules. Much of their thinking and comment about their geographical knowledge starts from this point. Alice saw filling gaps in her knowledge of physical geography as her responsibility and was surprised to find they had taught

input on how to teach physical geography as she thought "*most of us should know the majority of that anyway*" (I1). Here, she appears to conflate content knowledge and pedagogical knowledge; she assumes having or developing the former is her responsibility and, at this stage, is not making a distinction between this and a session on *teaching* physical geography. All the participants were well qualified for entry onto the course and took for granted what they already knew. They focussed on gaps in their knowledge but, in reality, these were easily managed with support.

During the year, they continue to make links between disciplinary knowledge and their teaching. They have learnt about different pedagogical ideas and start to think about how they can use them to achieve their aims. Libby's position is particularly interesting. When discussing the purpose of geography education, she articulates a view held by others: "*I think a lot of people say that the purpose of geography is to make … students more aware of their surroundings so they can make better decisions for the environment*" (I3), but she disagrees and had come to recognise *"there's been loads of different changes in the thread of geography, so like radicalist geography and feminist geography and how that's transcended into the teaching"* (I2). This is an interesting observation as some would like to introduce approaches like these to school geography (Rawling, 2018) and Lambert (2014) argues that specialist subject teachers need to explore relationships between the school subject and the wider academic discipline. Libby may not be recognising the disconnect in practice, but she appears to understand there is a divide that needs to be addressed. The other geographers do not reference disciplinary knowledge in detail, instead focussing on questions of curriculum rather than epistemological questions. For example, in the first interview, they talk about sequencing lessons and demonstrating progress (Dan), understanding curriculum requirements, progression in topics between key stages and debates surrounding the move to a knowledge-based approach (Libby) and the difference between teaching for an exam and teaching "good geography" (Alice). They are aware of epistemological debates and challenges, but these are explored in the context of challenges in the secondary geography curriculum.

5.2.3 Citizenship

Having been introduced in 2002, citizenship is still a relatively new subject on the English curriculum and it is not always taught discretely in schools (George, 2018; House of Lords, 2018). There are no undergraduate degrees in 'Citizenship', and so students arrive on the PGCE from a range courses (in the case of these participants, *Journalism* and *Education Studies with Psychology and Counselling*). This could have resulted in very different perspectives on the aims and purpose of the citizenship curriculum (Grossman, 1990; Wilson & Wineburg, 1988) but there was no evidence in the data to suggest this was the case. They believe citizenship helps pupils *"to grow up and make well-informed decisions"* (Liz, I1) and that it "*impacts on everyone's life every single day, there isn't anything that you can do where citizenship doesn't affect you"* (Abby, I1). Both participants take the view citizenship "gives young people skills that are useful for getting on in life" (House of Lords, 2018, p. 28), but are aware it is often not valued in the school context. Liz felt, strongly, that she needed to be able to justify the place and purpose of citizenship on the curriculum. In her school pupils did not always see the importance of the key questions/topics (e.g., *"Why do we have human rights? What are they? Do they apply? Why don't they apply to everybody?"*). Abby felt this lack of understanding may be because Citizenship is not clearly identified within the primary curriculum and is not something that the current generation of parents studied at school. However, she was hoping to get "*a deeper understanding of Citizenship*" for herself. She could define citizenship and knew what was on the curriculum, but she described it as a "*skeleton*" that needed to "*flesh itself out*". She talked about the need to be clear on the importance (rather than the content) of the subject and, as the year ended, felt she had a much broader understanding of "*what actual citizenship is*". Initially thinking it would be looking at politics, political systems, laws, etc., in the final interview she said *"there's a lot more to it…* [looking at] *reasons as to why things have happened…bringing in the human rights side and just the 'why' really".* She admits "*there's lot of things that I didn't know that I thought I did*", but the more she learned the more enthused she became. She did more reading and looked for ways to utilise her new knowledge. She was consciously *"taking on that*

responsibility as a teacher" because she had learnt she needed to do more than say *"here's the information that you need to know".*

The citizenship participants did not expect to be taught content. Liz anticipated she would be learning how to teach the content she already knew and, at the same time, working to address the gaps in her knowledge. She felt she had not always had a good understanding of the subject - she did it at school but it was "*more like general studies*". She felt her content knowledge developed over the year, but there were still things she thought she needed to look at; "*just a couple of bits, not everything, there are some things that I feel quite confident with*". However, she was also conscious of the fact that sometimes there are no black and white answers.

As noted, above, there are differences between the citizenship participants and those from the other subjects who come to the course aware of the gaps in their content knowledge, but who demonstrate some understanding of the epistemological claims of their subject and its importance for their pupils. The citizenship trainees are passionate about the importance of their subject, but acknowledge they need to be more secure in understanding what they are trying to achieve and how they might approach this. This is not a fault on the part of the participants. Jerome and Lalor (2020) argue that work to identify the conceptual knowledge for teaching and learning in Citizenship is under-developed in comparison with the work done in other humanities subjects. These participants are not setting out with established principles to underpin their teaching because of the multidisciplinary nature of the subject (Jerome & Lalor, 2020). They find that they must engage in a process of developing conceptual knowledge for themselves (Jerome, 2018a).

5.3 Recognising Subject-specific Pedagogy

Having explored the extent to which participants were able to identify epistemological debates and recognise disciplinary challenges within their subject, the analysis sought to explore if they were aware of subject-specific pedagogy. Did they make a distinction between *what* and *how* to teach and, if they did, could they frame the

latter in a subject-specific way, given their specialist expertise? This section of the analysis particularly addresses RQ2, in exploring the links participants make between their understanding of subject pedagogy and their practice. The data come largely from the second and third interviews and were coded (appendix 11) using existing models of PCK in each subject area (Grossman, 1990; Monte-Sano & Budano, 2013; Silva & Mason, 2003).

5.3.1 History

The data showed participants were reflecting on how to develop pupils' historical understanding and thinking. All made a distinction between knowing about history and knowing how to teach it. At least two participants understood this from the outset and found it an engaging challenge. Diana was enthusiastic about history but her concern was "*how on earth do I try and communicate that to a group full of fourteen-year olds*" (I1). Mark later talks about the need to go beyond the "*superficial*" saying:

> *I probably didn't appreciate just how wide-ranging the techniques and ideas are within that and what you need to know and how to apply them… you could be a Masters level historian but if you don't actually appreciate how to teach the content that you know, you're not going to get it across in a particularly useful way* (I3).

Jane had initially thought the university sessions were going to teach some of the content knowledge she needed, but quickly came to realise *"it's actually teaching me skills on how to teach history"* (I1). By the end of the course she also came to appreciate this distinction, saying in her final interview "*it's all well and good knowing about history but you need to know how to get it across to the pupils to get them to develop and progress*". She admitted she had struggled more with pedagogy than with content knowledge. If she encountered a gap in her content knowledge, she found that easy to address, whereas pedagogical knowledge was more difficult *"because it is about getting them engaged and getting them learning and progressing, finding the right strategies"* (I3).

However, this realisation that they need to focus on *how* to teach as much as *what* to teach was potentially hampered by the constraints on curriculum they encountered in school. This became a particular issue when participants encountered a school where the curriculum was rigid, usually because of whole-school or even MAT-wide priorities (Whitty, 2014). The constraints experienced by Mark were explored in chapter 4. However, these also impacted on his development as a subject specialist. In the final interview he talks about a particular lesson:

> *I was looking back at my lesson plan thinking 'Right well at this stage according to my plan they should have understood all four key long-terms and we now should be moving on to look at some short-term trigger events.' And this was sort of forty minutes in, ten minutes later than my plan suggested, and they've still not really understood some of the basics.*

The argument could be made that a more experienced teacher might have been able to teach the trigger events in the time given, but he feels the pupils in his school lack "*confidence, literacy levels and just the general skills involved in history*" to be able to access these centralised lesson plans. He also talked about the impact of pupils in years 7 and 8 being measured against the GCSE 1- 9 scale. He feels this is "*ridiculous*", but "*that's the Academy policy, so that's what we're doing*" (Mark I2). He is being hampered by institutional policies (Kennedy, 2002) which are determining how he should teach his subject and accountability measures (DfE, 2016a) which are prioritising GCSE outcomes over curriculum decisions based on progression within the discipline. This is impacting on his agency as a subject specialist. He is developing the knowledge and skills to be an 'agent of change' (Priestley et al., 2013), but he does not have the freedom to use them.

Diana also mentioned the issues caused by being asked to judge all pupils on a 1- 9 GCSE scale and Jane talked about the impact of the new GCSE specifications. In her first interview Jane said "*it's very hard to do anything other than just get them copying off the board because they do want them to know so much*" (I1). This is an interesting observation in light of Young's work on Powerful Knowledge. There are questions the

participants need to engage with regarding whether they want them to know so much because of accountability measures or because there is a focus on making the curriculum "knowledge rich" (Rata, 2019). Even if the intention is to focus on the latter is does not seem that there are approaches in place to support this and build knowledge in a structured way; this presents challenges for a beginning teacher.

However, the development of strategies to turn history content knowledge "into lessons and materials that target the development of students' historical understanding and thinking" (Monte-Sano & Budano, 2013, p. 175) was a key theme in the data. Participants talk about the various ways that they are trying to make the content accessible and the lessons engaging for pupils. This ranges from Mark's "on the spot" ideas to explain the concept of allies and the use of props to engage pupils in learning about the peasants' revolt (I3), to Diana's planned strategies like walking essays and staging of a witch trial (I2), and Jane's development of a top trumps style game for one of her classes to learn about historical figures (I3).

There are also examples of a specific focus on developing disciplinary understanding and thinking specific to history (Counsell, 2017) that their pupils need. Diana comments "*I learnt a lot about how to strike the balance between teaching them stuff and teaching them how to interpret stuff*" (I2) and Mark highlights his view that every lesson needs to address "*a key concept like causation, significance, [or] interpretation*" (I3). Diana revisits this idea in the final interview, highlighting the challenge of addressing this whilst managing the constraints and challenges of working in a classroom with a diverse range of pupils. She says:

> *I'm always…trying to think about the historical concepts and continuity in change… obviously I don't get every one into every lesson but I try and get at least one in there. Sources, I probably don't use sources as much as I should do, but that's mainly because possibly a lot of historical sources, if they're written, they're written in quite archaic English which, when you've got a class that's 60% EAL it's going to be a problem.*

Diana is pulling together her epistemological understanding of her subject and considering how to address this, given the specific needs of her pupils. She is engaging with subject-specific pedagogical challenges and bringing all of this together to inform decisions about how to adapt her lessons whilst maintaining the integrity of her subject. It is important, in this situation, that she has agency so she can use this knowledge to act in the best interests of her pupils (Priestley et al., 2013).

Despite her awareness of epistemological issues, there is less evidence of Jane using this to underpin and influence her teaching in the same way as Mark and Diana. This highlights the possibility that a teacher can have a disciplinary understanding of history but not necessarily find ways to actively use this to develop teaching and learning. There is not enough evidence in the data to be able to make any claims in relation to this, but it does raise interesting questions about the importance of making a clear connection between disciplinary knowledge and pedagogical knowledge for teachers.

5.3.2 Geography

In geography, developing awareness of the broader context helped the participants identify pedagogical issues. From the outset Dan appreciated he was being taught "*how to teach the subject"* (I1). He talked about the development of the curriculum, recognising he needed to learn how to plan schemes of work and make fieldwork effective. In the final interview he talks about learning to 'read' the subject specifications from examination boards and realising "*that's why the specification's laid out like that, that's what they want you to get from it, they want them to be able to know these key issues and know how to solve them*". He recognises "the words on the page require interpretation and application by teachers to form a coherent teaching programme" (Lambert, 2014, p. 169). Libby also acknowledges this; when talking about teaching GCSE she says *"you can't just go in straightaway and come up with all these wacky ideas… you need to know what you are working towards at the end, you need to know what to include…*" (I1). At this early stage there is a lot of enthusiasm for the classroom activity ideas they are being given, but there is an emerging understanding that there are other things to be considered. They are

starting to demonstrate awareness of knowledge and beliefs about their purposes as well as curricular knowledge (Grossman, 1990) and are using this to shape their thinking and inform their practice.

In the second interview there is more confidence in their responses; as well as recalling strategies others have shared with them for teaching particular topics, they can describe how they have explained difficult concepts (Grossman, 1990). The ideas have not necessarily originated with them, but they are developing them for their context (Chi & VanLehn, 2012; Jones & Vesilind, 1996). Alice admits that, initially, she dismissed ideas she was given with a "*great idea, but it won't work in my school*" attitude (I2). However, now she tries to develop rather than dismiss them ("*I nick and try to adapt a little bit*") and she credits the first assignment with making her rethink this. Dan continued to be clear about the difference between content and pedagogy and, reflecting back, admits that initially he was thinking about his planning "*lesson-by-lesson*" but as he approached his second placement he started to think "*Right I need to think about this as a scheme of work rather than 'I've got a lesson on erosion, etc.*" (I2). He had always known this but, having gained classroom experience, he now understands why this is important. His thinking was increasingly informed by his developing understanding of geography curriculum issues (Grossman, 1990). He talks about the "*vast amount of content*" in the GCSE specification he is teaching and, as a result, the need to develop effective ways of presenting that information. He lists both generic and subject-specific activities he has used for teaching particular topics (e.g., erosion). The reading and research he did for his assignment led him to reflect on generic teaching guidance around issues like differentiation, and he started considering how to apply this in a geography context (e.g., developing pupils' ability to use specialist geography vocabulary). He commented "*once you were engaging with the literature it was actually quite useful for you to develop that knowledge … reading through things that had never come to you before but can inform your planning*" (I2).

In the final interview, all three are more confident and give a lot of attention to the enquiry-based approach to teaching geography. They feel this is an important and

effective pedagogical approach in their subject area, believing it more effectively engages pupils (Dan), gives pupils the opportunity to think for themselves (Alice) and that it is an important part of the way they think (Libby). Libby and Dan make a clear distinction between content knowledge and pedagogical content knowledge. Dan is explicit about this: "*when I came into it I had decent geography knowledge but it was knowledge that wasn't really for teaching…it's not like subject knowledge for teaching if you know what I mean?...I could have come in and lectured…but not taught…*" (I3). He is also taking the generic theory he has learnt over the year and is starting to apply it specifically to geography (e.g., "*they get more challenging vocab, geographical terminology from that article*"). They demonstrate confidence when talking about the decisions they are making in their classrooms. They are no longer simply delivering lessons; they are developing learning opportunities, thinking about how best to help their pupils develop geographical disciplinary knowledge and taking responsibility for the curriculum.

The biggest leap in pedagogical understanding was probably that taken by Libby. In the first interview she demonstrated awareness that she needed to think about the structure of the school geography curriculum rather than simply the content knowledge. However, two aspects of the course helped to move her thinking forward. Firstly, she had spent a considerable amount of time working on her assignment and then realised it was not "geography-specific" and so she restructured it around thinking about geography for enquiry, the effective use of discussion, geography for citizenship and map work. This developed her thinking about effective geography teaching and the wider curriculum. Then, in her second placement, her mentor helped her understand how geographical concepts should be informing her planning. She remembered him saying "*these are the underpinning theories of geography and [in] every lesson you need to make sure one of them is underpinning your lesson*" (I3) and was able to explain how this had changed her whole approach, giving her lessons a clear focus and outcomes. She gives an example:

> *I'd planned a lesson about Bhutan and how tourists can impact Bhutan because it had never before been visited and then he was like, 'So what is it that's underpinning this?' It was a bit of everything because it was a bit about the physical location of Bhutan, then it was a bit about something else, so then he was like, 'So underpin it all with sustainability…'* (I3).

I think there is evidence, here, of the development of powerful knowledge (Young, 2010). Her thinking had moved from a focus on activities in the classroom to taking responsibility for the learning as she, herself, is selecting the direction and focus to ensure her pupils' geographical understanding develops. She says, when asked about the importance of this realisation, *"that's when I got better"* (I3). For her, this is *powerful* subject pedagogical knowledge. It takes her from being a deliverer of the curriculum, to a class teacher with agency who has the knowledge to make decisions about the principles that underpin her lessons, based on her understanding of her discipline and progression within this discipline.

5.3.3 Citizenship

It seems more difficult for the citizenship participants to identify pedagogical knowledge in their thinking. It is clear from the outset that they make a distinction between content and learning how to teach it and, by the end of the year, Abby recognises her subject tutor had been developing their pedagogical knowledge (the "*pedagogy and actual activity-based, how to put things into a lesson*"). She feels that, initially, she did not always know how to approach topics, but she now has more confidence. However, in the final interview she finds it difficult to give specific examples of this and talks about more generic ideas (e.g., scaffolding and differentiation), although she was starting to make sense of the different strands of the national curriculum in her own mind and think about how much information pupils of different ages could cope with (Grossman, 1990). Silva and Mason (2003) talk about the need to move pre-service teachers from "teaching *about* democracy to a more complex, multi–layered approach of teaching *about*, *for*, and *in* democracy" (p. 374). I think it takes time for Liz and Abbey to engage with these perspectives.

Both participants were able to identify pedagogical issues they faced in their teaching. Liz gave several examples in her first interview:

- The challenge of getting pupils to see the other side of an issue. She uses the word extremist, although not in the context of terrorism (e.g., views about the role of women)
- Pupils' lack of engagement – particularly lower ability pupils ("*I don't care*")
- Pupils' struggle to see the relevance of the content for themselves ("*I'm only 15*")

These things had all been challenging from the outset and she mentions them, again, in the second interview where she is also starting to think about issues of diversity. In the final interview, these concerns were revisited, but Liz is now focusing on how she can address them. She worked to cultivate a classroom environment in which things could be discussed "*openly and freely*", she was thinking about the "*angle*" and "*pitch*" of lessons to support engagement and the need to "*spend more time giving more information*". She also realised pupils struggled to see different perspectives on issues because many of them had similar views, and recognised the need to develop pedagogical approaches to help address this (e.g., asking pupils to adopt perspectives that they do not agree with in a debate).

The points raised by both participants resonate with three procedural concepts for the basis of Citizenship proposed by Davies (2003): explaining, tolerating and participating. He offers examples of activities to illustrate each of the concepts, as shown in table 7.

Table 7

Procedural concepts in citizenship

Procedural concept (Davies)	Activities
Rationality grounded in critical appreciation of social and political realities	to explain their views, their understandings and their arguments
Toleration within the context of a pluralistic democracy	to tolerate, accommodate and reflect upon opinions and views that may be different from their own
Participation arising from an acceptance of one's social and political responsibilities and appreciation of one's own rights and entitlements (p7)	to participate in the consideration and debate of these ideas in the classroom and (ideally) use this experience and understanding in their life outside school

(Table based on Davies, 2003)

Points made by the participants could be aligned with each of these procedural concepts, suggesting this might be a helpful framework for trainee citizenship teachers to both conceptualise knowledge and develop pedagogical principles. However, based on their responses, I would probably add a fourth category: engagement (table 8).

Table 8

Additional procedural concept for citizenship

Additional procedural concept	Activities
Engagement with current issues and debate that go beyond one's own experiences	to demonstrate interest in and understanding of the relevance of substantive content in their own lives

The three suggested by Davies are skills that pupils could demonstrate whilst remaining passive (given that "participating" is about involvement in classroom

debate). Both participants want their pupils to be able to do all these things but, in addition, they both felt a strong need to help their pupils understand why any of this was important and value it for themselves. An example of this would be Abby, in a year 7 lesson about child soldiers, where the pupils *"couldn't physically understand it"*. She describes how she tackled this, using personal activities, video resources and reflective activities resulting in a lesson that she deemed *"successful"*. They both want to engage pupils in current affairs, make them aware of issues that are beyond their experience and help them see the significance of these issues in their own lives rather than simply tolerating or engaging with the content in an abstract and distant way.

Both participants understand the distinction between *what* and *how* to teach and are actively developing strategies, but they do not have established principles in which to root this development (such as the enquiry-based approach utilised by historians and geographers) or a clear disciplinary basis for their subject which helps them make decisions about planning and curriculum development. Liz focused on the dialogic approach (as suggested by her tutor) and both participants made an interesting point about links between citizenship and history - one of the disciplines that Standish and Cuthbert (2017) and Ashbee (2020) agree underpins citizenship. Abby felt that her pupils seemed to know lots about history and, as she developed a better understanding of her students, she was finding ways to draw on what they knew from history (like *"causation…why things have happened*" I3) and bring this into Citizenship. This, also, may support their attempts to ensure engagement/relevance; helping pupils structure their thinking around the importance of historical study may allow them to understand the need for engagement with the study of current affairs.

5.4 Developing pedagogical knowledge

Given that the participants understand the principle of pedagogical knowledge (as distinct from content knowledge) and can recognise some subject-specific aspects of this, analysis moves on to consider how the participants developed their pedagogical

knowledge within their subjects (which addresses RQ3). Ideas about this were often articulated through talking about the challenges they faced in the classroom, and the data that offered insights had usually been coded in relation to aspects of PCK that focused on developing the knowledge of students (Monte-Sano & Budano, 2013; Silva & Mason, 2003) and dealing with misconceptions (Grossman, 1990; Lane, 2015). This knowledge is often developed through time spent in the classroom, integrated with learning about subject-specific pedagogical approaches.

5.4.1 History

Monte-Sano and Budano (2013) conclude that developing knowledge of your pupils is one of the most challenging aspects of teaching history for early career teachers. The participants offered a lot of relevant comment in relation to this, much of it linked to what they saw as the barriers to pupils developing their disciplinary thinking, and ways in which they addressed this.

Issues with skills

A key concern, noted by Mark and Diana in particular, is the problem caused in the history classroom by poor levels of literacy. They give numerous examples of the ways this presents itself as an issue:

- Pupils do not have the level of English required to actually read the sources (Diana, I2);
- comprehension skills are not good enough to allow detection of bias (Mark, I1);
- pupils are unable to talk in an "eloquent" way that allows them to make the point (Mark, I1);
- they struggle when writing longer responses to questions (Mark, I1 and I2);
- lower ability pupils "*just don't like writing, they really struggle with it*" (Diana, I1).

This also connects to pupils not understanding some key ideas in history such as "bias" and "reliability". As Diana notes, there seems to be a mismatch between "*having the knowledge and the skills to assimilate and use the knowledge in a context*" (I3).

Despite these concerns, the participants do not identify strategies that they have used

to address this weakness in their pupils' understanding. More recently, the issue of literacy in a subject-specific context has been addressed in literature (Collins, 2019; Mortimore, 2020), suggesting that the participants were picking up on an emerging issue, but did not have the knowledge to address this in a subject-specific way.

Issues with historical concepts

The participants were aware their pupils struggled with opinion and interpretation and, as a consequence, they had to engage with ways of communicating what history involves and how one knows in history (Monte-Sano & Budano, 2013). The fact their pupils wanted things to be "black and white" (and struggled when they were not) was mentioned by all participants. Jane is clear that "*history is a grey area it doesn't have to be black and white*" and she has to encourage pupils to think more and develop opinions: "*there are no right or wrong answers in history as long as you've got the evidence to back it up*" (I1). Mark focussed more on interpretation as the year progressed. In his final interview he identified it as the biggest issue for him when addressing his pupils' disciplinary thinking (Monte-Sano & Budano, 2013). He wants them to develop their own views, but he says, "*the second they either hear a peer or me saying 'Well this is my idea.' they'll grab hold of that and not really attempt to think independently and muster their own interpretations*" (I3). Diana goes further saying "*I think they just don't have strong opinions about anything"*, describing "*unwillingness*" to commit to any definite opinion for *"fear of getting it wrong"* (I3).

The participants also frequently mention chronology when reflecting on what pupils find difficult in history. This is often mentioned by Jane who says "*they've just got no concept of time or period*" (I2). She thinks this is caused by a curriculum where one key event is studied immediately after another, leaving pupils with no understanding of the time that separates them ("*they think that the Black Death happened just before Henry VII came to power…They don't have a concept that…there was 150 years or whatever between it*"). In her final interview she revisits this, explaining how pupils struggle with dates and centuries: "*It blows their mind that we are in the 21st century but it's 2017…If you say what was witchcraft like in the 17th century they haven't got a*

clue, whereas if you said what was witchcraft like in 1650 then they would know". For Diana the issues are sometimes to do with the "*concept of the past*" at a more basic level. She gives an example where she asked how people got around when there were no trains or canals and a pupil suggested "*aeroplane*" (I2).

Abstract curriculum content

A key focus for Diana, when thinking about the development of pupils disciplinary thinking (and the barriers to this), is the abstract nature of much of what she is teaching. She noted several reasons why her pupils found it hard to relate to history. She was aware from the outset that pupils did not understand the importance and influence of religion ("*they find it really, really hard to understand that issues around religion could really be this life and death matter*" I1) and was still citing this as an issue at the end of the year. She also points out that the demographic of her placement schools sometimes meant students could not relate to the lesson content. As an example, she cites a situation where she was teaching abut Medieval Britain and a pupil said "*What has this got to do with me? My family were still in Somalia at this point*" (I1). After completing her second placement in a more multicultural context she is also aware of the impact of having Islamic pupils in her class when teaching about religion (I3). Diana appears to be "attending to students' ideas about history" (Monte-Sano & Budano, 2013). She is recognising the challenges faced by her pupils and identifying barriers to the development of their disciplinary thinking. She is still developing strategies for dealing with this challenge, but she has identified the problem and has recognised that it must be addressed.

5.4.2 Geography

Geography participants were made particularly aware of pedagogical challenges through dealing with pupils' misconceptions, which is perhaps unsurprising as the complex processes studied in geography can often lead to misunderstandings (Dove, 2016). The participants identified both conceptual and contextual challenges that they encountered in their classrooms.

Conceptual challenges

Some of the conceptual challenges they face stem from a general lack of understanding and awareness from some pupils. Alice became aware that "*they don't really understand what it* [geography] *is*" and admits "*it annoys me that they think Africa is a country*" (I1) as she develops her understanding of the need to explain to secondary school pupils some things that she had taken for granted. Libby identified more specific concepts which she discovered her pupils' struggled with and which limited progress. She gives the examples of understanding scale and locational place as concepts that pupils struggle to grasp (e.g., they cannot place their own town within the UK when asked if it is north, south, east or west). Dan points out, quite simply, that there are many key terms for them to remember. Although the examples given are different, all the geography participants are developing an understanding of the importance of pupils grasping key concepts if they are to progress in their learning.

Contextual issues

Two geographers also cited contextual issues that they realised would need to be overcome for their pupils' make progress. Libby gives the example of teaching about the Peak District to pupils who, despite living relatively close to the area, have never been there and have not necessarily experienced life outside the town where they live. She was in a context with a diverse school population, but in an area with some social deprivation and she found that, generally, there was a lack of interest in learning about other cultures. Alice was also conscious of the limited experiences of some of her pupils, but was aware there were no easy or quick fixes when it came to broadening their horizons and that some pedagogical strategies (such as the use of case studies) could compound rather than solve the problem. She said:

> *…they've kind of stopped letting you teach case studies particularly at GCSE because kids get the idea of a place and then they only know one thing about that place…the only thing anyone knows about Bangladesh is that it floods, because that's the case study that you do with Bangladesh and they don't know anything else about the country* (I1).

There is a growing understanding of the context and needs of their pupils, and the participants recognise they are going to have to find ways to make geography relevant to their pupils.

Finding Solutions

Much of the development of the participants' pedagogical skill seems to come from them finding ways to address and overcome these misconceptions. Lane (2015) identifies four broad categories of response when researching experienced geography teachers' knowledge of misconceptions:

1. Limited or no knowledge of the common alternative conceptions held by students;
2. knowledge of specific alternative conceptions in a narrow area of the topic;
3. knowledge of general (rather than specific) areas of difficulty;
4. detailed and comprehensive knowledge of students' common alternative conceptions.

In relation to the first and fourth of these, all the participants identified some misconceptions, and we cannot claim that any of these beginning teachers had 'detailed and comprehensive knowledge' at this stage. However, the second and third of these categories are present in the data. The participants give lots of examples of specific alternative conceptions within topics. For example, Libby also gives the example of pupils mixing up compass points (I3) and Alice talks about the challenges of helping pupils distinguish between global warming and the hole in the ozone layer (I3). Although the participants can identify the problems, they admit that, despite help from their mentors, they are still finding it difficult to explain these things. However, they are working on this; as Libby says concerning trying to explain to pupils that going upstairs is not going north "*we had the globe…I don't think he ever got it, and it was me and my mentor…saying 'Oh but what about this?' and it would just not go in"* (I2).

Alice particularly highlights the challenge of addressing misconceptions in physical geography. Here, there is a move away from the specific to general areas of difficulty (e.g., explaining physical processes like "*global atmospheric circulation and high and low pressure*" Alice, I3). Dan thinks *"some aspects of it are quite scientific and quite difficult for them to understand"* (I2). Nevertheless, the participants are developing strategies to help explain this. Alice has realised it helps to compare concepts to something "everyday". She says "*so when we're talking about the effect of the sea and the land and the different cooling, talking about a cup of tea and a piece of toast…comparing it to something they understand a bit more"* and "*we looked at, with that girl that didn't understand plate tectonics, it being a bit like and orange and the places being the orange skin"* (I3). She has also developed more practical strategies; when explaining high and low pressure she suggests "*get them to lie on the floor and put a pile of books on their chest…if you lift it off they understand that the air is rising…then they're like 'Oh yes it's low pressure because it's not heavy anymore*" (I2).

For human geography Libby gives an example of another area of difficulty: *"all of my Year 7s keep thinking that population links to development…they all think that if somewhere's more populated it's more developed*" (I3). She tackled this through discussion by asking "*so does everybody get to choose where they live in the world?' and then it's, 'No', 'Oh, why don't they?'"* She then outlined the questions she would address to both higher and lower achievers before checking learning: "*'Okay, so stand up if you think if it's more populated it's more developed'*". She admitted that, at this point in one class, four pupils stood up. However, in these examples the participants are dealing with general areas of difficulty. These are multi-faceted and, in some instances, complex. They are finding ways to address these misconceptions, but this is a challenge and something they are continuing to develop.

All three geographers recognise the fact that there are things in geography that pupils find hard and that lead to misconceptions and misunderstandings. Although they have been told about this long-acknowledged and documented challenge for geography teachers (Dove, 2016) in university sessions, it is when they experience the problem in

the classroom they realise things that are straightforward for them are not straightforward for their pupils, and recognise that they need to find ways of addressing and overcoming this. Lane (2015) found that informing teachers about pupil misconceptions is not enough to influence their understanding or change practice, arguing that the focus needs to be on developing teachers' epistemological beliefs. However, the data indicate that the participants integrate their experience with their developing epistemological understanding and subject pedagogical knowledge; through this they develop their agency and take on this challenge for themselves.

5.4.3 Citizenship

In the first interview, Liz admits that, previously, she did a lot of her teaching on "*autopilot*" which could be linked to a craft or tacit view of teacher knowledge (Boyd & Bloxham, 2014; Brown et al., 1993). Exposure to generic ideas and theories once she joined the course helped her recognise things that she was already doing and see ways to develop this. Abby appreciated her subject tutor demonstrating classroom activities in their sessions (she found this "*thought provoking*"). The sessions had also introduced Abby to ideas - such as philosophical thinking - that she had not previously encountered. However, through the year, they both encountered pedagogical challenges and started to develop ways to address these.

Neutrality and alternative perspectives

Questions to do with teacher neutrality and how this influenced their pedagogical approaches is something that both citizenship participants considered during the year. In the second interview, Liz admitted "*it's really hard sometimes not to put your own opinion in*" (I2) admitting she had noticed her PowerPoint images sometimes gave away her bias if she was not careful. At the same point, Abby was concerned about the perspective, experience and skills of her pupils. For example, she talks about the challenge of getting them to express an opinion and acknowledge differing views, noting that they struggle to accept that someone else might think differently and find it hard to write down a different opinion, particularly if there seems to be a majority

view. She is conscious that they find it hard to see the world from a different perspective; for example, understanding what life is like for child soldiers. To address these challenges both participants were starting to develop their own pedagogical strategies. Abby was developing approaches that focused on self-reflection to develop empathy (e.g., using video to expose them to issues that were beyond their experience). Liz was developing dialogic approaches (Alexander, 2017), encouraging pupils to argue positions that were not necessarily their own and trying to establish a classroom context where no pupil could assume a peer was necessarily representing their own position.

For Citizenship at least, this question of positionality is a pedagogical one. Silva and Mason (2003) argue that civics teachers develop PCK by "raising questions about civic content, pedagogical strategies, the school and classroom context, their students, available resources, and their own beliefs" (p. 373). Here, the school and classroom context, and knowledge of their students and their own beliefs are coming to the forefront of their thinking; both participants are starting to develop pedagogical approaches that take this into account and can support their pupils' progress.

Dialogic Learning

An aspect of pedagogy, which Liz in particular highlights as being central to her teaching, is the effective use of questioning. She was introduced to the concept of dialogic learning (Alexander, 2017) by her tutor and was starting to ask questions in lessons that allowed pupils to reflect on and analyse their own views. This was still a key focus for her by the time of the final interview. She continued to think about this in detail, supported by wider reading as well as observations of and advice from her colleagues. For her, dialogic learning was key. She felt that classroom debate was important, but that it must not "*completely unfold into carnage and a massive argument"* (I3). She wanted pupils to demonstrate they can listen to the views of others and disagree with them in a respectful way when necessary. She talked about the importance of establishing a "*safe space*" for doing this. In the final interview, she also talked about the use of sources within Citizenship education and the potential for

"*questioning them on what they've got in front of them rather than just trying to access what they already know*". Initially she was nervous about using sources, but that this has "*definitely been a really big thing*".

Citizenship and diversity

Liz was conscious that, particularly in relation to politics, some pupils discussed Citizenship content knowledge in the home environment and others did not. Abby agreed, saying *"they're quite oblivious at times"* (I1). This had an impact on general knowledge and understanding, but Abby highlighted the additional pressure of "*challenging preconceptions and the attitudes that some children have that have presented themselves in some lessons*" (I1). This created pedagogical challenges as they both considered how to develop pupil engagement and balanced dialogue in their lessons. At the start of the year, Abby was particularly concerned about pupil apathy but, as the year progressed, she tackled this through creating lessons where pupils brought in things that they wanted to discuss and she worked to incorporate this into lessons.

By the time of the second interview both were thinking about questions related to diversity. Liz talked a lot about the pupils in her relatively mono-cultural school who simply did not understand the importance and impact of diversity. Developing respect for diversity is seen as a key element of the "citizenship challenge" (House of Lords, 2018, p. 10) and she came to understand this whilst undertaking her complementary placement at a smaller but more ethnically diverse school. She noted how a lack of experience of diversity influences pupils' perspectives; she had to teach about this, explicitly, and had become very conscious of the extent to which some students struggled with the concept. At the end of the year, able to reflect on this complementary placement, she credits it with helping her to understand more about different people's needs (Kelly & Pitfield, 2014). Abby also reflected on the mono-cultural context of her schools, noting this brings *"challenges and presumptions, prejudices…[it has] been a challenge at times, to challenge them in the right way"* (I2). These reflections on the social context from which many of her pupils came was the

source of further reflections at the end of the course. She talks about the preconceived ideas she encounters in some of her pupils and is conscious of the fact that, in a worst-case scenario, this could become a safeguarding issue where there is potential for "*white radicalisation*" as she has encountered pupils with "*really distorted views*" (I3) from which she must protect other students.

5.5 Seeing the potential in subject pedagogical knowledge

Having explored the extent to which the participants were aware of, could identify and were developing subject pedagogical knowledge, the analysis turns to consider whether participants recognised how this might inform their planning and teaching. This, again, addressed RQ2, but also offered an opportunity to see whether there was any change in their perceptions over the course of the year (RQ1 and RQ3).

5.5.1 History

We see evidence of history participants particularly referencing subject pedagogical knowledge in situations where they feel constrained and are not able to choose their pedagogical approach. Whilst all three experienced this to some degree, as noted in the previous chapter, Mark in particular was not always able to use his knowledge with autonomy. This had an impact on subject pedagogy as he could not develop ideas introduced by his tutor or discovered through reading and research. He says *"*[my tutor] *goes on about the enquiry questions and I think that's something that I always constantly try and include in lessons, and I have this slight stumbling block… every teacher in the department should teach the exact same lesson using the exact same resources and they shouldn't really be meddled with"* (I2). Even though it can be challenging for novice teachers, Mark is thinking about how to help his pupils understand the concept of 'knowing' in history, considering how the content could be presented more effectively given the difficulties his pupils experience in their disciplinary thinking (Monte-Sano & Budano, 2013). He pulls together different epistemological ideas about history to illustrate the choices that a classroom teacher could make and recognises that in lessons "*sometimes halfway through I think 'Oh I*

could have made this so much better'" (I3). He wants to employ his agency and be a 'curriculum maker', rather than a transmitter of knowledge (Young, 2018).

Jane feels constraints in different ways. She is concerned with giving pupils a "*proper idea*" of the topic but cannot do this in her 50-minute lessons. She highlights the challenge involved in covering huge chronological periods in a short sequence of lessons – what she describes as a "*whistle-stop tour*" - connecting key events one after the other, covering "*600 years in a term-and-a-half*" (I2). Mark, perhaps, demonstrates a more sophisticated understanding of the challenge being faced than Jane; nevertheless, he recognises that there are challenges in how to structure and present new substantive knowledge and recognises that the structure of the curriculum she is being asked to deliver does not necessarily offer an appropriate framework for her to address some of these challenges. She reflects on the challenge she faces in "*getting* [substantive knowledge] *across to the pupils to get them to develop and progress – what strategies to use…what engages them…it's all well and good me knowing everything there is to know about Henry VIII but I can't just stand at the front of the class going 'He was born in X, he did that'"* (I3). She recognises that she needs pedagogical knowledge to succeed, but is sometimes still thinking about this in broad generic terms (e.g., about strategies and engagement), rather than looking for disciplinary solutions to disciplinary problems (Counsell, 2017).

5.5.2 Geography

The geography participants are given freedom to plan their lessons in the way that they conclude is best. However, there are still moments where they recognise that their teaching needs to improve. In these moments they come to understand their subject better and they are pivotal for them going forward. For example, when talking about her first assignment Libby describes how she evaluated her teaching in the light of her reading about pedagogical approaches. She says:

> *I did a lesson that I actually thought was a really good lesson and then when I actually compared it to…Margaret Roberts…she sets out this little plan of how it should be and it should be like creating a need to know using data to interpret*

> *it…and I thought I'd done that and I then went to assess it…and I was like 'Oh right, I didn't really use data'. I gave them data but there was no manipulation to the data…so I'm definitely not smashing it as much as I thought I was…* (I2).

At times this can feel overwhelming; in the final interview she says "*I've realised that there's so much that I don't know… I get complacently arrogant...[I think] I'm really good at rivers and then I teach it and I'm like, no….that's difficult isn't it?"* As noted, above, her mentor had helped her see there needed to be a geographical principle underpinning every lesson and that content knowledge, alone, is not enough. She is now trying to frame her lessons that allow her pupils to develop new ways of thinking about the world (Maude, 2016).

Dan demonstrated similar developments in his thinking. By his own admission he was initially working lesson by lesson, focussing on generic aspects of teaching activity, but he comes to recognise that his subject needs solutions from within the discipline (Howard & Hill, 2020). For example, in the final interview he says *"I was looking at research that was around stretching higher ability…the research that I drew from was all specifically in geography education books"*. He is aware of the bigger picture focus but, by the end of the year, is tackling generic issues in subject-specific ways when developing his planning.

Overall the geographers seem to be working in-context where they did not experience constraints; instead, they talk about the support received as they developed their understanding over the course of the year. By the time of the final interview, they seem to be articulating an appreciation of subject pedagogical knowledge and they are also indicating that this is crucial for them in how they approach teaching in their subject.

5.5.3 Citizenship

Again, responses from the citizenship participants are slightly different. In terms of pedagogical approaches there is some recognition of the development of subject

pedagogical knowledge, but comments are tentative and, based on them, it is hard to conclude whether this is important for the participants. For example, Abby says:

> *I thought it would be like looking at politics and how political systems are formed and laws and things like that, but actually there's a lot more to it…looking [at] the reasons…why things have happened, the history side of it, looking at bringing in the human rights side and just the why really, like the causation as to why things have happened and just fleshing it out…* (I3).

She is starting to consider how she should approach the teaching of citizenship to ensure that *"they understand why we're looking at a certain issue or a certain topic it's really important for the students to understand how that feeds into wider society and why things are happening"* (I3). Her focus is on strategies (sometimes drawing on approaches associated with the teaching of history) to ensure that pupils engage with the content on their own terms. However, even at the end of the course, it feels as though this is something she has recognised relatively recently; it is perhaps too early to analyse the extent to which this this important for her. Both she and Liz understand the difference between content and pedagogical knowledge and credit both their tutor and mentors with developing their thinking and helping them understand what this means for practice; nevertheless, it is seems their ideas about this are still emerging and developing. Liz, particularly, is conscious of the importance of developing 'cognitive civic skills' for her pupils, but they find it harder to develop 'participatory skills' (as they sometimes find the pre-existing knowledge and attitudes of their pupils a challenge) and 'civic dispositions' (as they want to affirm ideas like equality and participation whilst being clear that they are not imposing their views on their pupils) (Patrick & Vontz, 2001).

The challenge is that there is not the canonical pedagogical theory for citizenship that exists for history and geography. This may be because of the multi-disciplinary nature of the subject, but the reality is, perhaps, that the fact it is overlooked in so many schools means that there is no impetus or support for the academic community in developing this. It is interesting that the comments made by the participants did, to

some extent, align with Davies' (2003) proposed procedural concepts; perhaps this is a possible starting point. However, based on my argument that subject pedagogical knowledge is important for teachers in developing their agency and in supporting them to become curriculum leaders and innovators, perhaps there is more to be done to support Citizenship trainee teachers, giving them a more coherent structure for the development of their pedagogical thinking, rather than leaving them to work this out for themselves.

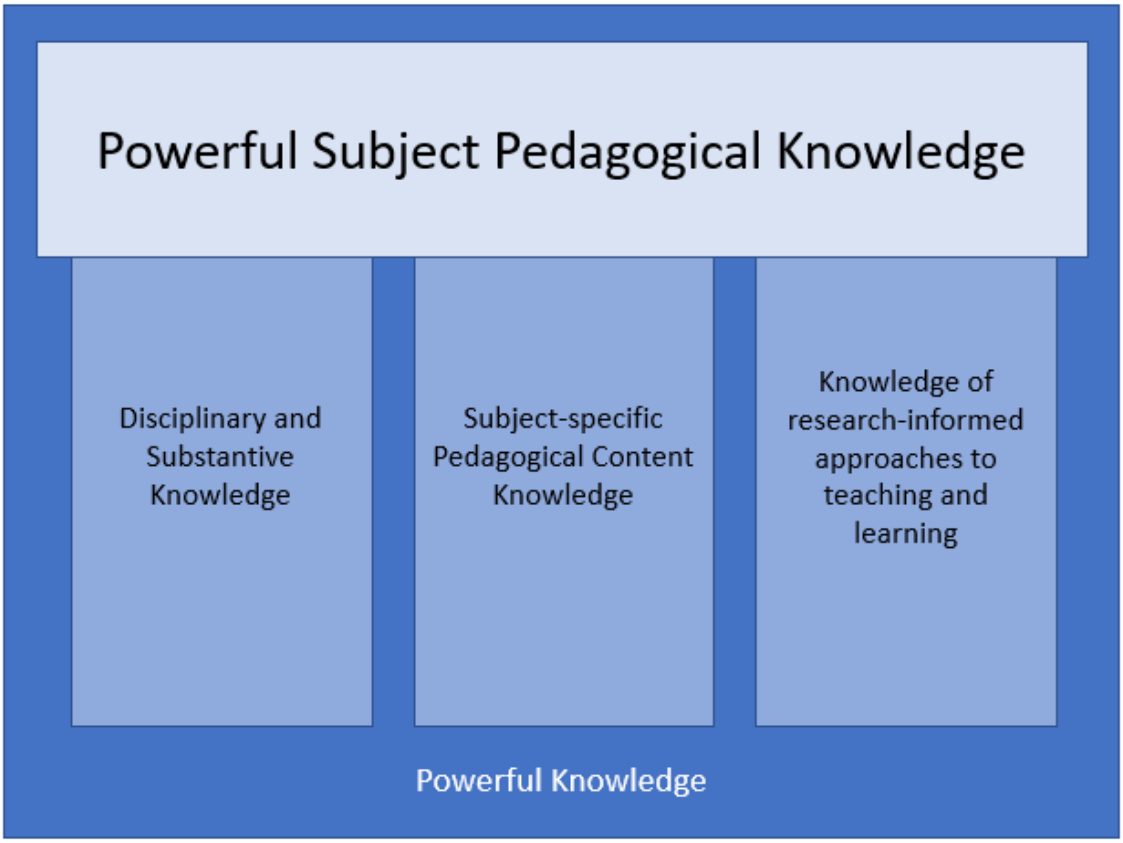
5.6 Powerful Subject Pedagogical Knowledge (PSPK)

A key idea that was formative in my own thinking at the start of this project was the diagram published by the TDA (2007) to conceptualise teacher knowledge (Figure 2) and this was shown to the participants in the final interview as a focus for discussion (appendix 9). In this conversation, when subject knowledge was mentioned, most still talked about subject knowledge, *per se*, referring to substantive content knowledge. This led me to reflect on the model and question whether it adequately outlines the knowledge required by teachers as, although they do not think about it in these terms when asked, the data indicate that students do possess some Powerful Disciplinary Knowledge (Lambert, 2016). They come to the course with substantive knowledge (albeit with some gaps) and their degree qualification has given them disciplinary knowledge that they are ready to use. However, there is still another kind of knowledge being developed, here. They learn how to present this knowledge to their pupils in a structured way that builds knowledge and ensures that they develop disciplinary skills. When they are supported to think about this in an explicit way (e.g., through the writing of assignments or the support of a subject specialist mentor or tutor) the participants engage with questions about purpose and pedagogy. For example, this is frequently seen in the responses of Mark and Libby who engage with disciplinary questions which go on to shape their thinking and inform their classroom practice. Therefore, I want to propose a new conceptualisation of teacher knowledge – Powerful Subject Pedagogical Knowledge (PSPK). Figure 9 offers a visual

representation of how PSPK brings together different kinds of knowledge required by teachers within the context of powerful knowledge.

Figure 9

A conceptualisation of teacher knowledge for ITE



In this model, three different areas of knowledge come together within the context of powerful knowledge and are reconceptualised as Powerful Subject Pedagogical Knowledge.

1. **Disciplinary and Substantive Knowledge** – Substantive knowledge is content that is taught as established fact (Counsell, 2018b). This might be knowing when key events took place, knowing the factors that can affect climate or knowing the stages a bill passes through to become law. Teachers need comprehensive subject knowledge if they are to be able to identify key concepts to underpin the

curriculum (Rata, 2019). However, as Ellis (2007) points out, substantive knowledge is influenced by disagreements, contradictions, debates and paradigm shifts. For this reason, an understanding of disciplinary knowledge is also important. Disciplinary knowledge is concerned with how that substantive knowledge was (and continues to be) established (Counsell, 2018b). Kueh (2020) argues that, through the disciplinary, pupils learn about shared knowledge and understanding in a particular field, describing it as "the sum total of the tools, norms, methods and *modus operandi* of the way in which humans go about exploring a field of human knowledge that has its own set of conventions" (p. 138). This is something that ITE students need to consider as part of the process of learning to teach. Whilst it might be relatively straightforward in history and geography and graduates in those subjects set out with an understanding of what this looks like in their subject, it is potentially more challenging for trainees in subjects that draw on multiple disciplines, such as Citizenship. I would argue that teachers in any subject need to be aware of the questions about disciplinary knowledge that are pertinent to their subject or, where this is challenging, have some understanding of the debate.

2. **Subject-Specific Pedagogical Content Knowledge –** Knowledge that focuses on how a particular subject is taught (Shulman, 1986). This includes understanding about teaching the subject to pupils of different ages, understanding any possible misconceptions and how to address them, developing knowledge of the curriculum and available materials and resources, and understanding how to present particular topics (Grossman, 1990).

3. **Knowledge of research-informed approaches to teaching and learning** – Knowledge a teacher from any subject discipline might expect to encounter and acquire through their training. It is likely to be guided by evidence-informed practice and policy documentation (such as the CCF (DfE, 2019)) and be rooted in the disciplines that underpin ITE (Eraut, 2000; Hegarty, 2000). This includes exploration of issues such as adaptive teaching and assessment and develops an

> understanding, based in cognitive science, about how children and young people learn. Acknowledgement of this knowledge is missing from other models (Ellis, 2007; Lambert, 2014) but, given the current context with local professionalisms and systems built for accountability, I think that trainees need this background knowledge.

This is underpinned by the view that, when this knowledge comes together, it is powerful knowledge which moves teachers from being deliverers of the curriculum, to being teachers who can draw on their knowledge of generic teaching and learning ideas and use their substantive, disciplinary and subject-specific pedagogical knowledge to develop the curriculum and plan and teach effective lessons. It is *Powerful* Subject Pedagogical Knowledge [PSPK] because, as the data indicate, this is more than something that students acquire; it is something they *need* to acquire as it gives them agency in their classrooms. For Young "powerful knowledge" is specialised knowledge that school pupils should have the opportunity to learn during their school career (Young, 2010); I am arguing this is specialised knowledge that a beginning teacher should have the opportunity to learn during their ITE course. I think that the data points to the existence of powerful *subject pedagogical* knowledge; knowledge for teachers about how to organise the subject matter, scaffold key concepts and present subject content knowledge in the context of their own specialist subject (Grossman, 1990; Shulman, 1986, 1987). This allows them to become "transformative agents" (Menter, 2017) as they work to develop the curriculum in a way that they could not if their knowledge did not extend beyond an understanding of generic teaching principles.

It is acknowledged that this is not always easy (Lambert, 2014), but, as we have seen in the data, the participants are starting to engage with this. For example, when Liz (I1) talked about learning about different theories of learning had made her move from "*autopilot*" she noted her realisation that "*I think I do that*" and went on to develop the ideas further. This was moving her away from tacit or craft knowledge to recognising her own agency and taking responsibility for the development of her

practice. Dan demonstrated what can happen when a beginning teacher has a good understanding of their subject; as noted above, he starts to reflect on the overarching aims of the specifications and consider what these mean in relation to curriculum planning. Libby is another participant who uses her specialist knowledge to construct meaningful learning experiences in her assertion that a geographical principle "*needs to underpin every lesson*" (I3). For a teacher, this knowledge is *powerful* as it gives them agency; they can take responsibility for the curriculum and have the knowledge and skills to develop and adapt it, maintaining the integrity of their discipline, but in a way that suits the pupils' that they have sitting in front of them in their context. It is underpinned by knowledge and beliefs about the purpose of their subject (Grossman, 1990). They have a clear sense of what they are trying to achieve and, should they ever find that this is at odds with either government or school policy, they have knowledge of pupils' understanding, conceptions and misconceptions (Grossman, 1990) so that they can navigate through this. It gives them confidence that they are being true to their subject and, combining their skills within their discipline with their emerging skills as a teacher, ability to plan for effective teaching and learning. They also have confidence in their judgements when employing "professional scepticism" (Rose & Eriksson-Lee, 2017) to critique curriculum or teaching approaches that they see in school (even if, at this stage in their career, it would not be appropriate for them to raise this).

5.7 Conclusions

Most of the participants demonstrate PSPK; whether the realisation that there is "*a way to teach*" (Libby, I3) their subject comes early or later in the year, I would argue that, by the end, they have developed an understanding of the distinction between *what* they are teaching and *how* they could teach this content and, increasingly, this understanding is contextualised within their subject. They can identify the unique features and challenges of their specialism and consider how to organise learning for their pupils. Some also start to explore solutions to more generic issues (such as

literacy, assessment and differentiation) from a subject perspective. In more than one instance, the trainees find that there are external constraints placed on their classroom practice during the year. However, despite this, or perhaps because of it, they develop clear ideas about the best way to teach pupils both substantive and disciplinary knowledge. They consolidate their knowledge and use it to work with the schemes of work they have been given, seeking to develop and improve them within that context. Participants without constraints have mentors who recognise the importance of utilising disciplinary knowledge to underpin and plan lessons (Counsell, 2018b) and work hard to help their trainees understand this. They encourage them to think about their learning objectives and try out teaching strategies and learning activities that will help them. For the participants, this is powerful subject pedagogical knowledge.

However, I would argue that it is easier to identify PSPK in history and geography than in citizenship. The two former subjects are identified clearly as disciplines (Counsell, 2017; Standish, 2017), whereas citizenship draws upon several disciplines (Jerome & Lalor, 2020), each with their own structures. It is more straightforward to ask historians and geographers to identify disciplinary knowledge, apply this to their own teaching, and explore how these subject structures can be presented to pupils in the classroom. When asked about misconceptions, they talk about concepts and ideas that students often misunderstand, and then identify tried and tested ways of addressing them. There may still be areas where their disciplinary understanding could be developed further yet, overall, there is a developing understanding of what it means to be a subject specialist and this understanding gives them confidence and agency. They come to see that their role requires good content knowledge (Rata, 2019) and need to engage in careful thought and interpretation as they seek to build a coherent curriculum for their pupils (Lambert, 2014). Therefore, although it is not always articulated in these terms, and despite the challenges for citizenship specialists, all participants do demonstrate developing understanding of PSPK. They are aware there are things to be considered when teaching their subject that are unique to it and,

because of this, they recognise the importance of the subject-specific aspects of their training.

Chapter 6 - Conclusion

6.1 Introduction

"I was probably of the assumption that I know a lot about teaching education and theory because I've worked in a school for four years … In reality I realise I didn't know that much at all."

These words were taken from the first interview with Mark, but others told a similar story. They did not necessarily understand as they embarked on the course that they needed to know anything beyond some "*strategies* [and] *techniques*" (Alice, I1) but, by the end, the majority were engaging with questions about the epistemology and purpose of their subject and how this translated into practice. This study sought to explore whether the participants understood that this kind of "knowledge" existed and, if they did, ask if was important to them. This conclusion returns to the research questions, considers the extent to which the data help to answer them and acknowledges the limitations of the study. It also draws together the findings from the research questions to outline contributions to knowledge and considers the implications for future practice and research.

6.2 Revisiting the research questions

As acknowledged, I approached this project with the view that subject specialism in ITE is crucial and I was concerned that, in a changing ITE landscape, the subject-specific element of training would be overlooked in favour of more easily organised generic approaches. Therefore, this study set out to explore whether ITE students could identify subject-specific pedagogical knowledge within their training and to see if they perceived this to be important. The four research questions, taking into consideration opportunities presented by a longitudinal study, addressed different aspects of this.

6.2.1 Question 1

> *On entering Initial Teacher Education [ITE], what perceptions of, and attitudes towards, subject-specific pedagogical knowledge (e.g., particular approaches to aspects of their subject, or understanding of subject-specific pedagogical issues) do trainees in humanities subjects have?*

The intention was to address this question with participants as they started the course, but the time taken to recruit them and set up interviews led to it being explored after the course content and structure had been explained and they had experienced both taught input and time in school. The interview questions took this into account, allowing participants to share their current thinking whilst giving them opportunity to reflect on their views as they enrolled. Much of the data generated indicate participants' views at the start of the year could be characterised as mixed. Some arrived expecting they would be given input on substantive subject knowledge, whilst others anticipated the course would focus on how to teach their subject specialism. The latter demonstrated some awareness of subject-specialist pedagogical knowledge, but their thinking appeared to be limited and underdeveloped. This is not unexpected as it could be argued that introducing trainees to the "crucial elements of knowledge, skills and understanding that all teachers need" (Carter, 2015, p. 3) should be the focus of *initial* teacher education programmes. All participants were committed to and wanted to teach their subject well, but when talking about pedagogy (even if they were not conscious of the term) they tended to focus on generic ideas, raising questions about the extent to which they are thinking about being a teacher of their subject (Priestley et al., 2013). This was particularly true of participants who had prior school experience. They understood the importance of challenges within areas such as assessment and differentiation and were aware of different generic strategies used to address these. For example, they knew their pupils needed to make progress, but had not necessarily considered what progression looks like within their subject (Ofsted, 2019a). From the outset they can identify substantive knowledge within their subjects

that pupils find difficult and are able to think of ways to address this (Grossman, 1990), but even with good disciplinary knowledge they do not necessarily understand, at this stage, how to apply this to their teaching. This highlights that trainees do not necessarily approach ITE aware that subject-specific pedagogical knowledge exists and is something they need to develop.

6.2.2 Question 2

Can trainees identify ways in which their understanding of specialist subject pedagogical knowledge and its relationship to classroom practice develops over their PGCE year?

The data indicate that, as the year progressed, participants developed their understanding of subject pedagogical knowledge and could make links between theory and their classroom practice in the context of their specialism. Initially, they assumed the university sessions would be interesting but that the real learning would take place in the classroom, or saw university sessions as a source of ideas and strategies they could take and use in their lessons. However, over time, they began to take ideas but then develop or adapt them – bringing "*a bit of personality and individuality as well*" (Alice, I1) – so that they were tailored to their lesson objectives and school context (Jones & Vesilind, 1996). Much of the development in their thinking arises from the challenges they face; they become more aware of common misconceptions and search for ways to address these (Grossman, 1990). Although it was never addressed directly, the data suggest that, at the end of the course, they still think most of their learning takes place in the classroom. They talked about the value of being observed, the importance of discussion with and guidance from their mentors, and appreciated the opportunity to try out ideas and learn what works in their classroom. However, appreciation of the subject-specific university input also develops over the year. All the participants approached the course assuming this would be an important element in their training, but did not necessarily think it would impact on their practice. At the end of the year their thinking has developed, albeit in different ways (Hobson, 2003) and, crucially in the broader context of the project, most recognise and value this

aspect of their learning. As Dan said "*I realise that using the stuff about background and bringing all the stuff about pedagogy is quite important…that's all impacted on my teaching and made it better*" (I3).

6.2.3 Question 3

What do trainees think has been most effective in helping them to make links between the theories explored in their university-based training and their classroom experiences?

The data suggested there were several important elements - opportunities to learn about subject pedagogy, support received from mentors and tutors, academic work and support from peers - that helped the participants integrate university-based learning with their school experience. It is important to be clear this is not a hierarchy, and these factors do not work in isolation. Those whose pedagogical thinking appeared to develop the most enjoyed learning about subject-specific theory, engaged meaningfully with their assignment and had a mentor, tutor and/or peers to help them integrate this with their practice. Lane (2015) argues that to develop their practice, teachers' should focus on developing their epistemological beliefs. This seems to be important as, for the participants in this study, most 'turning point' moments are rooted in reflection on approaches to teaching their subject, but this is most useful when coupled with classroom experience. Participants still supported the dominant discourse that learning on the job is best (Gove, 2010), but some indicated they learnt the most when they integrated theoretical knowledge with their experience, taking ideas and principles, adapting and developing them for their context, and then reviewing them moving forward. In this there is the potential for both theorising practice and particularising theory (Leinhardt et al., 1995). Brouwer and Korthagan (2005) suggest that this is a cyclical process and, although for these participants the cycle did not work in the structured way conceived by them, I think there is evidence of participants moving between theory and practice in an iterative way, developing both knowledge and practice at every stage. Ultimately, this learning adds depth to

their understanding which is valuable for them in the longer term. A key point is that, when they suggested their thinking had moved forward, it was usually because they had realised something about how to teach their subject. It should be noted that the questions asked them to reflect on this rather than generic inputs, but there are enough examples of subject-specific theory positively influencing practice for it to claim a place as a crucial element of ITE.

6.2.4 Question 4

Do university-led trainees and school direct trainees have different views regarding the importance of subject-specific pedagogical knowledge and its usefulness in their classrooms?

Little has been said in the analysis and discussion chapters relating to this question as, relatively early, it became clear there was little evidence to indicate that the ITE route chosen had any significant impact on participants' views regarding pedagogical theory and its usefulness in their classrooms. However, it became evident that other factors – such as age, undergraduate qualifications or prior experience - could potentially impact on their subject pedagogical thinking and progress. I would venture to suggest there is evidence in the data that prior experience, in particular, may be relevant, supporting Raffo and Hall's (2006) assertion that "complex and real interdependencies of personal biography, identity, predispositions" (p. 60-61) have the potential to influence the way that ITE students learn and develop. Those who had been employed in a school appear to have differing expectations of the course compared to those who had not. Their experiences may have shaped their ideas about the nature of teaching and learning, and the professional knowledge they needed to develop (Mutton et al., 2010). Participants with classroom experience seem to apply and evaluate their new theoretical knowledge more easily, demonstrating phronesis as they assimilate new knowledge and assess its potential (Grimmett & Mackinnon, 1992) in their context. Those with less classroom experience often take longer to appreciate that subject pedagogical knowledge exists and, perhaps because everything is new, take more time

to see how to use this in their teaching. As this was not addressed with the participants or explicitly explored in the analysis, these observations are tentative and no claims are being made. However, in terms of implications for the wider project, this serves as a reminder that there is a personal aspect that impacts on each individual in relation to how their knowledge and skills develop (Hobson, 2003).

6.3 Recognising the Limitations

Throughout the design, execution and analysis of this project, I have been very aware of my positionality. I was closely aligned with the participants in some ways – as a tutor on the course I had detailed knowledge of and a vested interest in their training – but I was not one of them and, in this sense, I had an outsider perspective (Coghlan & Brydon-Miller, 2021). However, I was potentially inviting criticism of a course in which I have invested a great deal, and the outcomes may influence how I see and carry out my role in the future. Therefore, I am aware of my potential bias and that it is sometimes hard for me to see alternative explanations when analysing data. I am also conscious that this project generated a great deal of data which could not all be used in the final study. I may have selected data that I personally found interesting and there may be other, equally important, lines of enquiry that were not pursued. I have tried to keep these potential issues in mind and mitigate against them wherever possible through adoption of the adaptive approach (Layder, 1998) which allowed for acknowledgment of my own subjectivity, and by using a thematic approach to the analysis (Braun & Clarke, 2006) which led to repeated reviewing and checking of the data when identifying and developing emergent themes. For example, I was interested in the participants' experiences of teaching as non-specialists. Whilst this had the potential to be very relevant, I recognised that the data set was not comprehensive and the data generated often related to my own specialism, RE. Therefore, I decided this should not be pursued out of concern that I may make more of this data than was appropriate based on my perspective. It is important to

acknowledge this, as similar but overlooked issues may have had an impact on the interpretations.

Another potential issue is that it has taken time to write up these findings. The data were generated in 2016-2017 and there have been a good number of developments in thinking about school curriculum (Coe, 2019; Ofsted, 2019a, 2019b) and subject specialism (Ashbee, 2021; Lambert, 2018) in the intervening period. Where appropriate, more recent ideas have been introduced via the literature review and used in the analysis. However, it may be that different approaches would be used if the project were being designed now, in the light of current thinking. Also, care has been taken not to analyse the knowledge, actions and perspectives of participants, mentors and tutors in 2016-17 using more recent ideas and guidance about the ITE curriculum that are impacting on courses in 2021 (DfE, 2019; Ofsted, 2019a, 2019b). These developments are considered in the analysis to support reflection on the conceptualisation of teacher knowledge and implications for practice in the future. However, there is an awareness that some of the ideas that now underpin ITE curricula were not included, explored or discussed in the programme the participants followed.

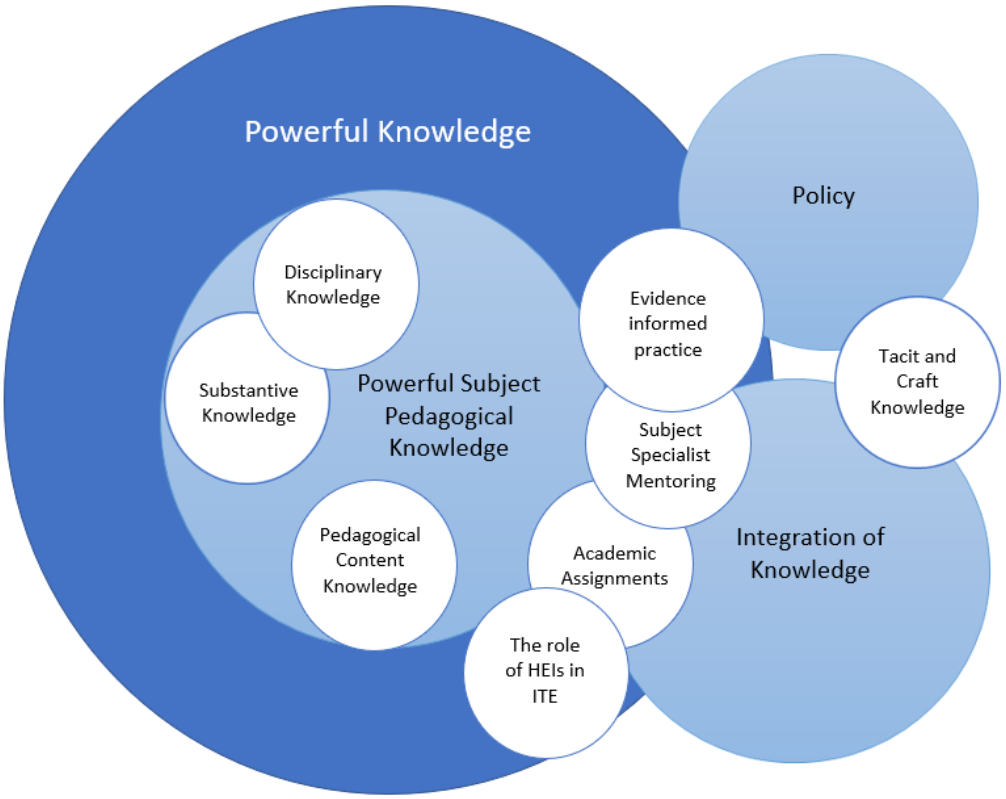
6.4 Contributions to knowledge

Awareness of my own positionality and the impact this has on my epistemological position led me to adopt an adaptive approach to this study (Layder, 1998), as this endorsed the position that social interactions are subjective, allowing me to acknowledge my own experience, whilst "simultaneously appreciating that such activity always takes place in the context of wider social setting and contextual resources" (Layder, 1998, p. 140). Therefore, the data were initially reviewed within the context of existing structures and research identified in the orienting concepts map (see Figure 6). This informed the initial coding of the data although, as the analysis developed, emergent findings were explored to consider if they added any new insights into extant data. From the outset, the intention was to review the orienting

concepts map in light of the findings. Therefore, a post-analysis conceptual map is offered in Figure 10 to show where some aspects of theory have become more or less prominent in my thinking, and demonstrate how they connect with ideas emerging from the analysis as I outline these contributions to knowledge. It is not claimed that this is a definitive or fixed conceptualisation of the relationship between these concepts. It could be argued that there are additional or alternative connections to be made and future research may result in further refinement or reconfiguration of this. However, the post-analysis conceptual map supported reflection on how my thinking about the relationships between the ideas had changed in light of the findings and it may offer researchers, policy makers and those involved in ITE ways of conceptualising the relationships between different elements of and influences on teacher knowledge in ITE.

Figure 10

Post-analysis conceptual map



This post-analysis map illustrates my reconceptualisation of the knowledge required by trainee teachers – PSPK – and shows how an approach that seeks to integrate practical and theoretical knowledge can support its development. This is understood to be powerful knowledge that gives trainees the knowledge and skills to take responsibility for curriculum development in the context of their subject. The map also highlights the part played by different factors, including emergent ideas, in supporting the process of integration and acknowledges the policy context that continues to impact on conceptions of teacher knowledge. Whilst the small-scale nature of this study means that conclusions need to be tentative, the epistemological position underpinning the research allows for results that, whilst not being generalisable for every context, are not so unique that they have no implications for others (Morgan, 2007). There is awareness that any conclusions are likely to be "fuzzy generalisations" (Bassey, 2001, 1999) but it is hoped they will offer both insights to support the development of ITE provision and open avenues for further research. Therefore, reconceptualisation of the knowledge required by trainee teachers as PSPK and indications of how this might be further developed through integration of theoretical knowledge with practical experience are offered as contributions to knowledge.

6.4.1 Powerful Subject Pedagogical Knowledge

My contribution to knowledge in relation to subject pedagogical knowledge is to bring together earlier work on PCK (Grossman, 1990; Shulman, 1986, 1987) with Young's concept of powerful knowledge to propose that PSPK provides a more adequate conceptualisation of how trainee teachers use their specialist subject knowledge to underpin effective teaching and learning. This involves developing understanding of the beliefs and purposes underpinning a subject, and of students' understanding and potential misconceptions, alongside knowledge of the curriculum and strategies for approaching the teaching of particular topics (Grossman, 1990). Young argues that powerful knowledge helps us go beyond our own experiences, giving power to those who have access to it and, as it predicts and explains, allowing those who hold it to "envisage alternatives" (Young, 2014, p. 74); he is talking about giving school pupils

powerful knowledge in the context of discussions about curriculum choices, but I think this also applies to ITE students. Ensuring that they develop pedagogical knowledge in the context of their subject specialism is giving them powerful knowledge: PSPK, which allows them to understand and explain what is happening in the classroom and see alternatives. This moves them from being deliverers of the curriculum to subject specialists with agency who can construct and develop the curriculum based on the needs of their pupils, whilst maintaining the integrity of their subject. It is my assertion that PSPK is an important element in the development of teacher knowledge and needs to be nurtured.

6.4.2 Integration of Knowledge

Building on this understanding of PSPK, I offer an additional contribution to knowledge in proposing that the best approach developing this is to view the connection between the classroom and university-based elements of the course as one that seeks to integrate knowledge (Brouwer & Korthagen, 2005; Leinhardt et al., 1995). Whilst this can be difficult, the data offer some evidence to indicate that it is possible for trainee teachers to adopt this approach rather than subscribing to an inductive or deductive view of the relationship between theory and practice. It is true that, for some participants, sometimes practice did come first with theory being applied later and at other times the reverse was true. However, some of the best learning experiences occur when they take the two together, seeing the process as one in which ideas are explored, context is considered, activities are trialled, and reflection takes place before the next stage in development. When talking about theory and practice the idea that they could "*bounce between the two*" (Liz, I1) was important to several participants.

When tension was encountered, it was because of experiences where participants wanted to trial approaches and, for different reasons, this was not possible. The most striking examples were where school or MAT policies led to prescriptive, local professionalisms (Kennedy, 2002; Whitty, 2014) that dictated approaches to teaching and learning. These constraints prevented participants from selecting or trying out new approaches and, in some cases, they were not allowed to plan their own lessons.

The policies that have led to this are beyond the control of anyone involved in ITE. However, it seems that any situation (even one beyond the control of the individual) can be a stimulus for reflection. If this is supported by a subject specialist (mentor or tutor) sharing PSPK and ensuring the powerful knowledge that allows us to "envisage alternatives" (Young, 2014) is considered, there is evidence that progress in thinking about subject specialist teaching can be made. Participants who most clearly demonstrated PSPK had been given clear support in thinking about their subject specialism by mentors and/or tutors. The challenges of training and developing classroom practitioners to become effective mentors are well documented elsewhere (Hobson et al., 2009; Spielman, 2019) and the findings reiterate this issue, whilst reinforcing how important and formative the role can be. Most often, this support did come from a subject specialist mentor but, if this was not forthcoming, a university tutor may be able to fill this role.

Other factors with the potential to support the integration of theoretical and practical knowledge to enable the development of PSPK were identified. Grossman (1990) suggests that "professional coursework" contributed to the development of PCK; the data support this but go further to make a case for the importance of academic work for the development of PSPK. Completion of assignments was a key developmental step for several of the participants. The Carter Review (2015) notes the potential of assignments to help trainees "apply" theory in the classroom and reflect on it afterwards. However, the data indicate that participants moved beyond a transfer "learn-it-here, apply it there" approach (Perkins & Salomon, 2012, p. 249). Instead, the assignment made them engage in research about teaching their subject (which some admitted they would not have explored otherwise) and, as a result, they developed a clearer understanding of subject pedagogy. Some found it affirming (it validated what they were already doing) but for others it changed their approach to planning going forward. Previous research had not considered the potential of academic work in the context of development of pedagogical knowledge and understanding. Therefore, this is a potentially helpful contribution to knowledge.

The data also highlighted the importance of peers in supporting knowledge development. It is acknowledged elsewhere that ITE students should be able to learn with others from their subject or at a similar stage in their development (Carter, 2015; Korthagen, 2010a). Research in this area tends to explore peer support with a particular focus (Kelly & Antonio, 2016; Lamb et al., 2013; Mercieca & Kelly, 2018). However, the support found within these groups does appear to exemplify key elements of a community of practice (CoP) (Lave & Wenger, 1991). The participants were potentially part of at least one other CoP (e.g., the department in which they were training or with trainees from their school or MAT). The research did not explore the relative importance of alternative communities, but the findings do highlight the importance of the subject-specific community. In addition to moral support, participants offered one another support with subject knowledge, planning and pedagogical knowledge. This was not structured in the way that other training activity (such as support from mentors, planned training or academic assignments) is, but it is vital in giving them a space to discuss ideas and challenges.

6.4.3 Subject specificity

In the analysis and discussion of PSPK each subject has been considered separately as differences were noted in the ways participants thought about the structures of their subject and how this impacted on their teaching. The historians found themselves grappling with questions of purpose (Monte-Sano, 2011), whilst geographers were more concerned with tackling pupil misconceptions (Lane, 2015). However, participants from both groups drew on the disciplinary foundations of their subject (Counsell, 2017; Standish, 2017). As single discipline subjects with an acknowledged place on the secondary school curriculum, they have well established subject communities who generate a wealth of writing about the disciplinary approaches that underpin provision and explore how this might translate into classroom practice (Counsell, 2017). Subject associations and academics focus on subject pedagogy and, as such, there is a pedagogical canon to which historians and geographers can be introduced.

As a newer, multi-disciplinary subject, citizenship does not have this body of literature on which to draw. The subject association and community work to develop agreed approaches and understandings. However, the data suggest that the nature of the subject, its omission as a discrete subject from many school timetables, and lack of a single disciplinary approach to underpin pedagogy, means that citizenship trainees are sometimes working out an understanding of citizenship for themselves (with support from their mentors and tutor). Other subjects on the curriculum are multi-disciplinary, where ITE students must engage with similar questions. However, perhaps because the citizenship community is small and the subject is not always taught discretely the progress, despite helpful contributions from Jerome (Jerome, 2017, 2018b, 2018a; Jerome & Lalor, 2020), seems slower. That said, there was a clear sense of progression in the understanding of the two citizenship participants as they developed their thinking throughout the year, and the data from their interviews offers some very helpful insights into pedagogical challenges (and solutions) in the citizenship classroom.

The distinctions that can be drawn between subjects highlights the importance of subject specialist training as recently highlighted in policy documentation (Carter, 2015; DfE, 2019). Every subject has different challenges that need to be tackled in a way that makes the content accessible to all pupils (Grossman, 1990) whilst maintaining the integrity of the discipline. For this reason, it is important there is a distinctive, subject-specific element to secondary ITE. Whilst there may be similarities between subjects (not least because of the multi-disciplinary nature of some curriculum areas) they remain separate and, if beginning teachers are to develop their own pedagogical understanding, they need to explore their subject on its own terms.

6.5 Implications for Practice

Whilst it is hoped that these conclusions offer a helpful contribution to academic discussions regarding ITE curricula, they are of limited value if we do not also consider

the implications of the findings for practice. Overall, there is a need for humanities post-graduate ITE courses to acknowledge PSPK more explicitly and be clear about what pedagogy looks like in the context of each subject. It is beyond the scope of this thesis or my expertise to make suggestions regarding this for other subjects, but there is much discussion within subject communities (initiated in part by the new Ofsted inspection framework (Ofsted, 2019a, 2019b) and research reviews (Ofsted, 2021b)) regarding what constitutes *powerful* knowledge and, in the humanities in particular, discussion about the distinction between substantive and disciplinary knowledge. However, identifying powerful disciplinary knowledge (Lambert, 2016) is only the first step; teachers then need to understand how to turn this into a curriculum that can be accessed by learners. In developing these skills, the participants started to feel agency. They were developing *powerful* knowledge that went beyond everyday (i.e., tacit and craft) knowledge to a point where they understood what needed to be considered when constructing curricula and planning for progression within their subject and school context. When participants brought these different aspects of knowledge together, some demonstrated phronesis – practical wisdom rooted in action. This drawing together of epistemic, disciplinary, research-informed knowledge with practical experience allowed them to make decisions that maintained the integrity of their discipline, whilst making learning accessible to pupils in their context. Developing this is important if we want to prepare trainees to be curriculum leaders and innovators in the future.

Developments in understanding are made easier with the support of a subject specialist mentor. However, the data also offer some encouragement that, in cases where no specialist mentoring is available, access to a university-based subject specialist tutor can help to fill this gap. This does not solve all possible issues; with no subject specialist mentor, the opportunity for integration of theory and knowledge may be hindered as there is no constant dialogue to address this and, as highlighted by Burn (2007), this is a gap that tutors cannot fill. However, it is a start and, particularly with a strong trainee, it can make a significant difference. Another relational factor

that can influence this is the opportunity to be part of a subject-specific peer group which the data indicate offers a unique and vital aspect of support. This does not present challenges when talking about subjects like geography and history where recruitment is relatively stable. However, how this is supported and nurtured within citizenship where group sizes can fluctuate may need more detailed consideration.

Finally, as a teacher educator, the findings give me cause to reflect on the place of the academic assignments within courses. I have always placed value on this, but I am often aware of students' struggling to find the time to work on it alongside their planning, teaching and marking. However, there are several participants for whom completing the assignment was a key development point as it forced them to engage in research and reflection in the context of their subject. Whilst it seems the assignment in its current form is supporting trainees in their professional development, the importance of this is something that needs to be remembered in any future reviews of the course.

6.5.1 Recommendations

Policy makers

- The importance of subject specialism should be recognised in any changes to ITE provision. If curriculum is a central focus, PSPK may offer a helpful way of conceptualising the knowledge required to support the development of teachers as subject specialists.

- In the organisation of ITE provision, ensure that there is scope to establish subject peer groups, particularly in smaller subjects where SD providers may have a single trainee from a subject specialism. Support from universities or subject associations could be used to develop peer networks.

- Be conscious of the restrictions "prescriptive knowledge" (Kennedy, 2002) and "local" professionalisms (Whitty, 2014) can place on the opportunities presented to trainees. It is important that they have access to ideas and experiences beyond their immediate setting.

ITE providers

- Ensure students recognise from the outset the distinction between content and pedagogical knowledge. The fact that courses focus on pedagogical knowledge needs to be made clear at interview and in the early stages of the course.
- Recognise that the pedagogical issues within each subject are different and, therefore, subject-specific elements of training are crucial.
- Ensure all students have access to subject specialist mentoring and a subject specialist tutor to support the integration of PSPK with their classroom experiences.
- Be aware of the potential for academic work to help trainees integrate theoretical and practical knowledge in relation to their subject specialism.
- Recognise the importance of the subject peer group to offer both moral/emotional support and to help with the development of their pedagogical knowledge. In recognising this, opportunities to let peer groups come together both formally and informally should be built into programmes.

Trainee teachers

- Take responsibility for addressing any gaps in content knowledge so that ITE courses can focus on pedagogical knowledge development in the context of each subject discipline.

6.6 Future Theoretical Development and Research

As with any research, despite the conclusions reached, the confines of this project leave open avenues that could be explored in the future. In terms of the academic underpinnings of this project, I am conscious of the links between the conceptual lenses I have used and Bernstein's (1999) exploration of the fields of knowledge production, re-contextualisation and reproduction (Ashbee, 2021; Singh, 2002). This view of the process, where meaning is made in disciplines (for example, in a university

setting) and then re-contextualised (by policy, curriculum writers and in ITE settings) to be reproduced in the school setting is very relevant to the conclusions reached. It may be that the process of re-contextualisation can be linked to PSPK as a way of understanding the principles that support this kind of knowledge and its formulation. There was no scope within this project to explore this further; nevertheless, it seems to be an interesting opportunity in light of the current focus on disciplinary knowledge (Counsell, 2018b) and knowledge-rich curricula (Rata, 2019).

There is also scope to further explore the ways in which different characteristics of beginning teachers might influence their ability to integrate knowledge and develop PSPK. As noted above, the choice of route did not appear to be significant in determining attitudes, but it did appear that prior experience may have been a factor, and age and qualifications are also defining characteristics which could be pertinent. It could be the case the factors identified that support integration of knowledge (peer support, assignments, mentors, etc.) become more or less important depending on individual teachers' circumstances. The data generated in this study could not offer any insights in relation to this, but there is potential to further investigate how support could be tailored for individuals.

Another avenue that could be explored is the potential to extend the longitudinal nature of this project and revisit these participants to see how their teaching careers have evolved, particularly if they have moved into curriculum leadership. It may help further understanding of PSPK and how it can be developed if we were able to investigate if any lessons learnt during the PGCE year have stayed with them. For example, many of the participants found that learning more was of benefit to their classroom practice; it would be interesting to know if they turn to reading and research when they want to develop their skills further, and if there are other ways in which they developed their PSPK.

6.7 The Last Word

Although I have acknowledged there is more to be considered and explored, I have argued, based on the data, that ITE should seek to develop PSPK to enhance practice and that it would be a significant loss if the subject-specific elements of the programme, facilitated by a specialist tutor and in the company of peers, was no longer a feature of ITE courses. As Mark said, when reflecting on the subject sessions he attended, they were important because they presented an opportunity to spend time "*not just with other teachers, but other history teachers*" (I3). To illustrate the fact that it takes time for the participants to recognise the benefits of a broader understanding, I want to end with a comment made by Diana. It seems fitting to give the final word to one of the participants in grateful recognition of the fact that they were all so generous with their time and so honest in their reflections and who, I hope, will remain passionate subject specialists throughout their careers.

…it's important to know what's going on in education more generally…at the start I was thinking I'm planning these lessons…and I don't quite know what's going on here! Can somebody give me some ideas…whereas now I think I'm...at the stage where I want to know about different schools, I want to know about different ways and different kinds of practice…there are so many different schools out there…

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Appendices

Appendix 1 – Participant basic information sheet

Students' perceptions of theory in teacher education and its relationship to practice

Interview 1 – Basic Information

Name	
Age	
Level 3 Qualifications	
Degree (including University, classifications and date of graduation)	
Route (Core/SD/SD Salaried)	
SD Provider and current school (if applicable)	
Previous experience *Please include*: Details of your employment between graduation and starting your teacher training. Any experience that is relevant to either you subject or to working with children and young people.	

Appendix 2 – Participant Consent Forms

Participant Consent Form

The place of theory in teacher education and its relationship to practice.

Please answer the following questions by ticking the response that applies

	YES	NO
I have read the Information Sheet for this study and have had details of the study explained to me.	☐	☐
My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point.	☐	☐
I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher.	☐	☐
I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.	☐	☐
I wish to participate in the study under the conditions set out in the Information Sheet.	☐	☐
I consent to the information collected for the purposes of this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes.	☐	☐

Participant's name (Please Print)	**Date**
Participant's signature	
Contact Details:	
Researcher's Name (Printed): Helen Sheehan	
Researcher's Signature:	
Researcher's contact details: *Contact details supplied*	

Participant Consent Form (January)

The place of theory in teacher education and its relationship to practice.

Please answer the following questions by ticking the response that applies

	YES	NO
1. I have read the Information Sheet for this study and have had details of the study explained to me.	☐	☐
2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point.	☐	☐
3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher.	☐	☐
4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.	☐	☐
5. I wish to participate in the study under the conditions set out in the Information Sheet.	☐	☐
6. I consent to the information collected for the purposes of this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes.	☐	☐
7. I consent to a marked copy of my assignment - What makes an effective [subject] lesson? - being accessed and used as part of the study.	☐	☐

Participant's name (Please Print)	Date
Participant's signature	
Contact Details:	
Researcher's Name (Printed): Helen Sheehan	
Researcher's Signature:	
Researcher's contact details: *Contact details supplied*	

Appendix 3 – Interview 1 schedule

Prior experience and choice of ITE route	
• Please complete the basic information sheet	*General settling questions - did you always want to be a teacher? etc.* *Ensure clarity around prior experience. Do they have any professional experience that is relevant to their subject?* *How/why do you think it is relevant to your career in teaching?* *Is your prior experience of particular relevance to your subject?*
• Why did you choose the training route (i.e. SD or University-led PGCE) that you have opted for?	*Did you consider the other option (or apply for both)?* *If SD what attracted to the provider you chose?* *What do you think are the advantages of your choice?* *Did you understand the balance of school/university time before you began?*
• Which aspects of the course were you most looking forward to as you enrolled?	*Why?* *What did you expect that you would learn during your training?* *What is there about the school based elements that excites you?* *What are you expect that you will take away from university based sessions?* *Have both the school and university sessions turned out to be what you expected they were going to be?*

Views regarding school and university taught sessions	
• Before the course began which did you feel was going to be of the most use to you - your time in the classroom or your taught sessions?*	*Why do you think you had that view initially?* *Have your opinions changed at all in the first month?* *Where does your best support come from? If you are worried/struggling, etc. who would you turn to?*
• What do you hope to gain from the university sessions?	*Are there things you are hoping to learn?* *Are these linked to subject knowledge per se?* *What do you hope to get out of subject sessions?*
• Tell me about the most useful professional studies session that you have attended so far (either in school or in university)?	*Why does this session stand out?* *What made it "useful"?* *How do you think that you will use what you learnt in your teaching?*
• Tell me about the most useful subject session that you have attended so far?	*Why does this session stand out?* *What made it "useful"?* *How do you think that you will use what you learnt in your teaching?*
Views regarding the content of taught subject inputs	
• If someone asked you why your subject is on the curriculum what would you say?	*What has informed this view?* *Would you have given me the same answer before you started the course?* *Has your thinking on this developed on this since you started the course?*

• What do you think are the key debates in your subject area?*	*Are there any:* · *essential theories?* · *controversies?* · *debates about teaching approaches or methods?*
• What makes your subject difficult for secondary pupils?*	*Can you give examples?* *Are there things that pupils often misunderstand?* *What do you need to know to overcome this in your classroom?*
Attitudes to the relationship between theory and practice	
• Please mark on the continuum sheet where you see yourself in relation to your attitude to this course*	• *Why have you put yourself there?* • *What is most important to you at this stage in the course?* • *Is your view captured on this spectrum or do you have views about the relationship in your work in the classroom and your school/university session that are not expressed here (e.g. do you actually want to dispute the nature and importance of theory at all?)*
• What has shaped and influenced your view?*	*Is this to do with preconceptions? Experience? Views developed whilst on the course?*

* To be picked up in later interviews to see if their views change/develop

Appendix 4 – Participant information sheet

Participant Information Sheet

Students' perceptions of theory in teacher education and its relationship to practice

I would be very grateful if you would take part in a study about the training students receive whilst on their PGCE course that I am undertaking as part of my Doctorate in Education (EdD). The research hopes to explore the connection between the training you receive in university sessions and the support and training you receive whilst you are in school with a particular focus on your preparedness to teach your specialist subject. You have been asked to take part as the study is going to focus on students training to teach a humanities subject (either history, geography or citizenship). You were selected randomly from those who initially volunteered.

Participation in the study involves agreeing to be interviewed three times during your training year and giving your consent to me reviewing your PGCE assignments once they have been marked. The three interviews will take place in October, January and June. Each of these interviews will be recorded using a digital recorder and afterwards transcribed for the purposes of analysis. In the interviews you will be asked your opinions about your training experiences and about your subject specialism, and each interview should last no more than one hour. In the final interview you may also be asked to discuss the assignments that you have submitted. All interviews will all take place at either Sheffield Hallam University or in your placement school. This will be arranged to be convenient for you. After each interview you will have the opportunity to discuss your participation in the project and, if you wish, to see transcription notes made following the interview you may request these.

Only I and my supervisors will have access to the data generated by this study. The data will be stored in line with SHU guidance and the 1998 Data Protection Act. Hard copies of any notes made and your assignments will be kept in a secure place. Electronic versions of any documentation that has not been anonymised (e.g. transcripts and audio recordings) will be kept either on an encrypted device or within the SHU password projected IT systems. All anonymised data will be kept in a secure place but will not be destroyed until 7 years after the publication of the EdD. At this point all data will be destroyed as confidential waste.

The data will be used to form the basis of my EdD thesis. It is also possible that, following submission of my thesis, I may write up some of my findings for relevant academic journals or present some of the findings at research seminars or educational conferences. No-one will be able to connect you with what is recorded and reported. No individuals or institutions will be named and no-one (other than myself and my supervisors) will be able to connect you personally with the study.

The data will be collected over the course of one academic year. Following this I will spend 1-2 years writing up the findings. At the end of the data collection year I can share with you informally some initial conclusions, but the main findings will not be available until I submit my thesis (probably sometime in 2018). At this stage I am happy to share with you a summary of my findings if you wish. Your participation in this study is totally voluntary and, should you change your mind, you may withdraw from it at any point during the data collection year up to 30th June 2017. If you wish to withdraw please confirm this in writing, using the email address given below.

If you have any questions please feel free to contact me at any time. You may also contact my supervisors if you have any concerns either during the study or after it has been completed.

If you are still happy to proceed I would be grateful if you could fill in the participant consent form. Many thanks in advance for your support and co-operation.

Helen Sheehan *(EdD Research Student)*

Contact details supplied

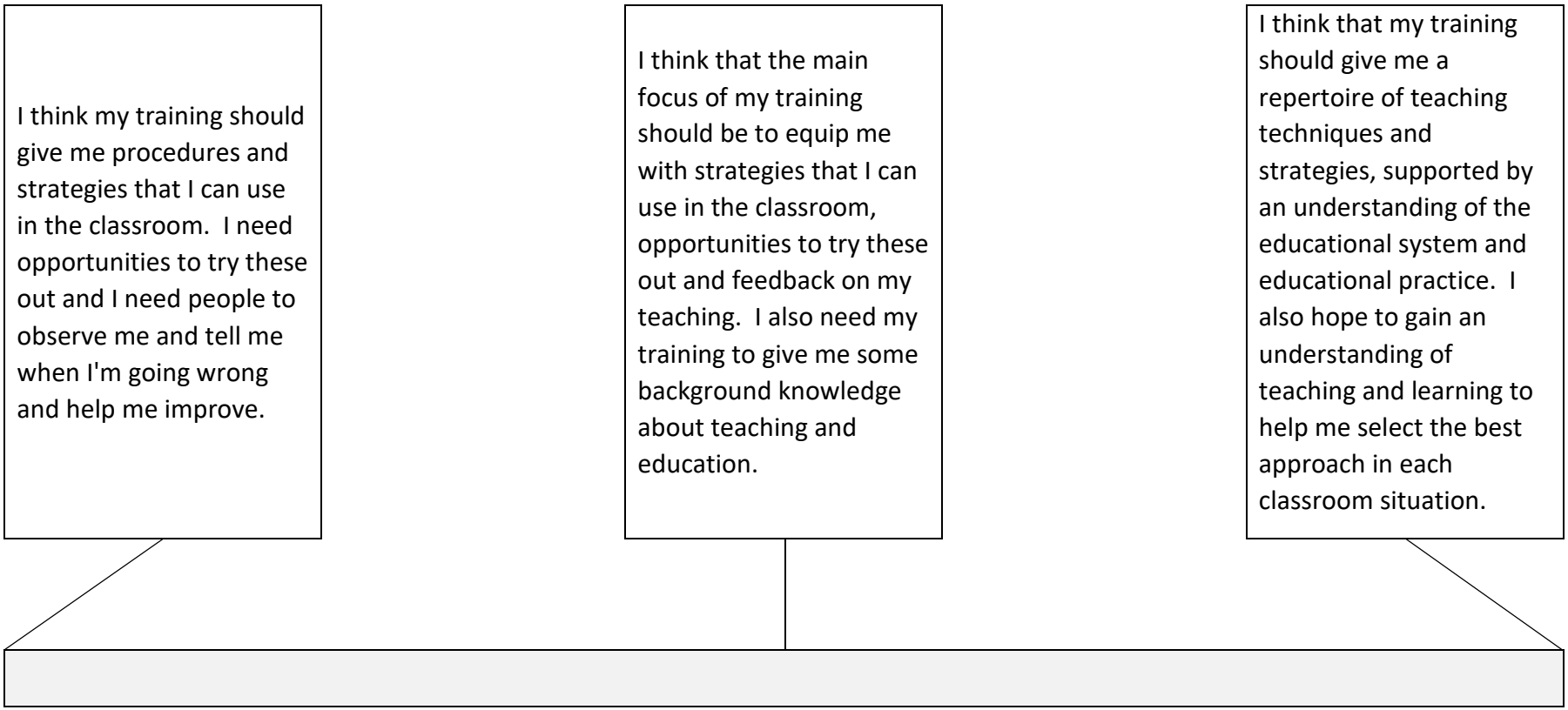
Supervisor (if you have any concerns you cannot discuss with me)

Dr Bronwen Maxwell

Contact details supplied

Appendix 5 – Continuum

Name	
Date	



Please mark with a X where you would place yourself on this continuum.

Appendix 6 – Examples of post-interview memos

Examples of analysis memo written after each of Diana's interviews

Interview 1

Emergent codes

- Peer support
- Subject lens

Makes a point about what she gained from working in core groups with trainees from other subject areas

The importance of the university for giving space to talk/debrief (with both subject tutor and peers)

Subject sessions about generic topics (e.g. assessment) are valued. The importance of the subject lens...

Are they quite quickly aware of the challenges of teaching their subject and the misconceptions they might encounter? It seems as though this might be the case.

Interview 2

Like Mark[2], she also talks a lot about literacy issues impacting on pupils' ability to access the history curriculum.

When talking about the essay she says "I learnt a lot about how to strike the balance between teaching them stuff and teaching them how to interpret stuff"

Is this powerful pedagogical knowledge?

Her points relating to the utility of theory are interesting.

She didn't necessary the link between theory and practice at the start - this became stronger as the year went on.

The theory practice tension also gets a mention again - *"here were some topics where I feel that what we were being told at the university was kind of the ideal, and then we turned up at school and they were like 'Yes, this is the reality. That's what you should aim for, this is what's probably actually going to happen.' But at the same time, I think it was quite useful to have the university stuff…"*

The peer support is important, but for sharing resources rather than discussing pedagogy. They did offer one another assignment support though.

Interview 3

New placement creates an interesting issue for her pedagogically as everything (from year 7) is geared towards GCSE. She also makes the point that she'll always be learning about history pedagogy...

"all of the struggles that I come up with on this placement in particular is the focus on everything being GCSE orientated, right from Year 7, which completely threw me to be honest because I was like, how do I make GCSE stuff relevant for Year 7? Which slightly threw me, but in terms of general theory behind teaching history, yeah, I think a lot more confident than back in September. Obviously I'm still learning and I'll probably still be learning for the next 20, 30 years"

Lots to think about here re the theory-practice divide and the integration of theory. See note in scrivener at the end of the theory-practice divide memo

She makes the following point: *"I think in some respects it would be quite useful to know things like how much experience they have of Britain, which I know would be a very, very hard thing to actually measure".* This resonates with the points made by Citizenship trainees.

"Basically I teach geography lessons like a historian"

She acknowledges some of the course content was good, but it was stuff she didn't know she needed to know. E.g. *"it's kind of covering this bases that wouldn't have immediately sprung to mind if I'd been asked to do a list of stuff I wanted to know."*

Appreciated the theoretical background - *"Also I've found the assignments really interesting actually, but that's me, I have that slightly academic vent. It was nice to kind of get that theoretical background to things as well"*

Appendix 7 – Example of a memo following a wave of interviews

Example of a notes memo with points to follow up at the end of second round of interviews

She said that once she could “figure out how I’m going to be as a teacher” she felt that that she would be able to make more use of the theory. In the meantime, she needed to feel “more confident with the basic stuff” (Diana)

This is something I wrote following review of the first three orienting concepts. This might link to Libby in later interviews. Do they just need to settle before they can think about pedagogical questions?

Dan says something about this too - he indicates that he sees the value of the Fridays later in the year, but did not appreciate them so much earlier on.

Does the assignment help with the "transfer of knowledge" (Mark and Libby)?

In all three subjects, pupils struggle with lack of experience

- Citizenship - views that are not their own or lack of diversity in their community
- History - don't understand the relevance of religion
- Geography - struggle to conceive of other countries that they are studying, lack of general knowledge (in relation to current affairs)

As well as conceptual problems

- Citizenship -
- History - concept of time/chronology
- Geography - north isn't up, etc.

I need a code to pick up on the influence/impact of the mentor.

How am I going to tie in the stuff about non-specialist teaching?

Dan - Makes an interesting point in which he distinguishes between pedagogy and teaching activities.

Dan - talks about the importance of being given a free rein (contrast Mark)

Liz - like Mark, in one of her placement schools felt constrained....

Appendix 8 – Interview 2 schedule

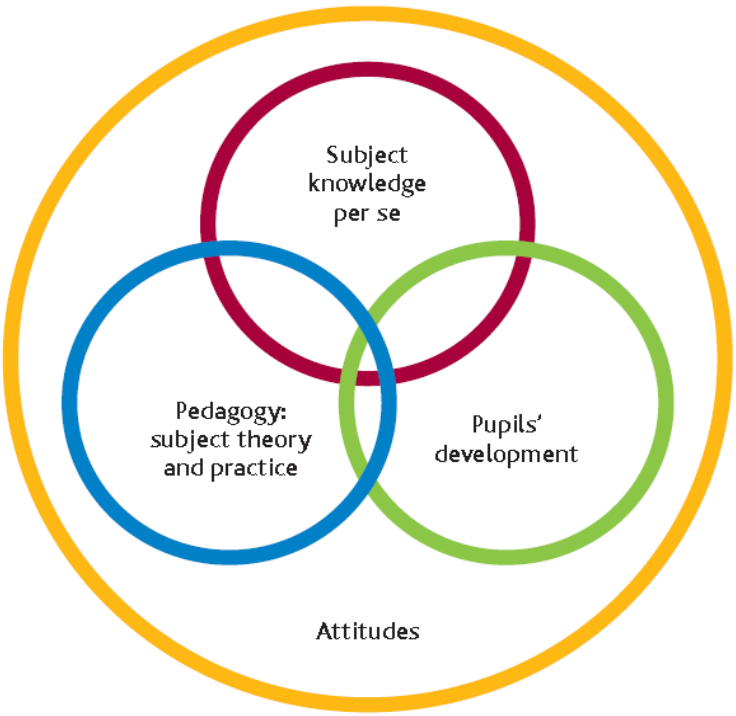
Question	**Follow-up questions**
How did your first term go?	*What has been the best thing about teaching your subject?* *What have been the challenges in relation to your subject?*
Pedagogical Content Knowledge	
In the first interview I asked you what makes your subject difficult for secondary pupils? Now that you have some classroom experience, what would your answer to this be?	*Can you give examples?* *Are there things that pupils often misunderstand?* *Have you been able to develop any strategies for overcoming this?*
Have you picked up any particular activities or explanations that are helpful for teaching a particular topic"? For example in _____ you might _____...	*Can you give me an example?* *Where did you pick these up from?* *Have you developed these in any way yourself?*
Have you been teaching a "non-specialist" subject?	*If yes, what?* *How has the experience of teaching this different to the experience of teaching your own subject?* *In what way is it the same as teaching your own subject?*
What are your thoughts about the assignment that you have just completed?	*What did you learn about teaching your subject?*

Transfer	
Can you give me an example of how you've used something from a subject session at SHU in your teaching?	*Can you give me examples?* *Why did you decide to do this?* *Did you have any help in making these links?* *Did you use the idea as it was presented to you or did you have to adapt/develop it?*
On a scale of 1-5 (with one being strong and five being weak) how strong is the connection between subject sessions at SHU and your classroom teaching?	*Why?* *Have your thoughts about this changed as you progressed through the first term?* *Has being in school and on placement made it easier to see the relevance of the university subject sessions?* *To what extent does your school context help or hinder you in making connections with what you have done at SHU?*
In the first round of interviews lots of the people I spoke to talked to me about how important their subject peer group was. Did they continue to be important to you through the first term?	*Has this changed for you or stayed the same?* *What sort of things do you talk about in relation to your subject and teaching?* *Are there any ways in which they have helped you understand your subject and how to teach it more effectively?*
Do you think there are any ways in which your experiences in the first term will impact on the way you approach your teaching this term?	*What can you tell me now about teaching [your subject] that you couldn't have told me the last time we met?*

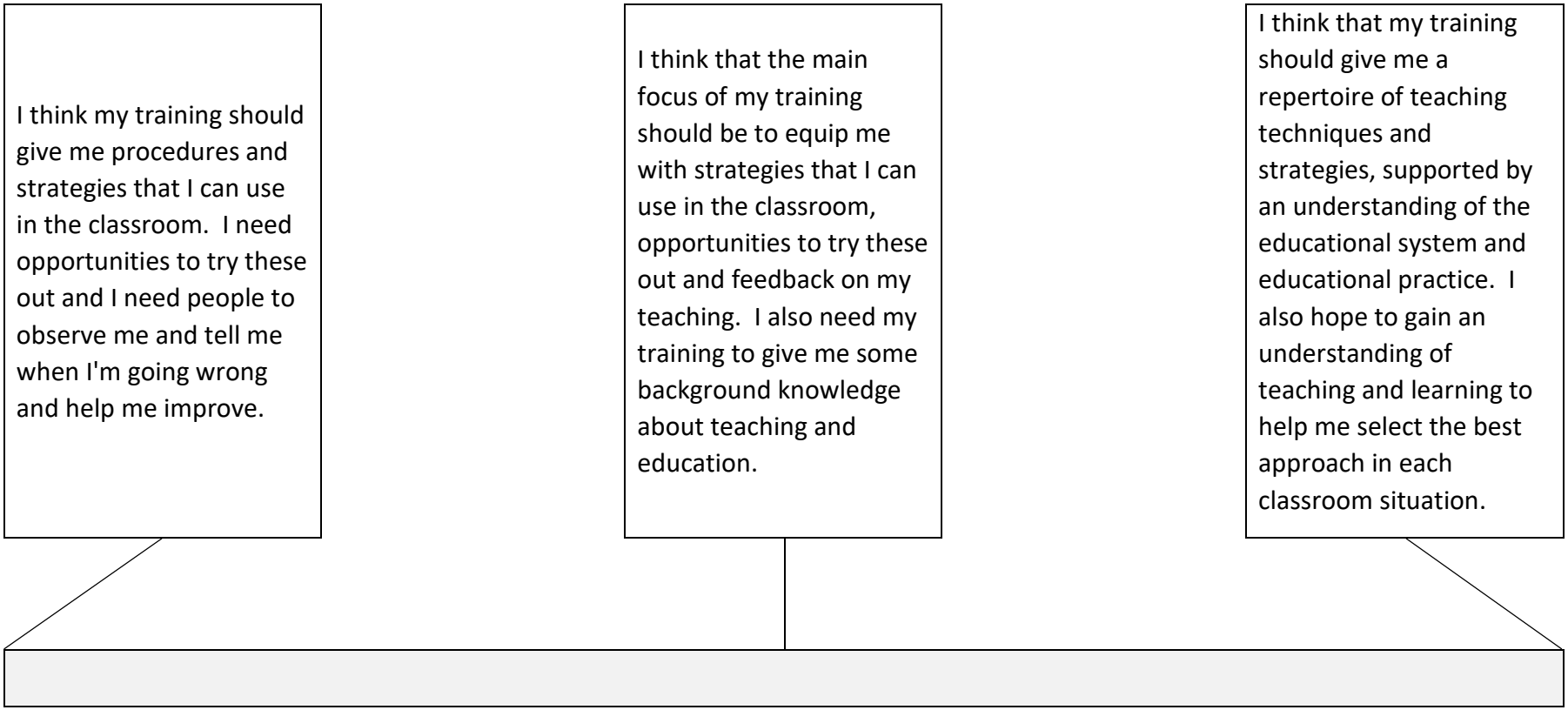
Appendix 9 – Interview 3 participant sheet

Name	
Date	

Subject Knowledge



Assignment Extract



Please mark with a X where you would place yourself on this continuum.

Appendix 10 – Interview 3 schedule

Question	Follow up questions
Looking back on your year, in terms of your subject knowledge, how prepared are you for a career teaching _____?	• Can you indicate on this diagram (TDA diagram) what you were thinking about when you answered that question (SK *per se* or pedagogical knowledge)? • In what areas/ways have you had to develop your subject knowledge? (Content or pedagogical) • Did you expect to have to develop this way when you started? Have you had to develop your knowledge in unexpected ways? • Who/what has helped you to fill in the gaps? • Has lack of subject knowledge caused you any problems? Recently? Early in the course?
Can you describe the ways in which your mentors have helped you develop over the course of the year?	• How did they approach lesson observation feedback? What was the balance of you and them talking? What kind of things did they pick up on? • How did they go about identifying targets? • Did they set you targets that related to subject knowledge and pedagogy? Can you give examples?
Are there any educational ideas/research that you have encountered this year that you now think are fundamental to effective [subject] education?	• Where did you learn about this idea? • Why did this become important? • Can you explain to me how it's influenced/impacted on your teaching?
Are you aware of any themes/ideas/concepts that students often misunderstand or find difficult to understand in your subject?	• Can you give me subject-specific examples? • How do you set about addressing these with your pupils?

	• Is there something you need to know about pupils' prior knowledge and understanding in your subject that the data you are given can't tell you?
In your opinion, what is the purpose of [subject] education?	• How have you arrived at this view? • Is there a possibility that others might disagree with you? What would they say?
Did you teach a non-specialist subject? Are you confident that you understand the purpose of that subject?	• What was your non-specialist subject? • Are you aware of any pedagogical ideas that are important in that subject area? • Did you have an issue with content in the new subject?
Each trainee is shown a quote from their assignment. **Can you explain why this is an important idea for you (or something similar depending on the quote)?**	• You wrote that in January; do you stand by this or has your view changed? • Is it something that consciously impacts on your teaching on a daily basis? If so, how?
In the first interview I asked you to look at this continuum. Can you please look at it again?	• Where would you put yourself now? • Can you remember where you put yourself at the start (can prompt if necessary)? • If your view has changed can you articulate why?
Now you are in a position where you are almost looking back over a whole year, how well do you think the PGCE course has prepared you to be a [subject] specialist and in what ways?	• Which elements of the course have helped you the most? • What could have been done better? • You chose - SD/core route. Are you happy with the choice you made? • Can you identify any ways in which the route you chose specifically supported your development as a teacher?

Appendix 11 – Full list of analysis codes

- Choice of route
- Citizenship
    - Active citizenship
    - Knowledge of content
    - Knowledge of pedagogical approaches
    - Knowledge of resources
    - Knowledge of the context
    - Knowledge of the students and their understanding of Citizenship
    - Purpose
- Craft Tacit Knowledge
- Evidence Informed Practice
- Geography
    - Beliefs about the purpose of teaching Geography
    - Importance of prior knowledge
    - Knowledge of students' understanding, conceptions and misconceptions
    - Knowledge of the curriculum content and teaching strategies
    - Knowledge of the structure underpinning the curriculum
- History
    - Importance of prior knowledge
    - Knowledge of content and students
    - Knowledge of content and teaching
    - Knowledge of the curriculum
    - The epistemology of history
- Integration of Knowledge
- Justification for subject

    - Skills
- Mentor
    - Moral support
    - Teaching support
    - Subject knowledge and pedagogy support
- Non-specialist teaching
- PCK
    - Curricular knowledge
    - Instructions, strategies and representations
    - Knowledge and beliefs about purpose
    - Understanding, conceptions and misconceptions.
- Peer Support
- Powerful Knowledge
- Subject Knowledge *per se*
- Theory practice divide
- Transfer of knowledge
- Utility of Theory

Appendix 12 – Example of an interview summary

Libby – Interview 3

She now realises how much she doesn't know. She thinks she can do it, but she thinks it's going to take her 2 to 3 years. She feels she gets "complacently arrogant".

She answers in terms of SK per se. However, she seems to think the problem is not with her knowledge of rivers, but some of the issues are in how to teach it. "Students can ask you a question that is actually right but it's not textbook right, it's not what I've learnt but what they're saying is right, that's when I have to go back and think and be like, 'Oh, you are right in what you're saying because of this but you should say it like this.'"

She also talks about having to teach herself about developments in content knowledge. She thinks she learn about pedagogy through uni subject sessions, but she thinks there is more for her to learn about pupil development.

She didn't know what pedagogy was when she started – "I didn't know there was a way to teach". When asked about this she highlights things she's learnt like AfL, plenaries, etc.

Her AT and her mentor helped develop her understanding of subject pedagogy. She thinks that lack of pedagogical knowledge (e.g. AfL) has caused her issues over the course of the year.

Mentor support – Reviews of lesson plans with advice as needed. Placement one feedback focussed more on behaviour management and give tips, but not engage in pedagogical discussion in the same way.

Lesson feedback – Felt they did most of the talking but makes a distinction between mentors and host teachers. Feedback content focussed on challenge, extension, AfL, dealing with disengagement, passive learners

Targets were set based on discussion. Some focussed on SK and pedagogy – e.g. front loading for year 12s. She also hard targets that focussed on the development of content knowledge. Other pedagogical targets – learning through enquiry, make lessons more active, etc.

Use of research – mentions reading for assignment one, Black and Wiliam, Margaret Roberts, Jane Ferretti. Professional studies tasks were also mentioned. AfL and EBL work – what she has read "rings true" for her own practice.

Misunderstandings – pupils making a connection between population and development; pupils struggling with compass directions. These issues are generally

addressed through discussion. She thinks interaction is important in geography – pupils might have good literacy skills, don't know what to do with the information. Others struggle with literacy but engage well with the content.

Purpose – Make students more well-rounded and give them confidence to develop their own opinions. She thinks this view is influenced by her own preference for human geography. Others might say that geography is to make people more aware of their surroundings so that they can make better decisions for the environment.

Non specialist RS – Doesn't really understand the purpose. She found it difficult – she was teaching Hinduism to Hindu pupils. No understanding of the pedagogy and insecure in her subject content knowledge

Assignment – stands by what she wrote. Can identify things that separate geography from other subjects. Highlights that geography is dealing with 21st century problems. Talks about spatial relationships and geographical skills. They now impact on the way she teachers. She says of one of her mentors "my mentor was like, 'So these are the underpinning theories of geography and every lesson you need to make sure one of them is underpinning your lesson' and he said that to me and then that's when I got better at teaching geography". She says "sustainability and physical geography, space and place, one of them needs to underpin every lesson that you teach and you need to clearly be able to say why that underpins it". She gives a good example – Bhutan

Continuum – Hasn't changed her views. All the techniques you pick up are important; you need to be prepared for any situation. In talking about why she thinks techniques are the key thing she talks about the differences between her school placement experiences. It's about learning lots of different approaches.

Prepared? – Well prepared. Two contrasting placements, subject days. The second school placement was the thing that made the most difference. They had good CPD session there – they discuss academic research as well as being observed, etc.

Route – Happy with choice of route. The two contrasting schools was key, as was the support from her AT.

Appendix 13 – Exemplar memo

Extract from a memo written following initial analysis of interview 1 data.

Integration of Knowledge (as a way of transferring knowledge)

In the literature review I proposed a view of transfer between the taught aspects of the course and the classroom experience that saw this as an "integration of knowledge". This was in the context of a review of literature that looked at the problems inherent in considering if and how knowledge learnt in one context can be transferred and applied in a new context. This code was not assigned a great deal of data and, although it did hint at the concept of transfer, it does not suggest that the students themselves saw this as an issue. The most negative mention of this connection (or lack of connection) was in relation to school rather than university-based training where one participant said "I think we had a training session once on positive mind-sets, and I say 'training session' it was sort of a half-hour lecture and then it was 'Go ahead and do that in your lessons'". The participant is not saying that he was not able to do this, but he is fairly dismissive of the way that this was presented. Others are positive seeing school as a place where they can apply the teaching and knowledge gained in both school and university training (Dan) or seeing the university as a play where they can "solidify" their knowledge to make sure that they have all the tools and confidence they need to be able to teach their subject (Abby).

In the data from first interview it may be too early to look for examples of participants integrating theoretical and practical knowledge, but there are some indications that they are making links between the two. For example, the more experienced history trainee, when reflecting on how he initially felt that the university sessions might not have value, commented "I've come out of the session and thought 'Well actually there was stuff there that I wasn't really aware of and that would come in handy.'" (Mark). For this participant there are also examples of the school experience helping him to develop his understanding which, in turn, brought him back to considering the relevance of the subject sessions. In relation to differentiation he commented

"I was always complaining as a TA that teachers aren't differentiating enough and yet when you're on the other side of the scenario and you're the teacher and you realise the complexity of the entire classroom and the amount of differentiation you need to do…So we were given things [in university sessions] like resources with different types of activities to use and that's really helped to differentiate things more effectively. I think that's helped quite a lot"

However, there also several examples of participants making the connections between what they are learning and what they will do in the classroom. They are understanding the bigger picture and can talk about how this understanding impacts on their classroom practice. For example, a core geographer commented "you can't just go in straightaway and come up with all these wacky ideas and I think that's particularly important for teaching GCSE, you need to know what you're working towards at the end, you need to know what you need to include" (Libby). There was also a historian who became more convinced of the need to learn as well as observe. She felt that in observations alone, given the fact she didn't know what she was looking for, were not enough and concluded "you need to know the other stuff to be able to plan lessons" (Jane). This integration between what is learnt in school and what is learnt in university sessions is also articulated by a geographer on the school direct route. He commented "so you are having to gain your own knowledge when you're in [school] and apply that here, rather than just literally having everything from uni and bringing it in. You're sort of learning all the time" (Dan)

A key to this seems to be *how* they are taught in university sessions. At least one participant came to the course expecting that the university sessions would take the form of lecture input. She commented that "I quite like the style it's taught in with the seminars and almost being taught as if that's, then you can nick the ideas and take them, you're being taught as if you are in a classroom that you would then go and teach in" (Libby). This participant came to the course fully convinced of learning about some of the theories that underpin effective teaching and learning ("I did expect it to be quite heavily theory-based") but actually her view shifted to and, in comparison with many of her peers who perhaps arrived think that the theory was less important, for her this was a shift away from the importance of theory and towards the importance of practice. She said "think has made me realise that it's not all about the theory and it's not all about thinking you know exactly what's going to work because I think you have to know the strategies and it might not always work and the feedback is important, but I think having the background information and being able to use it in your own way is more important than having the background information and sticking to it to the letter".

Appendix 14 – Exemplar memo

An extract from a further analysis memo focussing on deductive analysis of data from history participants in relation to the epistemology of their subject.

The epistemology of history

The focus of this study is to explore trainee teachers' and not to engage in epistemological debates regarding the nature of history or the purpose of history education. The data was analysed with a view to considering the extent to which the participants demonstrate awareness of and engagement in these debates both in their own thinking and in their classrooms.

The data indicates that the participants are aware of this debate from the outset (most of the data relevant to this code was drawn from first and second interviews). In his first interview Mark acknowledges the existence of these debates when he talks about how they are dealing with "those basic historical skills, thinking about time and how we look at time and how we use it, thinking about how we could look at a source and decided 'Is there some bias here? Is it reliable?" (Mark[1]). He generally appears to adopt a view – which is shared by the other participants – that "you can have whatever idea you like about history as long as you can justify it using evidence" (Mark[3]).

When talking about developing pupils' skills there is also an implicit understanding that historical knowledge needs to be examined and questioned. Broadly this is talked about in terms of the "skills of enquiry" (Jane[1]), but when this is broken down there is repeated use of terms like "reliability", "bias" and "analysis" and questions regarding "how do you get people to investigate the past?" (Diana[1])

There is also an awareness of the impact of epistemological discussions on broader debates, in particular on curriculum debates. For example, Diana[1] raises the question of whether "should we be very Britain-focused, should we be more world-focused?" Jane[1], drawing on her degree talks about 'history from below', which seeks to focus on the "people who experienced history rather than wrote it" with a focus on questions like 'How would you have felt if this was happening to you?'. She feels that can see examples of pupils exploring questions such as these in lessons at her placement school.

Diana, in her second interview, sums up what for her appears to be a key question for her as a history teacher. When asked about some of her own learning she says

"the things I'm talking about that were very theoretical was the whole 'What is history?' Which is a bit relevant because it's that whole 'Is history just saying what happened in the past? Is it teaching children to interpret what happened in the past?'

Which obviously there is, some are beginning to come on with the whole teaching how to analyse sources, how to do interpretations, but I just still feel as if this whole debate and there's never really been any answer or ever really is going to be any answer." (Diana[2])

All of the participants, based on their own undergraduate degree studies, seem to be well aware of these epistemological debates within their subject. They can also see how this has an impact on their teaching, acknowledging in particular the knowledge vs skills debate that has impact on two most recent versions of the history National Curriculum (*refs to data can be made here* – Mark[1]). However, they all appear to have adopted an approach which recognises the importance of the skills and they are determined to support their pupils in accessing sources and then developing the skills required to engage with questions of reliability and bias in relation to these sources. That said, they do share their concern (and shock) at pupils' basic lack of factual knowledge of historical events (Mark[1]) and they do think that this is an issue. Therefore, perhaps it is the case that they believe there are different ways of knowing in history (reference to lit needed here?) and that their teaching should reflect this.

Appendix 15 – Interview 1: Examples of data

The following are quotes from the data gathered in the first interview. They are all responses given when the participants were being asked about their expectations about the relative usefulness of their university training and their school experience. These responses have been grouped into categories to draw similar ideas together. There is at least one response from each participant, but some are quoted several times.

Repertoire is key ● Alice - you can select the best approach for the classroom situation and the classroom situation can change and you have to be able to adapt ● Mark - repertoire is the key bit, so I don't want to just be told how to do one particular thing, I'd like to have the training in lots and lots of things ● Alice - I think having the background information and being able to use it in your own way is more important than having the background information and sticking to it to the letter ● Alice - the theory obviously is important, but I think more than that it's the ideas that you get from the theory, all the different suggestions of how to do things
Exposure to new ideas ● Liz - I value feedback, but if I don't know how to improve on that by learning from the ground up, how am I going to take anything from it? ● Jane - I thought all I needed to learn about was the doing, the teaching, the in the classroom stuff, I didn't need to know anything else. Whereas you do need to know about Bloom and Vygotsky and dialogic and all that because it is going to in the long run help you ● Mark - They're the sort of things I probably wouldn't have thought about looking at and only through the three or four sessions we've had so far I've realised what value they can add towards how I plan myself in the classroom

The importance of understanding

- Liz - if someone says to me 'Well your questioning needs to get better.' So 'Who said that this is something that we need to do as teachers, why do I need to do that?'
- Mark - I thought I don't want to back to uni to start reading nothing but books again, I found myself in my free time picking up the articles I've had and looking back through them again and looking at different articles
- Alice - I think actually quite a lot of the university stuff has been just as useful, if not more, especially right at the start before we got here it was quite nice to have all that behind us.
- Libby - You do need to be given guidance, you can't just go in straightaway and come up with all these wacky ideas

The importance of being observed

- Dan - I work better when I've been observed and the strategies that I've learnt can see if they're working well. I think the whole teaching strategies and sort of procedures that we learn, I think it's more important that we learn those than background education.
- Dan - I … think that more teaching-based stuff rather than background is more important and I personally value being observed and coached on what I'm doing well and what I'm not
- Libby - I need people to observe me when I'm going wrong and help me improve

Too much theory?

- Alice - I think there's such a thing as being like over prepared and knowing the theory too much and just being so reliant on it working and obviously kids are not all the same and you can never, like one size does not fit all
- Alice - I think you can know everything, but I think if you rely too heavily on theory then you never have room to be flexible

Not a priority

- Abby - “although the background knowledge and obviously the curriculum etc. is hugely important, my task at the moment, or my main task at the moment is managing that classroom behaviour,”
- Diana - I want to be given the strategies, I want to be given the ideas, but then go and put them into practice.
- Diana - at the moment my main focus is just trying to find who I am in the classroom and what works for me. And that’s not to say [theory] isn’t important, I think it is, but I think that’s possibly going to come a bit later after I’ve worked out what my teaching style, what my teaching persona is.
- Dan - I think the whole teaching strategies and sort of procedures that we learn, I think it's more important that we learn those than background education. Obviously some stuff is really important so, like obviously we've got things from the history of education and how it's developed, but I didn't see personally how that related to me in the classroom.

Experience is best

- Alice – “there are some aspects of the uni stuff that I think 'Yes, I would have been better to have just seen it in practice.' You know like when you're sat in a lecture theatre and someone's explaining something to you”
- Dan – “I tend to find the classroom is more useful because I'm seeing things in action and applying knowledge”
- Libby – “for behaviour management and for lesson planning and for lesson delivery I think that's better in school.”

Appendix 16 – Peer support: examples of data

Following the identification of the emergent theme regarding the importance of peer support, participants were asked about this in the second interview. Below is a selection of comments made in this interview that reference the sharing of practical ideas.

"I think five of us have been doing deserts, so we've all had like, obviously changing them how we need to, but we've all sent out all our resources, all helped each other out with that" (Libby)

"*there was a particular time when I was thinking about how do I start a finance lesson and get them in the mind frame of 'We're going to talk about finances' and then we just bounced ideas off each other for different starter activities or said 'Well I've actually done this, do you want me to send you my PowerPoint so you can have a look and see what I've done?'*" (Liz)

"*Pinching ideas really. I've taught this, has anybody else taught this or has anybody got an idea for that? Sometimes, about things that have come up in the news or that I've seen.*" (Abby)

"*a lot of us are all doing Edexcel for GCSE at the schools so we'll talk about what we've been teaching for that… it's very much about sharing it's not about 'These are my ideas, these are mine, never touch them.'*" (Jane)

"*they're probably more important now because you've got the relationship as a subject group. You're there when, you're having a complete mind blank in planning and you're like 'Oh what could I use for this?'*" (Dan)

"if you've had a really bad week at school, I tended to find if somebody's gone off or something's happened, I'll turn up and invariably somebody's had a similar experience or exactly the same experience quite often… So it's quite nice to have that supportive environment." (Diana)

"I think if anything one of the big things, just the conversations, just in like dinner queues at SHU on a Friday, when you realise 'Okay, it's not just me that's struggling, everybody is under pressure with marking or with lesson planning, or it's not just me that's up until midnight on a Sunday night finishing lesson plans.' that sort of stuff. I think just that general teacher training atmosphere where people appreciate what you're going through" (Mark)

"the major thing is the support network, just seeing each other on a Friday gives you a chance to have a bit of a rant and we've decided that we're going to try and meet up at least once a week, if not once every couple of weeks, just to keep ourselves a bit sane and keep in contact with each other" (Alice)