



Asprey, E.J. (2019) *An investigation into the use of collaborative online documents to promote critical reflection in trainee teachers*. PhD thesis, Bath Spa University.

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**AN INVESTIGATION INTO THE USE OF
COLLABORATIVE ONLINE DOCUMENTS TO PROMOTE
CRITICAL REFLECTION IN TRAINEE TEACHERS**

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A thesis submitted in partial fulfilment of the
requirements of Bath Spa University for the
degree of Doctor of Philosophy

Institute for Education, Bath Spa University

June 2019

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Abstract

This thesis reports an investigation of the nature of trainee teachers' critical reflections in collaborative online weekly reviews and the contribution made by interactions with a university tutor and the affordances of the technology used. The study draws on three principal areas of literature and theory: the nature and process of learning; workplace learning; and critical reflection. Each area includes the role and influence of online technologies. These principal areas are used to interpret the data and ultimately support the development of an evaluative continuum.

The data comprises reflective weekly reviews written by trainee teachers engaged in the primary and early years PGCE programme of Initial Teacher Education at a university in England. The reviews are online documents that are created and owned by the trainee but shared with and editable by the trainee's university tutor and school-based mentor. Recursive methods of analysis, involving constant movement between the data and the researcher's interpretations, have been used to ensure rigour in the construction of codes and themes from the data.

The findings are that trainees' critical reflections consisted of: questioning of their own learning, practice and assumptions; taking a wider view by engaging with broader perspectives; considering and articulating their understanding of learning and teaching; and taking responsibility for professional development and practice. Analysis of the data shows that critical reflection can be promoted by tutors' use of collaborative online documents to support these processes through dialogue and that collaborative online documents afford the making of connections in learning across school and university-based contexts. The resulting continuum of expansive-restrictive learning in collaborative online environments in ITE has implications for teacher educators as it could be used to inform the introduction and evaluation of the use of collaborative online documents to facilitate trainees' critical reflections.

Acknowledgements

Firstly, thanks must go to my supervisory team for their guidance and support. To Janet Rose and Dana Ruggiero who helped me get started, to Jim Hordern and Dan Bishop who introduced me to new avenues of theory and saw me through writing up and to Linda LaVelle, my external supervisor, who provided a wise, encouraging voice and a way to get started with data analysis.

I must also thank my great friend and some time colleague Fiona Maine who acted as unofficial supervisor. Thank you for sharing your boundless enthusiasm, wealth of expertise and understanding of the challenges of doing a PhD alongside a full time job. I was always most nervous sharing my ideas and writing with you but you were always generous and constructive.

Many thanks to the students and staff who agreed to participate in my research and provide me with data. To my delightful colleagues, many of whom were busy with their own studies, and to the trainee teachers who were willing to trial my ideas, take part in my research and show an interest in my PhD and progress. Special thanks must go to my supportive line managers and friends Hilary Smith, Nicki Henderson and Pat Black who entertained my idea of using online documents and enabled me to make time to carry out my research.

The support of my parents, Anthea and Jonathan, was invaluable. They gave me the belief that the PhD was achievable and were generous with their encouragement, academic support and suggestions, proofreading skills and childcare throughout the process.

Finally and most importantly, massive thanks to Jon and Martha for putting up with my absence from weekends and holidays, for cheering me up and finding solutions when the challenge of the PhD felt too much, enthusiastically celebrating the milestones along the way and for being cool and kind and making me smile every day.

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Chapter 1 Introduction

In this introduction the context of the research is presented, working from a broad view of Initial Teacher Education policy, to a more local view of practice and the personal and professional motivation for understanding the nature of critical reflection in an online learning environment. This leads to the rationale for the study, which outlines the need for this research and the questions it seeks to address. The underpinning assumptions that influenced the study are identified and an outline of the thesis structure is provided.

Context of the study

The context of this research firstly requires a clear definition of critical reflection, as a foundation for learning and as the focus of the study. While the process of critical reflection is complex and non-linear, this research draws on definitions of reflection (Dewey, 1933), core reflection (Mezirow, 1990; Korthagen and Vasalos, 2005) and perspective transformation (Mezirow, 1990) to provide an explanation of its key features. Reflection is a “systematic, rigorous, disciplined way of thinking” (Dewey cited in Rodgers, 2002:845) that comprises a five step process of problem identification, contextualisation and further definition of the problem, identification of potential solution/s, reasoning about the implications of a solution and corroboration leading to a conclusion (Dewey, 1933). Core reflection adds depth by including the identification and critique of the presuppositions that underlie beliefs (Mezirow, 1990), thereby facilitating the recognition and activation of “core qualities” or strengths that enable learning and professional development (Korthagen and Vasalos, 2005:55). The critique of these presuppositions and core qualities can result in their reassessment and reformation: a perspective transformation that alters the premises on which understanding and decision making are based (Mezirow, 1990).

In Initial Teacher Education (ITE) critical reflection takes learning beyond the acquisition of the practical, craft skills needed by a classroom technician who replicates prescribed teaching strategies or a craft worker with sound subject knowledge and an ability to adapt to different contexts (Orchard and Winch, 2015).

Critical reflection enables trainee teachers to identify and critique the contexts, beliefs and assumptions underlying education practice, policy and theory and engage fully in professional discussion and discourse (Mezirow, 2000). However, current ITE policy in England is increasingly school-based and focused on trainees achieving the competencies specified in the Teachers' Standards (DfE, 2011), risking the loss of critical reflection, placing little or no value on theoretical and pedagogical knowledge (Beauchamp et al, 2013) and risking the stagnation of pedagogy through the reproduction of craft skills without questioning or re-evaluation of teaching and learning practice and policy (Nichol, 1993, Brouwer and Korthagen, 2005; BERA and RSA, 2014; Sloat et al, 2014). Despite national policy, critical reflection is still emphasised in ITE (Beauchamp et al, 2013) and this research seeks greater understanding of its nature and how to support it in online interactions.

Existing research has revealed that online tools, such as blogs, virtual learning environments (VLEs) and e-portfolios, can be used to promote and enhance critical reflection in ITE (Clarke, 2009; Trent and Shroff, 2013; Boulton and Hramiak, 2012; Wopereis et al, 2010). However, other studies have found less definite (Williamson et al, 2015) and conflicting results (Jones and Ryan, 2014) in which trainees' critical reflection was limited to the early steps in Dewey's (1933) reflective process. This was, in part, the stimulus for this research in terms of developing understanding of online critical reflection and, more specifically, how it was manifested and supported in collaborative online documents.

Despite England's ITE policy's focus on the practical competencies that comprise the Teachers' Standards (DfE, 2011), "most providers of ITE in England" still promote critical reflection including maintaining "a strong commitment to combining perspectives from educational research with meeting the official imperatives of providing relevant and practical programmes" (Beauchamp et al, 2013:8). Critical reflection is promoted throughout the participating university's PGCE through:

- explicit discussion of the importance of critical reflection during taught sessions (Appendix 1a,1b,1c,5);

- active engagement in face-to-face and online learning activities that enable trainees to analyse and compare aspects of practice and theory (Appendix 2a,2b,2c);
- evaluation and analysis of their own teaching (Appendix 3);
- the completion of a weekly reflective review to support trainees' learning and professional development (Appendix 4,18);
- Level 7 (Masters level) assignment assessment criteria and an assignment entitled 'An exploration of the role of reflection in transforming thinking and practice' (Appendix 6,7).

This research focuses on the nature of critical reflection in the weekly review. This is an online document, created by each trainee using a template provided by the university (Appendix 4) and shared with the trainee's tutor, a member of the university's PGCE teaching team, and school-based mentors. The purpose of the weekly review is to scaffold trainees' critical reflection on, and analysis of, their own learning and professional development (Appendix 5). Trainees are expected to complete a weekly review during the PGCE, summarising, evidencing and reflecting on their progress. The tutor reads and responds to the review by inserting comments that promote critical reflection through analysis of learning and practice, the suggestion of alternative perspectives, including those from theory, questioning of underlying assumptions and encouraging the expression of new and revised understanding of learning and teaching arising from evaluations and reflections. During school placements, mentors contribute to the weekly review by summarising the trainee's strengths and areas for development. This is discussed during a weekly, face-to-face meeting between trainee and mentor.

The personal and professional impetus to research critical reflection in collaborative online documents was initially driven by the researcher's role as ICT co-ordinator and tutor on the university's Primary and Early Years PGCE and her status as a Google Certified Teacher. These, combined with the university's adoption of Google Tools for Education across the institution, provided an opportunity to pilot an online weekly review to replace the previous paper-based version. The aim of this innovation was to facilitate the tutor's involvement in the weekly review, enabling him/her to provide support for critical reflection and effective monitoring of trainees' progress during school placements. After a one

year trial with 15 trainees, the collaborative online weekly review was adopted across the university's PGCE programme. While this began by replicating the paper-based process of writing the weekly review, with the additional advantage of being accessible to the tutor, it later developed into a more interactive process to which the trainee, mentor and tutor contributed. This enabled the tutor to respond to points raised by the trainee and/or mentor, by adding comments, in order to support critical reflection and professional development. It was the drive to understand the nature of critical reflection within this interactive process that inspired this research and the data were collected during the second and third years of the implementation of collaborative online weekly reviews.

Rationale and aims

The purpose of this research is to develop a rich understanding of critical reflection in the context of trainee teachers' collaborative online weekly reviews. In order to make a useful contribution to the development of practice in ITE, the research offers insights into the ways in which interactions with the tutor and the affordances of the online tools could support or inhibit critical reflection. There is broad consensus within the academic and research communities that critical reflection should form part of ITE in order that trainees are able to question and re-evaluate practice, pedagogy and policy, thereby preventing the stagnation of learning and teaching practices through repeated reproduction of established practices and required competencies (Zeichner and Liston, 1987; Nichol, 1993, Brouwer and Korthagen, 2005; BERA and RSA, 2014; Sloat et al, 2014). There is some evidence that online tools can be used to provide and enhance opportunities for critical reflection (Clarke, 2009; Trent and Shroff, 2013; Boulton and Hramiak, 2012; Wopereis et al, 2010), however, the nature and depth of critical reflection has been contested (Williamson et al, 2015; Jones and Ryan, 2014). This research aims to offer clarification in this regard and to provide guidance to those wishing to introduce or evaluate the use of collaborative online documents to support critical reflection in ITE.

The aim of this research is articulated in the principal research question (RQ):

- RQ1 What is the nature of critical reflection in trainee teachers' collaborative online weekly reviews?

The research also aims to develop understanding through two supplementary questions that seek to provide a more rounded picture of the ways in which critical reflection can be supported through the use of collaborative online documents:

- RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?
- RQ3 What are the affordances and constraints of collaborative online documents in relation to trainees' critical reflections?

The RQs lead to a research approach that focuses on the collaborative online weekly reviews written by trainees enrolled on the Primary and Early Years PGCE at the university, including the comments added by their tutors and mentors. A selection of reviews from each participant trainee provides the data, which is analysed, drawing on existing theoretical frameworks relating to critical reflection, ITE and workplace learning, in order to construct key themes that address the RQs. Thematic analysis (Braun and Clarke, 2006) is used to systematically construct codes and themes from the data and in order to ensure a close relationship between the data, the researcher's interpretations and the resulting findings. In addition, further analysis in relation to Fuller and Unwin's (2003:411) "Expansive-restrictive continuum" and Hodgkinson and Hodgkinson's (2005:124) "Continuum of expansive–restrictive learning environments for teachers" results in the development of a 'Continuum of expansive-restrictive learning in collaborative online environments in ITE' (see Chapter 8 Conclusion - Contribution to knowledge). This translates the findings into a form that could be used to test the theoretical and analytical findings of this research or inform evaluation or implementation of collaborative online documents to enable trainee teachers' critical reflection on learning, teaching and professional development.

This research brings together the literature of critical reflection and workplace learning in order to better understand an aspect of ITE. While critical reflection is an established focus for research and theory in relation to ITE (Berghoff et al, 2011; Edwards, 2007; Korthagen et al, 2001; Korthagen, 2004; Korthagen and Vasalos, 2005; Liu, 2015; Lowenstein, 2010), workplace learning literature has

remained largely separate from critical reflection and ITE, with the notable exception of McNamara et al (2014), despite a shared concern with the relationship between learning and practice. This is an innovative combination that provides insights into the practices that can be used to promote critical reflection in online learning in ITE and contributes to the critique of current ITE policy in England (BERA and RSA, 2014; Orchard and Winch, 2015; Cordingley, 2015; Beauchamp et al, 2013 and Winch, Oancea and Orchard, 2015).

Assumptions underpinning the research

The underlying ontological assumption of this research is that, while an “authentic reality exists” (Braun and Clarke, 2013:27), the reality itself, and the researcher’s perception of it, is contextual (Bryman, 2016). Within this critical realist view, understanding of any reality can be authentic but remains “provisional” (Bryman, 2016:25) and “open to critique” and reformulation (Scott, 2005:635). The corresponding epistemological assumption is that knowledge is constructed within cultural and social contexts that are open to change and therefore there can be no one, static truth (Braun and Clarke, 2013). As such, this research adopts a qualitative, interpretative, contextual approach that seeks “warrantable knowledge” (Henwood and Pidgeon in Hammersley, 1993:16) about the nature of critical reflection. These assumptions lead to a view of the data provided by the weekly reviews as contextual and unique to each trainee. However, as a corpus, analysis of the data affords an authentic, rich understanding, rather than a complete or permanent definition (Madill et al, 2000).

This research assumes a social constructivist view of learning in which a learner can bridge his/her “zone of proximal development” (Vygotsky, 1986:187) by extending beyond his/her existing knowledge with the support of a more knowledgeable tutor, mentor or peer. However, it also recognises the role played in learning by the sociocultural context in which it takes place and that knowledge can reside within individuals, social groups and the wider culture (Bruner, 1996). The study also draws on more recent theories of learning as “dialogic”, a divergent process in which multiple perspectives are experienced and questioned within a “new space of meaning” (Wegerif, 2011:180). This is extended to take account of online learning opportunities that can facilitate participation in multiple dialogues

within learning communities that “are mediated by online environments” and also situated within the wider context of the “almost infinite multimedia resources and voices made available by the internet” (Wegerif, 2013:102). These assumptions about learning are consistent with seeking to understand the nature of critical reflection through analysis of reviews produced by the learners and the contribution made by the sociocultural context of collaborative online documents and tutor interactions.

The definition of critical reflection outlined above and expanded in Chapter 2 (Literature review - Critical reflection), identifies assumptions about the processes involved and the complexity of the relationships between them. While these assumptions are fundamental to this research, they do not constitute a hypothesis to be tested but rather a framework to guide the development of a richer understanding of critical reflection in the specific context of collaborative online documents. This reflects the inductive approach adopted throughout the research and the use of inductive thematic analysis as the method of data analysis (Braun and Clarke, 2006), from the construction of codes and themes during close and repeated reading of the data to conclusions and theory that are grounded in the data and supported by relevant extracts and examples. There is, however, an assumption that critical reflection is an essential element of ITE, to ensure that it goes beyond the replication of practical craft skills to the development of professional knowledge, judgement and practice “in order to make sense of, plan and evaluate their work... and contribute to debates” (Orchard and Winch, 2015:17). As such, critical reflection is conceived as a means by which trainees will be able to go on to shape their own professional development and contribute to future progress in educational research and policy (Zeichner and Liston, 1987) and engage with the philosophical and epistemological beliefs underlying practice and policy that inform their decision making about and evaluations of learning and teaching (Sloat et al, 2014).

Thesis structure

Chapter 1 describes the policy, practical and theoretical context of this research and the researcher. It goes on to provide a rationale for the study of critical reflection in trainee teachers' use of collaborative online documents.

Chapter 2 reviews the literature that provides further contextualisation for this research. It begins by exploring well-established, overarching theories of learning, as a social constructivist (Vygotsky, 1978) and sociocultural (Bruner, 1996) process, that underpin the study and relate to ITE policy and practice. It goes on to introduce more recent theories that incorporate technology, and specifically the affordances of the internet, into dialogic (Wegerif, 2013) and connectivist (Siemens, 2005; Downes, 2007) models of learning. Subsequently, and unusually, workplace learning literature provides insights into the process of learning in a classroom as a workplace environment. Theories of critical reflection, comprising reflection (Dewey, 1933), core reflection (Korthagen and Vasalos, 2005; Mezirow, 1990) and transformation (Mezirow, 1990), are explored in relation to ITE (BERA and RSA, 2014; Korthagen and Vasalos, 2005; Liu, 2015; Lowenstein, 2010; Orchard and Winch, 2015; Sloat et al, 2014; Winch, Oancea and Orchard, 2015; Zeichner and Liston, 1987) and online learning (Wopereis et al, 2010; Ruan and Griffith, 2011; Boulton and Hramiak, 2012; Trent and Shroff, 2013).

Chapter 3 outlines the purpose of this research, the underlying principles and how they influenced the processes employed. The researcher's theoretical perspective is presented and this is used, along with the nature of the research questions, to explain the research approach adopted in the study. A justification is made for the choice of thematic analysis as the research method, followed by an explanation of the processes involved in data collection and analysis. The ethical issues involved in selecting and researching the participant trainee teachers are also explored.

Chapters 4, 5, 6 and 7 present the findings and analysis relating to the organising themes (Attride-Stirling, 2001):

Chapter 4 - Questioning yourself;

Chapter 5 - Taking a wider view;

Chapter 6 - Articulating learning and teaching;

Chapter 7 - Taking responsibility.

The nature of critical reflection in trainees' collaborative online documents is examined in relation to trainees':

Chapter 4 - own learning, practice and assumptions;

Chapter 5 - engagement with theory, pedagogy, university sessions, school and national policy and the school context;

Chapter 6 - consideration of children's learning and the expression of their philosophy of and beliefs about learning and teaching;

Chapter 7 - development of future practice and ability to take responsibility for their own professional development.

The contributions made by tutors' and mentors' comments and the affordances of the online tools are also explored in relation to each theme.

Chapter 8 presents a summary of the thesis in relation to the research questions and its contribution to knowledge in the form of a new version of the expansive-restrictive continuum (Fuller and Unwin, 2003) adapted to support the identification and evaluation of factors that enable or inhibit critical reflection in trainee teachers' collaborative online weekly reviews. Implications for future practice and opportunities for further research are then suggested.

Chapter 2 Literature review

Introduction

This chapter explores the theories of learning that underpin the study and examines the ways in which they relate to and impact on ITE policy and practice and, more specifically, online learning in ITE. Overarching theories of learning that permeate ITE, in which technology is viewed as an active agent in learning, provide the starting point and establish fundamental principles. ITE is subsequently examined through the lens of workplace learning literature that acknowledges these established theories of learning. It also provides insights into the processes, contexts and impacts of learning within a workplace environment, in this case, schools and classrooms, that are missing from or marginalised within existing ITE literature. Here, technology is perceived as a tool that facilitates learning and develops to meet learning needs. Finally, the role of critical reflection in learning in ITE is defined and explored. Critical reflection is present in the literature about theories of learning and workplace learning but it is developed here as fundamental to ITE and further teacher development. The affordances of technology for enhancing and extending opportunities for critical reflection are considered in relation to ITE.

Seminal social constructivist (Vygotsky, 1978) and sociocultural (Bruner, 1986) theories of learning provide a foundation for the current ITE context and inform the nature of learning and teaching in this context. As such, they also provide the foundation for this research and inform analysis of trainees' learning and the roles that the tutor and technology can play in the learning process. Theories of learning for the twenty first century are then introduced that recognise the sociotechnical context of learning (Bell, 2011). Dialogic learning (Wegerif, 2006) focuses on the creative spaces and relationships between people and ideas in which learning is an ongoing process of dialogue. This includes online spaces, tools and communities, which are redefining and reshaping the way that we think and learn according to a connectivist view of learning (Siemens, 2005). Theories of dialogic learning and connectivism provide a means of understanding the nature of learning within online interactions, the features and uses of technologies that can

facilitate this and they contribute to the identification of evidence of learning in the research data.

Workplace learning literature, arising from notions of legitimate peripheral participation (LPP) (Lave and Wenger, 1991) and communities of practice (CoP) (Wenger, 1998), is relevant to the current nature of ITE in England, in which trainees spend the majority of their time in school (the workplace in ITE). Although there are many parallels and connections between ITE and workplace learning, there is “limited connection between the two” bodies of literature (Hodkinson and Hodkinson, 2005:112). They are brought together here in order to better understand the nature of learning in ITE, which comprises both workplace learning during school placements and learning within a university environment. Workplace learning is predominantly viewed as occurring through participation in a CoP (Wenger, 1998) which, while having roots in social constructivist and sociocultural theories of learning, is evident in changes in practice rather than the cognitive processes of the individual (Lave and Wenger, 1991). This informs exploration of the nature of learning in the form of trainees’ critical reflections on their practice and the role played by online interactions with a tutor in ITE. The influence of the affordances (Billett, 2002a) of learning technology is also considered, as an element of trainees’ learning environment that can be “invitational” (Billett, 2001a:210) to their learning and critical reflection more specifically. This leads to a broader examination of the role of technology in providing a “digital habitat” (Wenger et al, 2009:37) for trainees’ learning, the nature of such a habitat and its contribution to the learning environment for a CoP.

The typology of what is learned and how it is learned (Eraut, 2004a) within workplace learning provides a means of identifying evidence of trainees’ learning, including critical reflection and pedagogical content knowledge (PCK) (Shulman, 1987) that are established elements of learning in ITE (Zeichner and Liston, 1987; Korthagen and Vasalos, 2005). Consequently, this also illuminates the nature of learning activities that facilitate learning within the workplace and provides a means of identifying the roles played by the use of collaborative online documents and interactions with a tutor. This is further enhanced by exploration of the tensions and relationships between formal and informal learning (Billett, 2002a), what each offers in terms of learning opportunities and the impact of placing them

in opposition. This is particularly relevant to ITE and the current emphasis on practice (informal) over theory (formal), and school-based ITE over university-based, in national policy in England (Beauchamp et al, 2013). This research recognises the value of both formal and informal learning and views theory and practice as intertwined, reciprocal and mutually beneficial, leading to exploration of the ways in which the use of collaborative online documents by trainees and tutors to engage in critical reflection and interaction can bridge these divides and make productive use of these tensions.

The need to understand the nature and impact of the learning environment and experiences in workplace learning has spawned the expansive-restrictive continuum (Fuller and Unwin, 2003), which identifies factors that enable or disable learning within a workplace setting. This, and the version adapted for teacher education (Hodkinson and Hodkinson, 2005), provides a means of analysing technological learning tools and the ways they are used by trainees and tutors, in order to understand the contribution made to the learning environment of ITE and trainees' learning experiences. Although the expansive-restrictive continuum provides a starting point, there is a need for a framework that supports the evaluation of online learning environments within ITE and the quality of learning experiences they provide.

The final section of this chapter provides a definition of critical reflection and explores the arguments supporting its inclusion in ITE as part of the knowledge and skills needed by teachers. In order to identify evidence of critical reflection, a definition is proposed that includes "systematic, rigorous, disciplined" reflection (Dewey cited in Rodgers, 2002:845), core reflection involving the critique of existing assumptions (Mezirow, 1990) and "core qualities" (Korthagen and Vasalos, 2005:55) and "perspective transformation" (Mezirow, 1990:13). This definition provides a means of understanding the nature of critical reflection and identifying and justifying its role in ITE. The ways in which critical reflection relates to theories of learning and workplace learning are explored and this leads to consideration of its contribution to formal, informal, theoretical and practical aspects of learning in ITE. Subsequently, questions are raised about the efficacy of school and university-led models of ITE in providing opportunities for critical reflection and the role that technology can play in facilitating these, including the

affordances of learning technologies and the need for “Technological Pedagogical Content Knowledge” (TPCK) (Mishra and Koehler, 2006:1017) to inform and develop their use.

Learning theory

This research is situated within theories of learning, particularly those that relate to ITE and online learning. The theories of learning outlined here provide a context and foundation for later exploration of workplace learning and critical reflection. Starting with well-established social constructivist (Vygotsky, 1978) and sociocultural theories (Bruner, 1996) of learning that underpin teaching and learning in ITE, this section goes on to explore how Wegerif (2007) developed a dialogic theory of learning, including the nature of dialogic learning involving the internet. Finally, connectivism (Siemens, 2005) is explored, a dynamic view of learning with and within a networked world, which may or may not offer a new theory of learning.

Within ITE a social constructivist view of learning (Vygotsky, 1978) is frequently adopted in which a more knowledgeable tutor, mentor or peer supports a learner in order that he/she makes progress towards a desired learning outcome. The discrepancy between existing understanding and that which can be achieved with this support is known as the “zone of proximal development” (Vygotsky, 1986:187). However, the active role of the social and cultural context of the learner and learning is also emphasised within ITE, reflecting Bruner’s (1986) extension of Vygotsky’s theory to produce a sociocultural theory of learning. Bruner argues that knowledge exists within individuals, social groups and the wider culture (Bruner, 1996) and that education paradoxically aims to enable individuals to fulfil their potential at the same time as reproducing and furthering the culture in which it takes place (Bruner, 1996).

These theories are well established and have been instrumental in informing current models of learning and teaching in ITE in England. Political ideology has also been influential and has led to a move away from university-based ITE to a model in which trainees are predominantly based in school (Nichol, 1993). School-based PGCE programmes, such as the early example developed at the

University of Exeter (Nichol, 1993), have demonstrated that, with tailored support from school-based mentors and university tutors, trainees learn about the theory and practice of teaching through immersion and involvement in the culture of a school and reflective practice informed by theory and research. School-based approaches to ITE have been strongly influential in policy reforms in England since 2010 (Orchard and Winch, 2015; Whitty, 2014; Furlong, 2013), resulting in “a major expansion of school-based initial teacher education and a corresponding decline in the number of entrants to the profession following the traditional, university-based PGCE and BA with QTS routes” (Orchard and Winch, 2015:2).

In a move away from a social constructivist notion of learning that is defined by “cognitive structures”, Wegerif (2011:179) proposes a dialogic theory of thinking, learning and teaching in which learning to think is “entirely described in terms of the quality of relationships” (Wegerif, 2011:179). This places dialogue at the heart of the learning process and arises from Bakhtin’s proposition that meaning is dependent on discourse and “discourse is a social phenomenon” (Bakhtin, 1981:269). A dialogue is a creative “new space of meaning” that opens between those engaged in it but also includes them within it, inherently involving at least two perspectives (Wegerif, 2011:180). Learning occurs when dialogue enables us to listen, ask for help, see a problem from another point of view and be willing to change our minds. Thus Wegerif (2011:188) argues that “teaching thinking therefore means, amongst other things, drawing learners away from over-identification with closed and limited identities (monologics) and to open them up to questioning from other perspectives (dialogic)”. Learning is thus argued to be a divergent process or an opening of the mind to new possibilities rather than convergence on a single truth or fact. Dialogue is therefore both at the heart of learning and thinking and an end itself (Wegerif, 2011:189). This is reflected in the range of learning experiences provided during ITE including practical school-based learning, collaboration with others and engagement with theory, all with a focus on encountering and discussing a range of ideas.

Wegerif (2013) suggests that a new theory of education is needed to accommodate the internet, which is dialogic by nature, providing multiple voices and dialogues from which meaning can emerge. Technology is both a tool for learning and teaching and a contributing factor in our understanding of education

and its purpose (Wegerif, 2013). As such, educational technology can be conceived as a 'disruptive technology' that makes an unexpected improvement to a system that instigates a change in approach and values. Learners can participate in "a living shared enquiry or a shared construction on the Internet" (Wegerif, 2013:97) during which they can learn about how to learn from and with others, making online spaces potentially dialogic. Wegerif (2013:102) has coined the term "Learning to Learn Together (L2L2) online" to describe a dialogic form that encompasses learning online within a community but in relation to (and with easy access to) the wider context of the voices and resources of the whole internet. Although on a smaller scale, this research draws on aspects of dialogic learning theory, including the consideration of different perspectives, the nature of an online dialogic space and learning as an iterative process of the divergence of ideas. These are applied to examination of the written, online dialogue between trainee, tutor and mentor, with a view to examining evidence that learning is taking place through critical reflection.

As the role of the internet and online communication in learning grew, Siemens (2005) and Downes (2007) produced a "Learning Theory for the Digital Age" (Siemens, 2005:1). Although the learner is the starting point, connectivism goes beyond previous theories of learning that perceive learning as something that happens inside a person or even between people (Siemens, 2005). Siemens (2005) and Downes (2007) posit that learning can occur outside of the individual and that learning is a process in which diverse sources of knowledge are connected, with knowledge flowing between the individual and organisations via a network (Siemens, 2005). Connectivism is based on the premise that knowledge is constantly changing and that accurate, up-to-date knowledge is the 'currency' or objective of learning. While there is a need to build understanding of the "dynamic, sociotechnical environment" (Bell, 2011: 106) within which learning takes place and in which learners have increased levels of autonomy (Kop and Hill, 2008), it is questionable whether connectivism is a new theory of learning. Rather, it could be conceived as broader in scope than existing theories of learning, drawing as it does on such a diverse range of previous theories about education, learning and philosophy (Bell, 2011) but nevertheless being influential in the development of new pedagogies for technology-enabled learning (Kop and Hill, 2008).

Furthermore, as Ravenscroft (2011) points out, Siemens and Downes have begun an intellectual and professional discourse about “the inescapable and unavoidable role of networked technologies as mediating artifacts for learning, and how we should design and support learning for the digitally literate learner in the networked landscape” (Ravenscroft, 2011: 140). Ravenscroft goes on to emphasise the role of dialogue within networks, relating connectivism more closely to social constructivism and dialogic learning, he asks “What sort of dialogue features, forms, or genres are implicated in the realisation of these principles and therefore will support networked learning?” (Ravenscroft, 2011: 141). The research proposed here takes place within a technology-rich learning environment in which technological connections are used to support trainees’ learning, specifically in the use of critical reflection. In particular, it focuses on the dialogue facilitated through online document sharing that could be said to constitute a ‘dialogic space’ (Wegerif, 2007).

Building on the foundation of these established and more recent theories of learning, further insights are provided by considering learning within ITE as taking place predominantly in the workplace. Lave and Wenger (1991:29) propose that learning is “situated” within the meaningful context of the workplace and occurs through a process of “legitimate peripheral participation” (LPP). This is a model of learning that fits well with a trainee’s journey to becoming a qualified teacher and provides an opportunity to consider learning outside traditional institutions. Despite this, few connections have previously been made in research literature between ITE and LPP.

Legitimate peripheral participation

ITE involves a strong element of workplace learning in the form of placements working alongside practising teachers in schools. While drawing on overarching theories of learning, it is also helpful to consider learning in the context of the workplace and in schools more specifically. This section begins by exploring Lave and Wenger’s (1991) model of legitimate peripheral participation (LPP) that presents learning as situated and participatory in nature. This is then related to

models of learning in ITE. Successive sections show how this has informed further theories of workplace learning.

Within LPP, learning is viewed as an “integral constituent” (Lave and Wenger, 1991:35) of participation in workplace and social practices rather than a process of individual cognition. The definition of learning is therefore extended beyond the development of knowledge or skills to one that includes the “production, transformation, and change in the identities of persons, knowledgeable skill in practice, and communities of practice” (Lave and Wenger, 1991:47). This draws on established views of learning as social (Vygotsky, 1978) and contextualised (Bruner, 1986) or “situated” (Lave and Wenger, 1991:31) but neglects the significance of the individual’s dispositions and biography in relation to the learning process within the workplace, only mentioning in general and conceptual terms the relationship between identity and learning (Hodkinson et al, 2004, Hodkinson and Hodkinson, 2004 and Fuller et al, 2005).

LPP involves interplay between the person, activity, knowing and social world and learning through LPP results in changes to the person’s identity, the practices of the community and the structure and makeup of the community itself (Lave and Wenger, 1991). The process entails progression from the role of “newcomer” on the periphery of practice to that of full practitioner or “old-timer” at the centre (Lave and Wenger, 1991:56), involving full participation in the community of practice. Increased ability to participate in the community and its practices provides evidence of learning. While Lave and Wenger (1991) studied apprenticeships, a small number of more recent studies have explored parallels and connections between LPP and aspects of ITE (Cuddapah and Clayton, 2011; Johnston, 2016; Jones et al, 2014; Fox et al, 2010).

During ITE, trainees need a gradual introduction to the classroom environment with increasing responsibility for learning and behaviour with close supervision, support and time and space to reflect on their practice (Orchard and Winch, 2015). This leads to the “development, enrichment and application of a new repertoire” of knowledge and practice through participation in practical teaching activities in the classroom (Nichol, 1993:308). The prioritisation of participation mirrors a dialogic approach, particularly in online learning, where a learner begins by participating in

a community and learns through dialogue, which leads to increased and improved participation (Wegerif, 2013).

A trainee teacher enters as a newcomer and works with an “old-timer” (Lave and Wenger, 1991:56) who acts as a mentor. During the period of ITE, the trainee progresses, through increasing participation, to the role of Newly Qualified Teacher (NQT), a “proto-professional” (Nichol, 1993:312). An NQT is recognised as a professional teacher and can be employed and paid as such. It would not meet the requirements of English national ITE policy, which states that “a mentor is a suitably experienced teacher” (DfE, 2016), for an NQT to mentor a trainee. This requires further experience in the classroom and would constitute “sustained participation” in terms of the newcomer becoming an old-timer (Lave and Wenger, 1991:56). As some teachers never take on the role of mentoring a trainee but may go on to take on leadership or management roles within a school or become a university-based ITE tutor, there are multiple definitions of old-timer and sustained participation in the context of becoming a teacher.

Within the process of LPP, the newcomer must be given sufficient legitimacy by the community as he/she enters the periphery, as it is the legitimacy that enables genuine participation and therefore learning (Wenger, 1998). The peripheral nature of participation is also significant, as the “approximation of full participation” is less intense and risky, more supported and supervised, with reduced cost of error and expectations (Wenger, 1998:101). Therefore legitimate participation on the periphery of a community of practice is an “empowering position” (Lave and Wenger, 1991:36), being related and relevant to the community rather than being a partial role that is disconnected from it. It goes some way to affording “the richest opportunities for participation” that Billett (2001a:209) identifies as an outcome of high quality workplace learning, resulting in strong professional development. During ITE, trainees should be “protected from the most severe operational pressures and should be closely and sympathetically mentored” (Orchard and Winch, 2015:31) to take advantage of their peripheral position. Missing out or rushing through the period of peripheral learning can result in increased stress levels, lack of reflection, little support from colleagues and “highly restricted access to communities of practice beyond the immediate environment” (Orr and Simmons, 2011:253; Lucas and Unwin, 2009). Conversely, if trainees remain as “guests” on

the periphery they will not have the opportunity to develop “fully mature practice” (Johnston, 2016:537).

Inherent in LPP is the continuity-displacement contradiction: the conflict between maintaining continuity in a community of practice and necessary displacement over time through newcomers becoming old timers and replacing them. This has its roots in the antinomy identified by Bruner (1996) in which education must achieve the apparently contradictory aims of the reproduction of culture and the fulfilment of individual potential. This conflict creates a positive tension that is ultimately what leads to transformation of the community and its practices (Lave and Wenger, 1991). Learning is not merely reproduction of existing practice but is a process of change in which newcomers question and challenge as they become fuller participants. Indeed, if ITE were limited to replication of existing practice, it would not be an effective means of improving practice and standards of performance, as envisaged by the government (McNamara et al, 2014). In addition, it is necessary for the community to comprise not only newcomers and old-timers but also participants of varying degrees of experience and knowledge. This provides a clear trajectory of learning in which the smaller steps of progress are visible and serve to make the learning journey possible and manageable (Lave and Wenger, 1991).

Within the process of LPP, there can be issues of power between newcomers and old-timers. This can limit, or even prevent, newcomers’ access (to LPP, activities and artefacts) and transparency within the community of practice, resulting in a negative impact on learning (Lave and Wenger, 1991). If dysfunctional relationships develop between trainee and mentor, or exist between old-timers in a school or classroom in which a trainee is placed, this can occur within ITE (Lillejord and Børte, 2016; Johnston, 2016), although there may be more flexibility to address these issues or move the trainee to a more productive learning environment than in the apprenticeships studied by Lave and Wenger (1991). Sim (2006) draws a more subtle distinction between transmission and collegial approaches to mentoring, arguing that the latter has a positive impact on trainees’ learning.

Lave and Wenger (1991) focus on situated learning in contexts that do not include formal education (school, college or university), indeed they are “overly dismissive of the role ‘teaching’ plays in the workplace learning process and of learning in off-the-job settings” (Fuller et al, 2005:65) and they undervalue the contribution that formal education can make to LPP (Evans et al, 2006). Instead, they emphasise the need for learners to engage in the discourse of the practice, rather than a didactic discourse that is separate from the practice itself, claiming that the latter creates artificial distinctions between abstract and concrete concepts within learning (Lave and Wenger, 1991). This places little or no value on opportunities to reflect on practice and learning away from the community during LPP, with the potential this brings for engagement with other related communities of practice and broader learning opportunities (Fuller and Unwin, 2003).

Participation in classroom practice is an essential part of ITE. Nichol (1993:311) highlights the necessity of trainees learning within the “social context of the school” in order that classroom observation and practice is accompanied by discussion with experienced teachers. However these experiences are limited to specific individuals and contexts and require the addition of theoretical and conceptual knowledge, to enable trainees to make “informed and reliable judgements about education in general” (Orchard and Winch, 2015:19). More recently Winch (2017a) has argued for significantly greater depth in ITE that enables teachers to engage with philosophical educational debates based on understanding of the underlying conceptual, empirical and ethical nature of education. If this is what constitutes full participation in being a teacher, both formal and informal learning have parts to play in the process of LPP in ITE.

Universities, where the more formal aspects of ITE tend to take place, are better placed to support theoretical engagement due to the “scholarly and pedagogical expertise” of the staff, access to specialist materials and publications and the provision of a learning environment more conducive to “sustained discussion and the sharing of ideas away from the immediate pressures of the workplace” (Orchard and Winch, 2015:27). The role of universities in supporting trainees’ engagement with research to inform their reflections and learning is reinforced by Pedder et al’s (2005) findings that experienced teachers make little use of research within their own learning and therefore do not provide positive role

models to trainees in this respect. This is supported by Duncan-Howell's (2010) study of teachers' online learning communities in which members collaborate and reflect but draw on largely anecdotal evidence in their discussions. Both Pedder et al's (2005) and Duncan-Howell's (2010) research strengthen the argument for the involvement of universities to augment learning opportunities available through LPP in ITE, rather than relying purely on learning situated in schools as workplaces.

There is an underlying assumption in Lave and Wenger's (1991) separation of work-based learning from learning in an educational institution that informal and formal learning are inherently different from each other. However, this separation defines informal learning as "negative, inaccurate and ill-focused" (Billett, 2002a:58), largely because it is assumed to be in contrast with perceptions of traditional educational institutions as being didactic and highly structured with a focus on conceptual, rather than experiential, knowledge. While there may be distinctive qualities to the learning in different contexts, both involve learning through participation in social practice or LPP. By focusing on the differences rather than the similarities we may inhibit "understanding about learning generally and learning through work, in particular" and assume that the degree of formality determines the learning experience, disregarding an individual's agency in the process (Billett, 2002a:57). In contrast, this research examines opportunities to make connections between school (informal) and university (formal) based learning and considers the role of the tutor and his/her interactions with a trainee via collaborative online documents.

Maintaining a separation between formal and informal learning could be a significant hindrance within a PGCE that involves both practical experience of the work of a teacher and required academic elements. Lave and Wenger (1991) intended that their "approach would be relevant to all areas of social practice, including schooling" (Fuller et al, 2005:51), presenting a contradiction or perhaps a questionable bid to apply their theory of LPP too broadly. However, LPP could be opened up to include more formal learning and structured programmes as "merely another form of participatory learning" that could be integrated into a CoP as an "accepted, legitimate activity" (Fuller et al, 2005:66). It could be argued, in the case

of ITE, that full participation involves engagement with both formal and informal aspects and therefore both aspects must be present within an LPP model of ITE.

Within the context of ITE, this may avoid the potential pitfall of adopting a purely participatory model that “privileges performativity and practical knowledge over theoretical, pedagogical, subject and curriculum knowledge, and knowledge about learners and learning” (McNamara et al, 2014:191) resulting in a limited view of teaching, comprising classroom craft skills and not offering trainees the opportunity to engage with “multiple conceptions of teaching” (Hattie, 2009:110). The analysis of practice (informal) that draws on research and theory (formal) enables teachers to fully evaluate an approach “in relation to the alternatives” (Cordingley, 2015:245), potentially leading to the development of new practices. This is particularly pertinent when trainees carry out observations of experienced teachers and peers, when they are “learning to learn from looking” (Cordingley, 2015:243). A learning experience is enriched and informed by consideration of theoretical perspectives alongside evidence from practice (Cordingley, 2015). This ability to combine practical knowledge of the classroom with understanding of theory is essential to being a “professional teacher” (Orchard and Winch, 2015:14) and enables him/her to make reliable judgements, be capable of self-direction and make ethical decisions in a variety of complex settings. In order to achieve this, ITE “should equip teachers to engage actively with the findings of educational research” (Orchard and Winch, 2015:22). Indeed, trainees’ ability to do so could be used as an indicator of progress towards becoming a professional, critically reflective teacher, or full participation within LPP (Lave and Wenger, 1991). In focusing on critical reflection in trainees’ online learning, this research adds to the critique of current ITE policy in England that prioritises craft skills over deeper reflection (McNamara et al, 2014; Orchard and Winch, 2015; BERA and RSA, 2014).

Hodkinson and Hodkinson (2003) question whether LPP is a necessary or dominant feature of learning within a community of practice, drawing on case study research of experienced teachers working and learning together over a sustained period of time. They claim that the nature of the community, its stability and coherence, and its relationship with the dispositions of its members towards working and learning must be understood in order to understand learning within

the community of practice (Hodkinson and Hodkinson, 2003). Within ITE, there is a spectrum of congruence between trainees' perspectives, degree of personal agency and school-based learning environments (Fox et al, 2010). This alludes to the affordances for learning of the community as an entity and recognises the agency of its members and their individual dispositions in electing how to engage with the learning opportunities provided (Billett, 2001a).

LPP arose from Lave and Wenger's (1991) studies of various forms of apprenticeship. There are parallels between these forms and the PGCE in terms of a newcomer (trainee) learning from working with an oldtimer (mentor) through participation that is initially peripheral and legitimate, and, through increasing responsibility and expectations, leads to qualification as a teacher. During the process of LPP the identity and participation of the individuals, the community and its practices are changed (Wenger, 1998). Limitations of LPP as a framework for analysing learning exist due to its primary focus on the culture supporting the learning, rather than the nature of learning itself (Edwards, 2005). In this respect, LPP provides a useful lens through which to view and analyse the social and technological context of trainees' learning. Specifically the contribution made to the learning environment by collaborative online documents and the role of the tutor's interactions with the trainee within these documents are examined in this research in relation to trainees' critical reflections.

Communities of practice

Building on the idea of learning as social participation (Lave and Wenger, 1991), Wenger (1998) developed the concept of a "community of practice" (CoP) (Lave and Wenger, 1991:29), from its origins in LPP. This section examines the features of a CoP and how it might operate within the context of ITE.

A CoP has three dimensions that relate directly to this research: domain, practice and community (Wenger et al, 2009). The members of a CoP are brought together by a common purpose, resulting in a shared identity or domain. In the case of this research, the *domain* is the process of becoming a teacher. A CoP also shares a common *practice* and its members "live' the knowledge, not just acquiring it in the abstract" (Wenger et al, 2009:7). There is a common experience of this practice

and a direct relevance. Members learn from and with each other, both formally and informally, developing knowledge together and from sources external to the community. Through this practice and engagement with the domain, members build a *community* that is social and supportive as well as learning-focused. There is commitment, trust and mutual engagement. Diversity in a community is seen as positive and disagreements are cordial and productive. The role of the leader is essential and he/she must have credibility.

The concept of learning through participation in a CoP arises from Wenger's (1998) critique of an institutional view of learning as a finite, individual process that occurs through teaching and is separate from other activities and in which the role of technology is a computer-led, personalised content delivery system. This does not reflect theories of learning as dialogic (Wegerif, 2007; Alexander, 2008), connected (Siemens, 2005; Downes, 2007) and socioculturally situated (Bruner, 1996). Neither does it take account of the interaction of the processes experienced by the learner, such as building confidence through meeting and addressing challenges while feeling supported, with the contextual factors of the CoP in which they are working and learning (Eraut, 2004a). Indeed, Wenger (1998) only acknowledges individual perspectives conceptually and does not delve into their impact on learning, nor the interplay of personal and contextual aspects within a CoP (Hodkinson and Hodkinson, 2003).

Wenger (1998) proposes that, through participation in a CoP, learning occurs for individuals, communities and organisations in an integrated and sustained manner. Learning is not limited to the formal, designed contexts of school and training. Moreover, Wenger (1998) states that learning itself cannot be designed or learning outcomes dictated, only the environments that foster learning can be designed. This leads to a broader definition of 'teaching', about which Lave and Wenger (1991) are somewhat dismissive (Fuller et al, 2005), that includes the design of learning environments and the provision of opportunities to make connections between more formal, taught elements and informal workplace learning. Indeed, formal, designed education and CoPs are not necessarily mutually exclusive. Lucas and Unwin (2009) recognise the potential value of more formal, taught elements of a work-based ITE programme but conclude that they must be

meaningfully embedded within practice-based learning and broader professional development programmes.

Participation in a CoP provides a rich variety of learning opportunities, enabling members to engage in “actions, discussions and reflections that make a difference to the communities that they value” (Wenger, 1998:10). In order for communities, organisations and institutions to be sustainable, they and their practices must avoid prescription and be open to change that comes from the inventive participation of their members. In this dynamic model of learning, practice develops in response to changes in design within the CoP but is not dictated by this design (Wenger, 1998). This is dependent upon genuine co-participation (Billett, 2001a) of a community and the individual participants. Sim (2006) argues that opportunities for learning within an ITE CoP must be carefully designed to incorporate critical reflection on teaching and learning, exploration of the relationships between theory and practice and relationship building. This assigns a greater role to the ‘teacher’ or leader of the CoP in designing the structure and content of the community and its learning than Wenger (1998) described. This role is explored in this research within the context of online interactions with trainees. Furthermore, trainees must be explicitly taught how to collaborate during ITE in order that they are able to take an active role in a “professional learning community” (PLC) (DuFour, 1998:xi). The PLC focuses on learning rather than teaching, by working together, exploring research and best practice in order to “solve problems related to student learning” and improve their own teaching (Hoaglund et al, 2014:523). This collaboration and sharing results in collective learning and the development of the knowledge of the PLC as well as the individual members (Khales, 2016).

Although Wenger (1998) positions learning as the central goal of a CoP, it can be the sense of community that is central, particularly with respect to trainee teachers (Cuddapah and Clayton, 2011). The resulting community can be non-hierarchical, with learning occurring through the collaboration and peer mentoring of trainees who share valuable knowledge and experience in order to build meaning together (Cuddapah and Clayton, 2011), such as the PLCs established by Hoaglund et al (2014:523) within ITE programmes that enabled trainees to “view their peers as an essential resource to improve their practice”. This approach mirrors Bruner’s

(1996:21) view of learners capable of scaffolding each other within a “mutual community” and questions whether an old-timer is always needed to act as a mentor within a CoP and questions the nature of LPP when there is no-one to model full participation within the CoP. Cuddapah and Clayton (2011:73) suggest that, within ITE, a CoP that sits outside of a school or university setting can “complement mentoring and induction programs to provide a more multidimensional support experience not possible with a single mentor”. In order to maximise learning, trainees would benefit from mentor support and opportunities to work and meet with teachers with a range of levels of experience alongside membership of this CoP (Johnson and Kardos, 2002), essentially belonging to multiple CoPs. This would also serve to reinforce visible learning trajectories (Lave and Wenger, 1991), making the goal of becoming an experienced teacher more attainable to trainees.

A CoP may arise from a family, geographical location, work/business endeavour, educational, sporting activity, personal interest or other context and the members share goals and social relations (Wenger, 1991). The social practices of a CoP include both explicit and tacit elements: clear structures, language and tools as well as underlying relationships, conventions and assumptions of the community (Wenger, 1998). The members of a CoP negotiate and hold these elements in common and are bound by them within a community. Knowing and doing are intertwined within the practices of a CoP, without the traditional polarisation of concrete actions and abstract concepts. This is particularly relevant to the PGCE which employs the interaction of practice and theory as both a learning experience and a habit to support continuing professional development. Winch (2017b:171) confirms that preparation for being a “professional teacher” must include both the practical tasks and behaviours at the core of working in the classroom and the ability to apply relevant theory that informs these and makes them effective.

One of the practices of a CoP is the articulation of ideas to others, providing opportunities for reflective discourse (Solomon, 1987; Moon, 1999; Mezirow, 2000) and helping to define the CoP’s domain (Wenger, 1998). Within teacher education, engagement with external sources facilitates deeper critical reflection through the use of research to inform analysis of practice and understanding of pedagogy (Winch, Oancea and Orchard, 2015). Professional dialogue, one of eight key

components of effective professional development for teachers identified by Cordingley (2015), must draw on evidence of new, experimental approaches as well as analysing existing practice in order to challenge the status quo and move practice forward. Teachers need to make informed judgements about the quality and relevance of evidence from research and experience and this requires both conceptual and theoretical knowledge that enables them to use research in a discerning manner (Orchard and Winch, 2015).

By focusing primarily on the ways in which the community facilitates learning (Wenger, 1998), little attention is paid to the way in which an individual elects to engage with the learning opportunities afforded by a CoP and how this influences potential learning outcomes (Billett, 2001a). The danger of the overemphasis of participation is that it obscures or omits issues concerning the acquisition of new knowledge or understanding of new concepts (Sfard, 1998). The individual's engagement is dependent upon the nature of the invitation to participate, which is not always equal for all participants, and the degree to which learning affordances are congruent with individuals' expectations and values (Fox et al, 2010). As in LPP, the focus on community also positions learning as a process of socialisation, rather than the production of new knowledge (Edwards, 2005), providing a somewhat limited view of possible learning outcomes relating to attitude and behaviour rather than understanding, ideas and concepts (James and Brown, 2005).

Within the PGCE, the trainee/tutor/mentor relationship could be viewed as a CoP, similar to Brouwer and Korthagen's (2005:159) "triads", that is part of the wider (face-to-face and online) communities of the university tutor group, school communities in which the trainees undertake placements, PGCE staff team and PGCE cohort. Sim (2006:78) argues that trainees share "ways of doing, ways of talking, beliefs and values" and have "similar needs and experiences", making them a valid CoP and one that enables reflection on the complexities of the social practices of teaching. While the trainee/tutor/mentor relationship may not fit precisely into the definition of a CoP, it is worthy of further exploration afforded by this research. CoPs are "communities [that] unfold over time without a predefined ending point" (Wenger et al, 2009:11) and involve "close, voluntary collaboration" (Wenger et al, 2009:12), whereas the trainee/tutor/mentor 'team' is planned, the

PGCE course is highly structured and has a broad endpoint (successful completion of the PGCE). However, the learning journey is not defined and the personalised nature of each trainee's experience is made explicit from the start. Each trainee's practice evolves differently and he or she works with different school-based mentors during the course.

Digital habitats

As online learning tools developed, so too did Wenger's (1998) definition of a CoP. Ubiquitous internet access and a rapidly increasing range of online learning and collaboration tools enabled CoPs to utilise "digital habitats" to extend learning opportunities and the definition of a community (Wenger et al, 2009:37). This section examines the affordances of a digital habitat to learners, particularly in the context of ITE in which trainees learn in several locations, and considers Clarke's (2009:521) "professional online district" (POD) model as an example of a digital habitat from ITE.

Many CoPs inhabit digital habitats, often alongside more traditional, face-to-face settings (Wenger et al, 2009). These digital habitats comprise a range of tools, some of which are designed for learning and CoPs and others with alternative purposes. The interactions between a CoP and the technology it uses are dynamic, reciprocal and mutually influential (Wenger et al, 2009). The technology enables learning and supports the creation, maintenance and evolution of the community. In addition, CoPs continuously evaluate, both formally and informally, the technological tools used. This can influence the selection of tools and the ways in which they are used, as well as promoting the use of new tools and even informing the development of new technologies and tools (Wenger et al, 2009). A digital habitat then could constitute a 'dialogic space' (Wegerif, 2007), however this would depend on how the technology was used and the quality of the relationships that were formed within it.

The digital habitat is a community environment that affords opportunities to learn, providing the learners with agency within the CoP, a meaningful context in which to learn and an open, inviting setting if they elect to engage with it in this way (Billett, 2001a). Indeed, a digital habitat can provide a "sense of place" (Duncan-Howell,

2010:326) that provides connections rather than isolation and facilitates an active, dynamic learning environment in which teachers seeking professional development can participate in inquiry that leads to relevant and timely learning. Within ITE, the establishment of an online learning community alongside face-to-face learning can help to reduce the potential isolation experienced by trainees during school placements, as well as enhancing their experience of the programme more broadly (Hramiak, 2010). This research seeks to identify the affordances and constraints of collaborative online documents in particular, in order to understand how their use can contribute to the critical reflections of trainee teachers.

Technology has expanded what it means to be and learn together within a CoP and has changed the definition of community to include digital habitats (Wenger et al, 2009). Wenger et al (2009:20) note that “even largely collocated communities are changed by their use of technology to share documents, augment face-to-face interactions, stay in touch between meetings, or make community announcements”, reflecting the use of email, VLEs and collaborative online documents during a PGCE. In addition to this blended learning, teachers have sought out participatory, online professional development opportunities in order to improve their practice (Duncan-Howell, 2010). These online learning experiences enable teachers to select appropriate content that is “practical and authentic” (Duncan-Howell, 2010:338) as well as being available as and when it is needed to provide professional and emotional support. In ITE, pedagogical practices employing technologies are used to provide personalised, authentic and collaborative learning experiences that take advantage of opportunities for asynchronous, virtual learning within digital habitats (Burden and Kearney, 2017). This is more akin to trainees’ use of online tools during school placements in ITE, particularly the use of collaborative online documents to continue engagement in critical reflection with tutors.

Clarke (2009) applies the notion of a CoP to online learning within a PGCE programme, specifically online reflections, discussions and resource sharing using a VLE. She proposes that a group of trainees working within an online area constitutes a professional online district (POD) that is “technologically enabled...learning and learner centred...[and] permeable” (Clarke, 2009:525). The

POD has much in common with Wenger et al's (2009:38) digital habitat that is more than "just a configuration of technologies but a dynamic, mutually-defining relationship that depends on the learning of the community". The affordances of the technological tools used by the POD should meet the needs of the members, in terms of learning and communication, and be easy and appealing to use. Clarke (2009) contrasts dated, unappealing educational VLEs with ubiquitous, interactive social networking sites. However, this distinction is now blurred by the adoption by universities of tools such as Google for Education (Google, undated) that offer sharing and collaboration within a familiar, attractive interface.

Within a POD, trainees are actively engaged in their own learning and that of other members and control the content and direction of learning (Clarke, 2009). In relation to the key dimensions of a CoP (domain, practice and community) (Wenger, 1998), there must be a clear domain or purpose. In Clarke's case, geography teaching in Northern Ireland and in this research, learning and teaching in early years settings and primary schools in England. Trainees' learn within this domain, and steer the direction of learning within it, indicating a degree of personalisation (Burden and Kearney, 2017), as they engage in discussions about their experiences in school, resources and ideas, including written reflections, thereby developing the practice of the POD and establishing a sense of community. Learning within a POD is not without issue though, with Clarke (2009) finding that tutors value online reflection more highly than trainees and some trainees expressing concerns about workload and the potential risks associated with exposing their views candidly.

The sharing of reflections on experiences and pedagogy within a POD contribute to establishing shared practices and provide "scaffolds for the more complex professional learning that is needed in ITE" (Clarke, 2009:524). It may appear that dialogic learning would occur quite naturally within a POD or digital habitat due to the focus on exchange of perspectives and the readily available tools that facilitate discussion. However, it is possible that discussion may be limited to competition, where one person tries to persuade others to adopt a specific view, or consensus, in which members' views converge into one, commonly held idea. Neither of these would indicate that dialogic thinking or learning was occurring within the POD, as dialogic is the ongoing flow of ideas and meaning; a "tension between different

perspectives held together in proximity around a dialogic gap” (Wegerif, 2011:182). In addition, it is possible that limitations in the features and affordances of technological tools, learners’ attitudes and skills and activities, uses and interactions created by the tutor may place constraints on the learning opportunities available to the CoP or POD within the digital habitat. This mirrors Billett’s (2001a) interplay between the learner and learning environment, although he does not apply this specifically to learning technologies. Clarke (2009) touches on these issues in her consideration of the impact of tools chosen (bespoke educational VLEs versus public social networking sites) and the different responses to aspects of online learning that are either tutor or trainee-led (required written meta-reflections versus informal ‘coffee bar’ discussions). Burden and Kearney (2017:122) confirm limitations to collaborative learning arising from tutors only “cautiously exploring the potential for online collaboration” rather than “fully exploiting [its] affordances”, to support learning through virtual, asynchronous dialogue. This deserves further exploration if the impact of technology on learning within CoPs is to be understood in more depth, particularly in relation to the potential contribution made by online learning tools to an expansive learning environment (Fuller and Unwin, 2003; Hodgkinson and Hodgkinson, 2005) within ITE.

In a CoP, a socially supportive community is built through interactions with other members (Wenger, 1998), face-to-face and/or within digital habitats, including online spaces (Wenger et al, 2009). Similarly, the focus on learning within a POD is maintained through the sharing of ideas, advice and resources, including during school placements when trainees are geographically remote from each other and the university (Clarke, 2009). However, this view of an online CoP does not take into account the role of the tutor or mentor and potential issues of power that could pose barriers to learning, as identified by Lave and Wenger (1991) in the context of LPP. Clarke (2009) also identifies the role of online informal discussions and exchanges between trainees, not involving tutors, in establishing a sense of community. This is not a feature of this research, as weekly reviews were only shared between trainee, tutor and mentor, however this could form the focus of future research into the value of shared critical reflections between trainees.

The boundaries of both PODs, as digital habitats, and CoPs are permeable in that the learning links to and from others and online tools' accessibility can provide this flexibility (Clarke, 2009). Within a digital habitat, links can be made between trainee, tutor and mentor, making connections across the boundaries of university and school learning contexts and also between different schools as the trainee moves from one placement to another. This can facilitate the brokering of learning by introducing the practices of one CoP into another (Wenger, 1998), which broadens the learning within all CoPs involved.

Following the development of theories of LPP, CoP and associated digital habitats, further questions about the nature of workplace learning have been raised. Many of these questions also shed further light on the nature of learning in ITE, although this is rarely explored in existing research literature.

Workplace learning

The concepts of LPP (Lave and Wenger, 1991) and CoPs (Wenger, 1998) provide the origins from which more recent theories of workplace learning have been developed. Workplace learning research also raises questions, explored here, about:

- metaphors for learning as acquisition, participation or construction (Hodkinson and Hodkinson, 2005; Sfard, 1998);
- what can be learned and the learning processes involved in CoPs (Eraut, 2002);
- whether it is helpful to polarise formal and informal learning (Eraut, 2004a);
- how the affordances of a learning environment interact with learners' dispositions (Billett, 2001a);
- the roles played by the organisation and individual (Hodkinson and Hodkinson, 2004; Hodkinson et al, 2004; Evans et al, 2006);
- trainees' perceptions of schools as workplace learning environments in ITE (Fox et al, 2010).

There are three established metaphors for learning: learning as acquisition, participation and construction (Hodkinson and Hodkinson, 2005). Learning as acquisition involves "basic units of knowledge that can be accumulated, gradually

refined, and combined to form ever richer cognitive structures” (Sfard, 1998:5), implying an initial gap or absence to be filled. Within teacher education in England, government policy regarding teacher learning has largely viewed learning as acquisition, adopting a deficit model of identifying and addressing perceived gaps in the knowledge and skills of teachers (Hodkinson and Hodkinson, 2005). This approach has significant limitations including its instrumental nature, with little or no opportunity to foster personal growth or inspiration, and a behaviourist view of learning as the transfer of content (Skinner, 1976) rather than acknowledging the complex nature, socio-cultural and technological context of learning processes identified by Vygotsky (1978), Bruner (1986), Wegerif (2011), Alexander (2008), Siemens (2005) and Downes (2007).

In contrast to the model of learning as acquisition, workplace learning literature tends to view learning as a process of participation (Edwards, 2005). This has its roots in a view of learning that occurs through practice, discourse and communication within a community (of practice) (Lave and Wenger, 1991), with an emphasis on knowing and action rather than knowledge as a commodity (Sfard, 1998). Teacher education literature, arguably a subset of workplace learning, tends to view learning as a process of construction (Hodkinson and Hodkinson, 2005) in which the learner develops new understanding by building on existing knowledge and responding to his/her context, including other people (Hager, 2008). This arises from social constructivist (Vygotsky, 1978) and sociocultural (Bruner, 1996) theories of learning. In contrast to much workplace learning literature, research into ITE emphasises the value of engagement with theory alongside learning from practice, in order to construct understanding, and identifies universities as the best places to offer this, more formal, aspect of learning (Orchard and Winch, 2015; Zeichner and Liston, 1987; Brouwer and Korthagen, 2005; BERA and RSA, 2014; Sloat et al, 2014).

Hodkinson and Hodkinson (2005) argue that it is by combining lessons from these metaphors for learning as acquisition, participation and construction, that improvements in teacher education can be made. For example, applying the collaborative nature of participatory learning to teacher education, which has tended to focus more on individual development (Hargreaves, 1992), and recognising the impact of an individual’s dispositions on his/her ability to

participate fully in the learning opportunities offered by a community of practice (Hodkinson and Hodkinson, 2004). This combination recognises the importance of individual learning as well as the role of “social and cultural perspectives” (Hodkinson and Hodkinson, 2005:114) and is reflected in the research questions of this study, which focus on evidence of individuals’ learning and the affordances and impact of social and technological interactions on their learning. A broader approach to the examination of learning through participation is recommended by Edwards (2005:57) who warns against limiting learning to a process of socialisation into “existing beliefs, values and practices” that does not address the production or construction of new knowledge. As such, she claims that the metaphor of learning as participation alone seeks to consider how learning can be enhanced without first understanding what learning is (Edwards, 2005).

While these metaphors for learning can be useful in recognising the features of learning in different contexts, rigid categorisation creates a danger of interpreting evidence to fit the metaphor rather than open-mindedly exploring the nature of learning. This could lead to more complex models of learning involving hybrids of the acquisition, participation and construction metaphors. Arguably, this is better suited to ITE with trainees taking part in CoPs in schools and university, as well as engaging with “understanding, ideas and concepts” (James and Brown, 2005:16), particularly in Masters level assignments but also while evaluating practice in school. This would avoid the “gross simplification” (Edwards, 2005:50) of models that categorise learning as either acquisition or participation, particularly the positioning of participation as a “non-cognitive” model of learning (Edwards, 2005:51). It is more productive to consider a “plurality of metaphors” (Sfard, 1998:11) which provides a variety of perspectives that are complementary rather than oppositional. Duncan-Howell (2010:325) proposes that teachers’ professional development must include “authentic and directly related” content and longer term collaboration that exposes them to a range of views and practices. She argues that a model of professional development for teachers that includes these elements of learning as acquisition, participation and construction establishes “critical communities of teachers” able to improve pedagogy “via a process of critical reflection” (Duncan-Howell, 2010:326). She concludes that online communities are

conducive to the personalisation of content, convenient access and collaborative learning that comprise effective professional learning (Duncan-Howell, 2010).

Eraut (2002 and 2004a) explores the nature of learning communities as well as what is learned and how it is learned within them. This is reflected in the focus of this research on the nature, social and technological processes involved in learning in ITE. He questions whether a CoP captures the reality of working in a profession that involves the collaboration of multiple professionals with multiple perspectives (Eraut, 2002). Billett (2004a:1) explores the way in which learning occurs through the interdependence of “the kinds of activities and interactions workplaces afford learners” and the ways in which “individuals elect to participate in workplace activities and interactions”. Hodkinson and Hodkinson (2003) develop this further within the context of teacher education, identifying greater complexity in the relationships between individual and CoP: not all learners are newcomers and not all learning requires a process of LPP, particularly in the case of experienced teachers for whom learning is an essential part of their practice.

Eraut's (2004b) typology of what is learned supports recognition of the range of knowledge, skills and competences that may be learned through informal learning in the workplace. It could also be used in the context of formal learning, given that what is learned is not dictated by the curriculum that is taught (Wenger, 1998). The typology is suitable for use by both newcomers and experienced practitioners to monitor and plan for ongoing learning and professional development, either explicit or implicit. It includes aspects of task performance, awareness and understanding, personal development, teamwork, role performance, academic knowledge and skills, decision making and problem solving and judgement, many of which relate directly to the classroom as a workplace and the Teachers' Standards (DfE, 2011). These aspects relate closely to elements of “scholarship in content discipline”, “educational materials and structures” and the “wisdom of practice” identified as “major sources for the teaching knowledge base” by Shulman (1987:8-11) but lack the “powerful scholarly influence” (Shulman, 1987:10) that teachers achieve through engagement with empirical, normative, philosophical and ethical educational literature.

In order to understand workplace learning in more depth, it is also necessary to understand the types of activity that facilitate learning (Eraut, 2004a). Participation in group activities, working alongside others, tackling challenging tasks and working with clients are the work activities most likely to result in learning (Eraut, 2004a). However, this varies according to the person, context and relationships, reinforcing the influence of the design of the workplace learning environment, the nature of support and the way in which an individual elects to engage (Billett, 2001a). Eraut's (2004a) typology of what is learned identifies indicators of informal learning such as observation, reflection, discussion, decision making, problem solving and planning future learning. However, these indicators could equally be applied to formal learning, as the separation and polarisation of learning as formal or informal is not helpful in understanding the processes and outcomes of workplace learning (Billett, 2002a).

Literature on workplace learning has valued informal in-work learning experiences arising from participation in a CoP (Lave and Wenger, 1991), tending to view formal learning as insufficient and limited to that which is "intentional and planned" (Hodkinson and Hodkinson, 2005:112). Although Billett (2004a:2) warns that the use of imprecise terms such as 'informal' contributes little to our understanding of learning environments and can lead to unfounded assumptions that there is "a deterministic relationship between the circumstances in which the learning occurs and changes in individuals". Informal learning has been characterised as flexible and giving greater agency to the individual (Eraut, 2004a), whereas teacher education has also included formal, taught courses or training events in which knowledge is shared, explored and constructed. Formal and informal learning could also be combined and valued in order that trainees recognise the nature of their own learning and learning more broadly. For example, through the formal articulation of reflection on both planned and "implicit, unintended, opportunistic and unstructured learning" (Eraut, 2004a:250) that occurs during workplace learning, in the classroom in the case of ITE. Workplace structures must allow time for informal learning in order to avoid stagnation of practice. If deeper workplace learning is to occur, it cannot do so alongside the pace and pressure of full participation (Eraut, 2004a), hence the need for LPP (Lave and Wenger, 1991). Opportunities for both formal and informal learning need to be built into practice to

enable effective workplace learning to take place (Fuller et al, 2005), whether it involves newcomers to the profession or experienced practitioners making a transition or change to existing practice (Eraut, 2004a).

The role of the organisation or community has tended to be the main focus of workplace learning literature, largely because individual learning is not the main purpose and working practices are a greater priority (Evans et al, 2006). However, engagement with the content and activity of learning within any environment is influenced by individual decision making (Billett, 2001a). This interaction varies according to an individual's dispositions, which in turn arise from his/her experiences and opportunities (Hodkinson and Hodkinson, 2004). This can result in one learning opportunity being perceived differently by different individuals and therefore eliciting different responses, or by individuals being more oriented towards some learning opportunities than others (Bloomer and Hodkinson, 2000). This is complex, as dispositions arise from an individual's biography both within and outside of the work context because "workers are ... both part of and separate from the workplace community" (Hodkinson et al, 2004:9) or as Evans et al (2006:69) posit "each person is a reciprocal part of the context". This results in potential learning being dependent upon the interplay between individuals' dispositions and the learning opportunities afforded by the environment, neither of which should be considered in isolation or one emphasised over the other. Neither the individual learner nor the affordances for learning of a workplace should be considered "the prime determinant of learning" but rather both should be considered in depth if workplace learning is to be introduced or improved (Hodkinson et al, 2004:22).

Schools are the workplace learning environments of ITE and Fox et al (2010) explore how trainees and NQTs engage with schools, recognising that individuals enter ITE with a range of life and work experiences that result in a range of different learning and support needs. They place the trainee at the centre of a personal network that includes the CoP of the school in which they work and extends beyond this in both geography and time in order to understand an individual's influences, history and resulting dispositions (Fox et al, 2010). The study confirms that the degree of congruence between individual and environment can vary and is an ongoing interaction which is significantly influenced by

individual dispositions, specifically the trainee/teacher's degree of proactivity in seeking and utilising support (Fox et al, 2010).

This variation in learning environments and experiences raises the question of how learning opportunities can be maximised in the workplace. This was first explored in Fuller and Unwin's (2003) expansive-restrictive continuum, which sought to identify factors that enabled or created barriers to learning. Here, the continuum is considered in the complex context of learning within ITE, which takes place both in school and university.

Expansive-restrictive learning environments

This section focuses on Fuller and Unwin's (2003) expansive-restrictive continuum, which can be used to evaluate the nature of participation and the affordances of a learning environment. The three interrelated themes identified in Fuller and Unwin's (2003:407) research, "participation, personal development and institutional arrangements", relate to the research questions of this research which investigate the trainee's learning (RQ1), the role of tutor support (RQ2) and the affordances of the online tools (RQ3). The expansive-restrictive continuum for teacher education developed by Hodkinson and Hodkinson (2005) is also examined in relation to this research and the current policy and practice in ITE in England.

Building on theories of situated learning within CoPs (Lave and Wenger, 1991), Fuller and Unwin (2003) explore the nature of participation and the influence of the learning environment. Learning experiences, specifically those occurring within workplace environments, are characterised as expansive or restrictive, depending on the extent and nature of participation, personal development and institutional arrangements (Fuller and Unwin, 2003). An expansive learning environment is stronger and richer than a restrictive environment. Although Fuller and Unwin's (2003) research focuses on apprenticeship, extended into teachers' learning at work by Fuller et al (2005) and Hodkinson and Hodkinson (2005), there are many parallels with the PGCE's combination of school (workplace) and university-based learning. Furthermore, the provision of an expansive learning environment during

ITE opens up opportunities for critique, experimentation and reflection across school and university-based learning (Pridham et al, 2013).

An expansive learning environment provides opportunities for “legitimate peripheral participation in a community of practice”, progressing to “mainstream participation” over time (Fuller and Unwin, 2003:414). However, Fuller and Unwin’s (2003:407) “expansive/restrictive continuum” goes beyond viewing learning as participation (Lave and Wenger, 1991) and recognises that the nature and quantity of participation, and therefore learning, varies widely within more complex workplaces (Fuller and Unwin, 2003). They argue that the characteristics of an expansive workplace that facilitates learning include:

- opportunities to participate in “multiple communities of practice inside and outside of the workplace” (Fuller and Unwin, 2003:417);
- a primary community of practice with a long-term participation in the learning programme;
- planned provision of breadth of experience;
- a coherent programme of planned progression towards full participation.

ITE has features that support the provision of an expansive learning experience. Within the context of schools, many CoPs exist including: subject departments, teams of managers, groups of Newly Qualified Teachers (NQTs) and university-based cohorts of trainees (Fuller et al, 2005). Fuller et al (2005) also extend Lave and Wenger’s (1991) notion of LPP to include experienced practitioners who are new to a specific community of practice, in this case a school. Their research shows that such individuals can progress quickly from the periphery to being a full participant and can contribute new knowledge to existing members of the community. Similarly, they found that experienced teachers learned from supporting trainees through reflection on practice and that this was “deliberately promoted” (Fuller et al, 2005:62), again going beyond Lave and Wenger’s (1991) original definition of learning as a one way journey from the periphery to full participation. This also goes some way to illustrating the number and variety of CoPs that exist within schools and ITE, making them potentially expansive learning environments. Some of these CoPs are clearly defined, such as a cohort of trainees or a group of university tutors, and in others the

participants' experiences and connections are more diverse, such as early career teachers who are mentors or trainees who have children. Wenger proposes that these groups of connected CoPs could be viewed as "constellations" (Wenger, 1998:127). It is participation in multiple CoPs that provides trainees with opportunities to understand different points of view, recognise different identities or career trajectories within teaching and see the wider educational context.

ITE, as the primary CoP, is well established in universities and schools, with the majority of current teachers having participated in an ITE programme in order to become a qualified teacher. This provides a "participative memory" (Fuller and Unwin, 2003:411) of ITE that gives learning and learners recognition and validity and contributes to an expansive learning environment. A wide variety of learning is planned within ITE, including the content of the taught curriculum, placements in at least two different schools and age groups and the use of online learning tools, and this is designed to enable trainees to progress towards full participation through a process of LPP.

Expansive learning also takes account of the need for personal development alongside professional learning. Fuller and Unwin (2003) found that this occurred through the provision of:

- time and space for detached reflection;
- a clear vision of future career progression including role models;
- opportunities to extend personal identity through involvement in a broad range of roles and experiences.

This research examines the affordances of collaborative online documents as a space for critical reflection and therefore as contributors to an expansive learning environment in ITE.

The structures and practices of the institutions are also influential in establishing an expansive learning experience. In the PGCE this includes the university and placement schools. It is vital that both school-based mentors and university tutors provide opportunities for trainees to "apply ideas and generate new learning, and to make it clear how abstract teaching and learning concepts are connected and related to day-to-day practice" (Pridham et al, 2013:60). This should be accompanied by a dialogue with tutors that supports the consideration of multiple

perspectives and should be ongoing throughout school and university-based elements of the programme (Pridham et al, 2013). This places reflection on both theory and practice at the heart of an expansive learning environment within ITE and raises the question of how an ongoing dialogue could be established. ICT may facilitate the sharing of resources, rich discussion and collaboration (Pridham et al, 2013), and go so far as to enable trainees to belong to multiple CoPs and transfer learning across the boundaries of the different CoPs, in this case university and multiple placement schools (Clarke, 2009).

It is vital that the learner has a defined role and status within an expansive workplace learning environment, with a structured pathway of professional development (Fuller and Unwin, 2003). This is exemplified in a mapping of “the knowledge, skills and tasks to be learned”, a programme that provides opportunities to accomplish these and “the codification of knowledge and competence in the formal qualifications” that accompany and recognise the achievements of the learner (Fuller and Unwin, 2003:421). The production of “learning objects” (Fuller and Unwin, 2003:422), such as a portfolio of evidence of achievements, helps to cement the relationship between learning and practice (Lave and Wenger, 1991). Fuller et al (2005:62) note that trainee teachers “are marked out as learners but able to move towards behaving as much as possible like the other teachers”, demonstrating that they have a clear role as legitimate peripheral participants (Lave and Wenger, 1991) but also that their journey towards full participation is both facilitated and an expectation. This indicates that there is the potential for expansive learning experiences within schools in ITE in terms of a “gradual transition to full participation” (Fuller and Unwin, 2003:411), however it is essential to recognise that no two schools are the same and therefore the learning experiences of trainees will vary.

The existing culture of a workplace is influential in determining whether it provides an expansive or restrictive learning environment and whether supporting workplace learning is an integral part of the culture or remains a bolt-on to core activities (Fuller and Unwin, 2003). Although ITE is well established in schools, the culture of workplace learning varies between schools with some showing commitment to ITE through partnership with universities, the embedding of mentoring within teachers’ roles and recognition that “effective mentoring has

wider benefits, providing professional development opportunities for mentors and building the capacity of the school as a whole” (DfE, 2016). Fox et al (2010) found most of the schools in their study provided expansive learning environments for trainees and teachers, which were strongly “invitational” (Billett, 2001a:210). In other schools, ITE involvement can be conceived as an externally imposed workload, in addition to the core job of teaching, that can result in trainees encountering incongruence and conflict between the expectations of universities and schools (Brown, 2017; Lillejord and Børte, 2016). Inequalities in power relations also impact on the quality of learning opportunities (Lave and Wenger, 1991), both within communities and the “wider socioeconomic and political climate within which the organisation is located” (Fuller et al, 2005:54; Hodkinson and Hodkinson, 2004). Indeed the impact of the overarching contextual issues are fundamental to understanding “the constitution of community practices, to individual dispositions and thus to workplace learning” (Hodkinson and Hodkinson, 2003:18) and therefore establishing the extent to which an expansive learning environment is provided.

The nature of learning within teacher education involves the interrelation of teachers’ individual dispositions, the culture and practices of their work environment and school and national policy contexts (Hodkinson and Hodkinson, 2005). These factors, internal and external to the teacher engaged in learning, interact to impact on learning experiences in much the same way as Billett (2002b) describes co-participation: the relations between the affordances of workplaces in offering learning opportunities and the ways in which individuals choose to engage with these. In order to ensure that teacher education is relevant, engaging and has a long-term impact on the individual and broader developments in education, there must be a variety of models of effective teacher education (Hodkinson and Hodkinson, 2005). It can be formal or informal, individual or collaborative. What works in one school, may not work in another, or even for different teachers within the same school. There are “significant differences in workplaces across the [schools] sector” (McNamara et al, 2014:192), requiring ITE to provide a broad understanding of teaching and learning, through intellectual engagement with theory and pedagogy, that is transferable to different schools and contexts, as well

as a deep understanding of the craft of teaching that can be learned from working alongside an experienced mentor (Edwards and Protheroe, 2003).

The solution Hodkinson and Hodkinson (2005:123) suggest is the creation of expansive learning environments appropriate to individual schools, that “present wide-ranging and diverse opportunities to learn, in a culture that values and supports learning”, thereby increasing both the affordances for learning (Billett, 2001a) and the likelihood that teachers will engage with these affordances. Hodkinson and Hodkinson (2005) propose an adaptation of Fuller and Unwin’s (2003) expansive-restrictive model of workplace learning environments in which they identify factors that are tailored to teacher education through continuing professional development. The factors included in this model arose from Hodkinson and Hodkinson’s (2005) specific research project, therefore there may be others that could be added, however it also reflects other research findings (Pridham et al. 2013; Retallick, 1999; Hustler et al, 2003). Hodkinson and Hodkinson (2005) emphasise that these factors represent a series of continua, rather than a list of mutually exclusive archetypes, upon which teachers and schools will find themselves working and learning in more or less expansive environments. They go on to question whether an expansive learning environment is always possible or desirable in schools, given potentially conflicting learning priorities, pressure from national policy and funding and contradictions between expansive features, such as establishing close collaboration and engaging with multiple groups. However, they recommend that schools should “aim to maximise expansion as far as possible” (Hodkinson and Hodkinson, 2005:125), pointing out that this could be achieved through more effective use of current teacher education funding rather than incurring any additional cost. They conclude that the expansive-restrictive model combines the productive features of learning through participation and construction. Its application to teacher education would “construct an environment where such learning and associated professionalism can flourish” (Hodkinson and Hodkinson, 2005:128).

While there has been some research into the nature of workplace learning in relation to teachers’ professional learning in schools (Atwal, 2013; Fuller et al, 2005; Hodkinson and Hodkinson, 2004 and 2005), this tends, with a few exceptions (McNamara et al, 2014; Pridham et al, 2013; Sim, 2006), to relate to

experienced teachers rather than trainees engaged in ITE. Although the purpose of learning is different in pre- and in-service teachers (McNamara et al, 2014), research identifies relationships between “individual worker dispositions, the affordance of the workplace to provide a restrictive or expansive learning environment, and the influence and direction of government policy” (Atwal, 2013:22) that are relevant to both ongoing teacher education and ITE.

Current national ITE policy in England is driven by the acquisition of skills and competencies through the Teachers’ Standards (DfE, 2011). This could create a restrictive learning environment that stifles opportunities for collaboration and reflection and minimises opportunities for workplace learning (Atwal, 2013), marginalising learning that arises from individual learning needs (Eaton and Carbone, 2008) in favour of the content of the imposed curriculum (Evans et al, 2006) and “national imperatives” (McNamara et al, 2014:11). Although the Teachers’ Standards (DfE, 2011) identify many of the component parts of teaching, they do not demonstrate the interrelated nature of these parts or the way that they are embedded in teaching as a social practice (Groundwater-Smith, 1992, cited in Sim, 2006). In order to avoid this resulting in restrictive learning in ITE, both the university and placement schools need to ensure provision of an expansive learning environment for trainees that offers a broad range of learning opportunities, in and out of the classroom and in different classroom contexts, and appropriate support in which learning is explicitly valued (Hodkinson and Hodkinson, 2005). This presents challenges, as each institution will need to build this provision and work in partnership with the others. The creation of a CoP, or several connected CoPs (Lave and Wenger, 1991), offers the possibility of learning through the social practices of the institutions, giving the institutions themselves an opportunity to consider these social practices explicitly and maximise learning opportunities through LPP, collaboration and critical reflection, resulting in an expansive environment.

An expansive learning environment for teacher education can be maintained by its individual members, including leaders, remaining “positive, supportive and collaborative” (Atwal, 2013:24). Indeed, the agency of individual teachers to influence their engagement in professional learning is a significant factor and can result in different perceptions of the same learning opportunities (Hodkinson and

Hodkinson, 2004), different ways of engaging with social and work practices and different learning outcomes (Billett, 2001b). This is influenced by past experience of work, learning and biography and can impact on whether they perceive a learning environment to be expansive or restrictive (Evans et al, 2006). This includes the existing knowledge and attitudes that each trainee brings to ITE, that comprise the “tacit knowledge and skills” (Thomas and Pring, 2004:79) that inform perceptions of themselves as learners and choices they make about their own learning. These attitudes, skills and perceptions, whether positive or negative, will influence experience of a learning environment as more or less expansive or restrictive and the nature of learning that occurs (Atwal, 2013). It is clear then that “the culture of the workplace will influence the dispositions to learning of the individual, and vice versa, with each dependent on the other, and learning at the centre” (Atwal, 2013:26).

Having explored the nature of learning, how it occurs and the impact of the learning environment, the following section considers in more depth the role of critical reflection in learning. This is related to developments in ITE policy, practice and the use of technology to enhance learning.

Critical reflection

A parallel but related aspect of learning that lies at the heart of this research and features to some extent in LLP and workplace learning, is critical reflection. Its roots in the work of Dewey (1933), Mezirow (1990 and 2000) and Korthagen and Vasalos (2005) are explored here, leading to a definition of the key features of critical reflection. This is followed by an exploration of its significance in ITE, particularly in the light of recent national policy in England, and the role played by both universities and schools in providing opportunities for critical reflection. Connections between critical reflection, theories of learning and CoPs are also identified.

This research is founded on a concept of learning that involves reflection (Dewey, 1933), core reflection (Korthagen and Vasalos, 2005) and transformation (Mezirow, 2000). These concepts form the process of critical reflection, which plays a key role in ITE, and goes beyond the acquisition of practical, craft skills for the

classroom (Zeichner and Liston, 1987; Sloat et al, 2014). Although this process of critical reflection may not be neatly linear or cyclical, it involves interplay between:

- “systematic, rigorous, disciplined way of thinking” (Dewey cited in Rodgers, 2002:845);
- critique of presuppositions that underlie the beliefs that influence the interpretation that leads to decision making, making meaning and learning (Mezirow, 1990);
- consideration of “core qualities” (Korthagen and Vasalos, 2005:55) with the support of a tutor/supervisor, and how these influence his/her identity and mission as a teacher;
- “perspective transformation” (Mezirow, 1990:13) involving the reassessment and reformation of assumptions in the light of challenges to these assumptions or “distortions” (Mezirow, 1990:14).

The process of critical reflection is complex and non-linear. Reflection, core reflection and transformation are key features of the process of critical reflection and can be used as evidence of its presence. They do not, however, form a simple progression of skills and behaviours but rather are interwoven into learning to deepen understanding. Nevertheless, it could be argued that reflection is at the heart of this process and each element within it.

Reflection begins with the problematisation of an experience and use of analysis to deepen understanding and make connections with other ideas (Dewey, 1932 cited in Rodgers, 2002). This is implicit in aspects of expansive learning such as participation in multiple CoPs, breadth of learning experiences and planned reflection time away from work that lead to “deep learning” (Fuller and Unwin, 2003:412). However, ways in which systematisation, rigour and discipline could be afforded by an expansive learning environment are not specified, leading to an opportunity to develop the role of critical reflection in the expansive-restrictive continuum, particularly in the context of online learning in ITE.

Given the social nature of teaching and learning, reflection is essentially a process that requires interactions with others and the consideration of different points of view and interpretations (Kolb, 1984), leading to clarification, justification and contextualisation of ideas. This contributes an element of rigour to what could

otherwise be a somewhat introspective process. While Wenger (1998) includes reflection as an element of learning within a CoP that enables the learner to both engage and distance him/herself, it is limited to having an objective view of identity and practice and being aware of multiple interpretations. He goes on to emphasise the need for encounters between newcomers and oldtimers in a CoP, recognising that reflection and understanding occur, and are deepened, through the process of articulating ideas to others in reflective discourse or dialogue (Solomon, 1987; Moon, 1999; Mezirow, 2000; Wegerif, 2011).

Analysis and discussion of ideas may lead to new understanding but critical reflection goes further than this. Greater depth can be achieved through identification of the assumptions and beliefs that underlie these ideas (Mezirow, 1991). It is only through this reflection on premise that a learner is able, with the support of others, to consider his/her “core qualities” (Korthagen and Vasalos, 2005: 55) and how these influence his/her identity, values and understanding or “theory of oneself as a teacher” (Winch, 2017b:95). Once underlying presuppositions have been identified, these too can be critiqued and challenged, leading to the formulation of new meaning through the restructuring of previous knowledge. Kagle evaluates the efficacy of a professional learning community (PLC) within ITE to “orient pre-service teachers toward becoming reflective” (Kagle, 2014:21), particularly through providing a forum in which to ask challenging questions about practice. She questions whether a trainee can be expected to engage in this aspect of professional practice, suggesting that PLCs for trainees need to be adapted from their use as a professional development tool in schools. However, she recognises the potential of the PLC as a device that enables trainees to “act as apprentices, learning the habits of reflective practice before doing so as professional teachers” (Kagle, 2014:21).

The process of learning through transformation (Mezirow, 2000) is central to critical reflection and relates closely to dialogic learning as a “practice of reflection capable of dissolving fixed images and assumptions” (Wegerif, 2011:185). While Evans et al (2006), Hodkinson and Hodkinson (2003) and Billett (2001a) recognise the impact of the dispositions of individual learners on the ways in which they engage with opportunities to learn in the workplace, these are characteristics and attitudes rather than values, beliefs or “core qualities” (Korthagen and Vasalos,

2005: 55). Moreover, none of these authors suggests that individuals should recognise, question or restructure their dispositions in order to learn. This reveals an opportunity to extend theories of workplace learning to include learning as transformation and build opportunities for further aspects of critical reflection into frameworks such as the expansive-restrictive continuum (Fuller and Unwin, 2003).

Critical reflection is both an aim and key element of pedagogy in ITE in which teaching is perceived as a “professional endeavour” (Winch et al, 2015:202). This contributes to transformative learning that enables trainees and teachers to understand the contexts, beliefs and assumptions underlying practice, policy and theory and engage fully in professional discussion and discourse (Mezirow, 2000). Rather than resulting in new, fixed truths and certainties, transformative learning through critical reflection is emancipatory, enabling teachers to be “more deliberative, responsible, and competent in carrying out the work of society” (Taylor, 2000:167). Transformation should not only shape teachers’ understanding but must lead to “judgement and action” embodied in “wise pedagogical decisions” (Shulman, 1987:14).

Rodgers (2002:844) asserts that exploration of the “process and purpose of reflection” has largely been carried out by philosophers and that teachers and teacher educators have not engaged with this literature to inform the design of programmes that claim to produce reflective practitioners. However, this is at odds with the wealth of research into the nature of reflection, the efficacy of different pedagogies to facilitate its development and multidimensional models that explore the complexity and depth of reflection in learning and professional development, specifically in ITE (Zeichner and Liston, 1987; Korthagen and Vasalos, 2005; Otteson, 2007; Lowenstein, 2010; Sloat et al, 2014; Liu, 2015). Reflection is also explored in workplace learning literature and identified as an aspect of “educational imagination” within a CoP (Wenger, 1998:272) and a feature of expansive learning environments in the workplace (Fuller and Unwin, 2003) and specifically in teacher education (Hodkinson and Hodkinson, 2005).

ITE policy in England has led it to become increasingly school-based, assessing performance against standards that focus on “general forms of teaching behavior that correlate with student performance” that ignore the complexities and demands

of teaching (Shulman, 1987:6). This places little or no value on theoretical and pedagogical knowledge (Beauchamp et al, 2013) and provides limited opportunity for reflection on the more complex cultural dimensions and social practices of teaching (Sim, 2006). In this context there is the potential for integration of theory and practice to be reduced or lost. This could lead to the loss of critical reflection in favour of craft skills, resulting in the stagnation of pedagogy caused by teachers lacking the skills to question, re-evaluate and re-develop teaching and learning practice and policy (Zeichner and Liston, 1987; Nichol, 1993; Brouwer and Korthagen, 2005; BERA and RSA, 2014; Sloat et al, 2014). Critical reflection is a crucial element of a transformatory model of teaching that goes beyond ITE as apprenticeship that reproduces established practices through the mastery of specified competencies. Indeed, Mezirow (1991:220) claims that the latter will “result in reductive distortion and serve merely as a device of indoctrination”.

Despite the direction of the government’s policy on ITE in England, the participating university’s ITE programmes, in line with those of other ITE providers in England, value critical reflection (Beauchamp et al, 2013). Critical reflection is essential to the practical, technical and theoretical knowledge of the professional teacher and these elements are complementary: teachers’ practice is enhanced by engagement with and in research and research is enriched “through closeness to the complexities and immediateness of practice” (Winch, Oancea and Orchard, 2015:210). The interdependence and equality of theory and practice are highlighted by Nichol (1993:308) in his evaluation of a school-based model of ITE in which he argues that “theory is meaningless without reference to the actuality of the school, practice can only be rationalised in terms of the insights which theory provides”. More recently, Korthagen, Loughran and Russell (2006) found that trainees’ research into their own practice resulted in an increased awareness of their own teaching and ability to direct their own professional development.

Critical reflection is central to trainees’ learning within ITE. It enables them to develop sound pedagogical strategies and practical classroom techniques and go on to shape their own professional development and contribute to future progress in educational research and policy (Zeichner and Liston, 1987). Moreover, this recognises that effective teachers can engage with the philosophical and epistemological beliefs underlying practice and policy, and that this engagement

informs their decision making about and evaluations of learning and teaching (Sloat et al, 2014). It is through the integration of theory and practical experience that ITE programmes can enable teachers to continue to develop their practice and innovate during their teaching careers (Brouwer and Korthagen, 2005). This is evident in Shulman's (1987:8) "pedagogical content knowledge" (PCK), that provides a complex knowledge base for teaching that constantly develops through research and critical reflection. PCK integrates theory, practice and critical reflection within concepts of scholarship, evaluation and the "wisdom of practice" (Shulman, 1987:11) that lead to a clear, well grounded vision of the nature of 'good education'.

Within ITE, the nature of critical reflection is multifaceted and it appears in a variety of forms. During the university's ITE programmes, a trainee works with, and is supported and assessed by, his/her tutor and two school-based mentors during school placements. In addition, he/she comes into contact with many other university tutors, school staff and other trainees and is therefore a member of several overlapping CoPs with some members acting as "brokers" of different perspectives across the CoPs (Wenger, 1998:109). Critical reflection through discussion of theory and practice with these professionals and peers is a key part of seminars, tutorials, formal and informal feedback and weekly reviews. It should be dialogic in nature, involving the consideration of a wide range of views and continual assimilation of new ideas (Wegerif, 2007). These discussions lead to understanding of the purpose of actions within teaching, induction into thinking and acting like teachers and the verbalisation of practical and theoretical assumptions (Otteson, 2007).

There may be limitations to critical reflection, and therefore learning, if theory is undervalued in these discussions in favour of direct, practical advice. Otteson (2007) found that this was the case when a trainee reflected through the problematisation of an aspect of practice (Dewey, 1933), the mentor suggested a solution and the trainee followed his/her advice without further consideration of other perspectives. This may be due to the intensity and complexity of working in a classroom and/or the tendency for the knowledge that informs teachers' actions to be tacit (Otteson, 2007). However, it is vital that "deficits of innovation and intellectual rigour" do not develop due to the role models presented by some

mentors and the reduction or loss of university involvement in ITE (Clarke, 2016:12). While effective mentoring can provide challenge and criticality, universities add elements that have the potential to revitalise teaching and learning through involvement in broader educational research and innovation, preventing education from becoming inward-looking or localised and stagnant (Clarke, 2016). Universities can provide opportunities for trainees to question the “taken-for-granted ways of doing things and develop their own independent views on alternatives based on the theoretical perspectives and systematic ways of thinking”, supported by tutors who have substantial knowledge of scholarly literature and are able to engage in the associated debates (McNamara and Murray, 2013:12). It is part of the university’s role in ITE to enable trainees to engage in critical reflection and the role of the tutor, in supporting trainees’ critical reflections through interactions within collaborative online documents, warrants further investigation.

There can be tensions when a trainee’s core reflections question the assumptions behind established practice and policy, although they must do this to understand these practices fully and avoid simply replicating their own experiences of school or those modelled by mentors (Comeaux, 1991, cited in Sim, 2006). This mirrors the “continuity-displacement contradiction” inherent in LPP in which the tension between maintaining the community and replacing old members and practices with new ones results in the community’s development and improvement over time (Lave and Wenger, 1991:114). Sim (2006:79) suggests that a CoP within an ITE programme can provide a “safe and non-threatening environment” in which these tensions and underlying assumptions can be shared, facilitating core reflection in order to bridge the transition from university to school and help trainees make meaning from theoretical perspectives and experiences.

In addition to a discursive approach to critical reflection in ITE, teacher educators need to understand the roles played by the cognitive processes involved in, chosen content of and reasons for critical reflection (Liu, 2015). Only then can they understand how critical reflection transforms trainees’ practice in the classroom and effectively facilitate this. Teacher educators enable critical reflection through examination of the assumptions about pedagogy that underlie personal, institutional, political and societal perceptions of education. Inherent in this process

are analysis and critique of these assumptions and the resulting development and refinement of classroom practice. This informs research questions 1 and 2 of this research, that focus on the nature of critical reflection in collaborative online documents and the role of the tutor in supporting the trainee's critical reflections. However, the purpose of critical reflection goes beyond the practice of one trainee in his/her classroom and impacts positively on learners' experiences, schools and society (Liu, 2015). Furthermore, critical reflection is central to becoming part of the culture of educational thinking that develops understanding of power and fairness in the classroom and contributes to a more equitable society (Lowenstein, 2010). This is LPP on a grander scale (Lave and Wenger, 1991), in which a trainee progresses from becoming a member of a CoP of teachers within a school and joins a global community of teachers with a broader purpose.

Discussion of the role of critical reflection in ITE is located within consideration of the wider purpose of education. As part of the education system, ITE, through critical reflection, can play an active role in challenging inequalities in the balance of power between the state and individuals in civil society (Welton, 2001, in Brookfield, 2005). Social transformation that addresses these inequalities begins with learning democracy (Brookfield, 2005) in which communicative or emancipatory action (Habermas, 1971) or "perspective transformation" (Mezirow, 1990:13) are essential to the preservation of democracy.

Engagement with and in research, as part of critical reflection that informs practical deliberation, is central to ITE as it supports trainees and produces professional teachers who continue to learn and develop their understanding of pedagogy (Winch, Oancea and Orchard, 2015). This engagement informs trainees' analysis of problems in the classroom and understanding of the impact of the interventions and strategies they choose to employ in response to these problems (Korthagen, Loughran and Russell, 2006). Research provides multiple perspectives, which should be considered when seeking solutions to problems arising in practice and understanding of complex situations, forming the basis for enriched professional judgement (Dewey, 1929) rather than seeking "simplistic formulas or cookie-cutter routines for teaching" (Darling-Hammond, 2000:170). Even Nichol (1993), who advocates a school-based model of ITE, maintains that reflective practice is an

essential habit that will enable trainees to become teachers able to engage with professional development throughout their careers.

The relationship between research and practice is complementary, as engagement with research brings it into closer proximity with practice, enriching it and increasing its relevance (Winch, Oancea and Orchard, 2015). This virtuous circle feeds into critical reflection within ITE, schools and the educational research community and can be achieved through the establishment of CoPs of trainees in which they are encouraged to engage in critical reflection, although it can be challenging to persuade trainees of the value of research (Sim, 2006). This is evident in the strong role that critical reflection plays in ITE, despite national policy in England (Beauchamp et al, 2013) in which practical knowledge and performance against competencies are prioritised over theoretical understanding of pedagogy (McNamara and Murray, 2013).

Current policy in England means that ITE is predominantly school-based through the provision of School Centred Initial Teacher Training (SCITT) programmes, and others such as Teach First and School Direct, and the requirement that trainees spend 120 days in school on a PGCE programme (Whiting et al, 2016). However there is no evidence that this results in more effective ITE (McNamara et al, 2014) and is contrary to policy in other European countries in which ITE is longer and more academically rigorous (Smith et al, 2005). This, in combination with Teachers' Standards (DfE, 2011) that focus on practical classroom competencies, leads to a view of teaching as a craft and an apprenticeship model of ITE, lacking in critical reflection as explored previously (Zeichner and Liston, 1987; Sloat et al, 2014).

Views of teaching as a craft are favoured by some teachers and trainees, as this can provide positive models of secure classroom management and practice that prioritise "classroom survival" (Clarke, 2016:15). This emphasis on 'learning on the job', a limited form of situated learning or LPP (Lave and Wenger, 1991), and the pressure of time on out of the classroom learning, reduces vital opportunities for critical reflection and discussion of a range of experiences and theories (Darling-Hammond, 2000) and threatens established models of ITE. It precludes trainees developing "a conceptual map of the wide educational field" or the

“practical wisdom” that can be used and applied “in a variety of complex settings” (Orchard and Winch, 2015:14). This results in teachers who have less understanding of teaching and learning and therefore encounter difficulties in the classroom, pupils’ learning outcomes are reduced and retention rates are lower (Darling-Hammond, 2000). Winch (2017b:171) also argues strongly that “the conception of a professional teacher is incompatible with” a model of ITE that does not combine practice of “the core activities of a teacher” (class teaching, planning, assessment and collaboration with colleagues) with “the application to practice of the underlying systematic knowledge and understanding (theory) that enable the former activities to be undertaken with the greatest effect” (Winch, 2017b:172).

Having defined critical reflection and established its role in ITE, the following section of the chapter explores critical reflection in online learning.

Critical reflection in online learning

In this section, the potential for critical reflection in online learning is explored. Studies into the impact of a range of online tools have identified both positive outcomes and limitations, in relation to the facilitation of critical reflection in ITE and other disciplines. These are outlined here and related to specific features of learning theory and the expansive-restrictive continuum (Fuller and Unwin, 2003).

Online learning has become a ubiquitous feature of ITE, in order to take advantage of the pedagogical possibilities and flexibility offered by new learning and teaching tools (Williamson et al, 2015) and to mitigate against the reduced time that trainees spend in university and the isolation that can result (Hramiak, 2007 and 2010). Many of the technological learning tools available facilitate the sharing of ideas through online interactions and there has been much interest in the ways in which these can support and enhance critical reflection. Indeed the internet itself provides “a dialogic space supporting the interplay of billions of voices” that can be used to construct meaning together and, more importantly, expand learners’ capacity to participate in dialogue (Wegerif, 2013:5). It enables connections to be made between numerous and diverse sources of knowledge that are constantly changing, providing the vehicle for a connectivist view of learning (Siemens, 2005; Downes, 2007). The use of tools such as e-portfolios (Trent and Shroff, 2012),

blogs (Wopereis et al, 2010; Boulton and Hramiak, 2012; Jones and Ryan, 2014; Muncy, 2014; Novakovich, 2015; Williamson, Mears and Bustos 2015), online journals (Larkin and Beatson, 2014) and online discussion boards (Ruan and Griffith, 2011; Jones and Ryan, 2014) have been investigated in relation to evidence of critical reflection.

Online interaction can play a significant role in developing trainees' critical reflections (Wopereis et al, 2010; Ruan and Griffith, 2011; Boulton and Hramiak, 2012; Trent and Shroff, 2013). There are also endless opportunities for trainees to interact with other individuals and participate in multiple CoPs (Lave and Wenger, 1991) or "constellations" (Wenger, 1998:257) around the world via the internet, a key feature of an expansive learning environment (Fuller and Unwin, 2003). Much of the existing research into critical reflection in the use of online tools predates the increase in school-based training in English ITE (Boulton and Hramiak, 2012), focuses on ITE around the world (Trent and Shroff, 2012; Jones and Ryan, 2014) or other sectors such as marketing (Muncy, 2014) and pharmacy (Black and Plowright, 2010; Oosterbaan et al, 2010). This research however, investigates the role of collaborative online documents and the ways in which they can be used to promote critical reflection. It does so within the context of ITE in England and seeks to provide a framework to guide the use and evaluation of such learning technologies through the extension of the expansive-restrictive continuum (Fuller and Unwin, 2003) to include both collaborative online documents and critical reflection.

Online sharing and discussion with peers and academic staff can have a positive impact on trainees' reflections (Clarke, 2009; Trent and Shroff, 2013; Larkin and Beatson, 2014; Muncy, 2014) and contribute to the development of reflective practitioners (Boulton and Hramiak, 2012). Online tools have been found to be "suitable for structured reflective writing and feedback" (Wopereis et al, 2010:258), facilitate "reflexivity and higher levels of critical thinking" (Novakovich, 2015:12) and engagement in "multi-faceted, multi-leveled reflective thinking" (Ruan and Griffith, 2011:559). Working within a POD provides opportunities for asynchronous, written reflections that have depth due to the deliberation and real audience (Clarke, 2009). Tutors also value interactions with trainees within a POD as "an opportunity to encourage and assess metareflection" (Clarke, 2009:523), allowing

them to support trainees' questioning of underlying assumptions (Mezirow, 1990) and identification of core qualities (Korthagen and Vasalos, 2005). However, other studies of the effectiveness of online tools have found that reflections are limited to the identification of issues, resolutions and processes and that trainees do not go on to explore relationships between theory and practice or develop new understanding and approaches to pedagogy as a result (Jones and Ryan, 2014). This diversity in the findings of studies may be explained by the interplay between the affordances of the tools themselves, how they form part of the wider learning environment and how the learners elect to use them (Billett, 2001a). This research seeks to clarify the role that collaborative online documents can play in developing trainee teachers' critical reflections by examining their affordances and constraints.

It is the way the tools are used that facilitates critical reflection, rather than the inherent nature of the tools themselves (Williamson et al, 2015), although Billett (2001a:210) would argue that the tools must be "invitational" in order to facilitate learning. Models and guidance for effective use of online tools to support critical reflection have been developed that identify practical considerations such as time, quantity and medium (Williamson et al, 2015), as well as pedagogical factors including ownership, the nature of the technology-mediated learning environment and the role of the learning community in "collective reflection that supports and extends each other's thinking and learning" (Ruan and Griffith, 2011:559). It could be argued that this is embodied in the TPACK framework of teachers' knowledge (Koehler and Mishra, 2009) that "emphasizes the connections, interactions, affordances, and constraints between and among content, pedagogy, and technology... rather than treating these as separate bodies of knowledge" (Mishra and Koehler, 2006:1025). Both Wenger et al (2009) and Mishra and Koehler (2006) propose that content and pedagogy influence the technologies chosen and employed in teaching and also that technological developments influence what is taught and how it is taught. This indicates connections between online critical reflection and CoPs that utilise digital habitats (Wenger et al, 2009) to facilitate dialogic learning (Wegerif, 2007 and 2013). This research brings these theories together to examine the nature of critical reflection in trainee teachers' use of collaborative online documents and insight into the contribution that can be made to ITE by online tools.

Chapter summary and contribution of this thesis

This chapter has explored the seminal theories of social constructivism (Vygotsky, 1978) and socioculturalism (Bruner, 1986) that underlie this study and much practice in ITE. It has examined more recent theories that locate learning in the digital world of online communication and collaboration (Wegerif, 2013; Siemens, 2005) in order to understand the nature of learning in this environment. This raises issues of whether learning is an individual process of change or whether learning and knowledge can occur outside of an individual, facilitated by an online tool, community or environment. Learning as participation within LPP (Lave and Wenger, 1991) and CoPs (Wenger, 1998) was explored, leading to an alternative view that learning is evident in changes to social practices. Having demonstrated how these views of learning relate to ITE, questions emerge about the nature of learning in an online space in ITE, what is learned, how it is learned and the factors that contribute to or inhibit this.

Critical reflection, defined in terms of reflection (Dewey, 1933), core reflection (Korthagen and Vasalos, 2005) and transformation (Mezirow, 1990), is established as an essential element of the knowledge base of teachers and therefore ITE. This is confirmed by Shulman's (1987:10) definition of Pedagogical Content Knowledge (PCK) that includes "formal educational scholarship" through engagement with visionary and empirical research that informs sound understanding of teaching and learning, a broad range of theories, interpretations and critiques that can be used flexibly to meet diverse learning needs. Further affirmation of the importance of critical reflection in ITE is provided by Brouwer and Korthagen (2005) and Orchard and Winch (2015), among others. Set within the context of learning in online spaces, there is evidence of critical reflection through the use of various tools in a range of disciplines (Clarke, 2009; Trent and Shroff, 2012; Larkin and Beatson, 2014; Muncy, 2014; Boulton and Hramiak, 2012; Wopereis et al, 2010; Novakovich, 2015; Ruan and Griffith, 2011). However, questions remain about the nature of critical reflection in trainee teachers' collaborative online documents. This also contributes to the critique of current ITE policy in England as craft skills focused and lacking the depth and breadth afforded by critical reflection.

Views of learning as social, dialogic and participatory are established within face-to-face and online learning environments (Wegerif, 2013; Wenger et al, 2009; Clarke, 2009). This necessitates the consideration of learning in the context of a community or relationship with others and reveals aspects of how learning is facilitated in this social, online context (Eraut, 2004a). The contribution made by a tutor, as an agent of formal education provided by a university, is largely discounted or overlooked in the workplace learning literature (Fuller et al, 2005), however it has been shown to be an influential factor in encouraging trainees' critical reflections (Korthagen and Vasalos, 2005; Brouwer and Korthagen, 2005). It is necessary then to examine the ways in which interactions between tutors and trainees in collaborative online documents contribute to trainees' critical reflections.

Dialogic (Wegerif, 2013) and connectivist (Siemens, 2005) theories of learning position learning and knowledge "outside of ourselves" (Siemens, 2005:4), involving processes of the divergence of ideas and the making of connections. Technology is perceived as both a cause of these views of learning and a set of tools to facilitate these processes. As such, technology is an element of the learning environment that must be considered in terms of its affordances for learning, both in terms of the learning opportunities provided by the tool/s and the ways in which learners choose to interact with these (Billett, 2004b). Within this research, questions are raised about the affordances and constraints of collaborative online documents in relation to critical reflection.

Drawing on LPP, CoP and workplace learning theory, particularly Billett's affordances (2001a), Fuller and Unwin's (2003) expansive-restrictive continuum and Hodgkinson and Hodgkinson's (2005) version for teacher education could be used as the basis for a new version that identifies the expansive and restrictive features of the use of online tools within ITE. This would include greater emphasis on critical reflection as an important element of ITE (Brouwer and Korthagen, 2005; Orchard and Winch, 2015), particularly in relation to the use of online tools to support this aspect of learning. This provides an opportunity to extend theories of workplace learning, specifically the expansive-restrictive continuum (Fuller and Unwin, 2003 and Hodgkinson and Hodgkinson, 2005), by tailoring it to ITE and including the affordances (Billett, 2001a) of collaborative online documents that

facilitate critical reflection. This could be used to inform the design, implementation and evaluation of collaborative online documents as an element of ITE learning environments, with a view to facilitating critical reflection. It could also inform developments in both policy and practice regarding the most effective ways to provide expansive learning experiences in ITE.

This chapter has been concerned with the theories underpinning the research. Broadly, this has highlighted theories of learning, workplace learning and critical reflection that have informed the research and how each relates to ITE. Research into the role played by online learning and tools in both workplace learning and critical reflection has also been presented. The next chapter moves on discuss the research approach adopted.

Chapter 3 Research approach

Introduction

This chapter outlines the purpose of this research, the underlying principles and how they influenced the processes employed. It begins with a discussion of the research questions and how they arose from the researcher's practice. The chapter moves on to explore the researcher's theoretical perspective and how this, along with the nature of the research questions, informed the research approach adopted in the study. A justification is made for the choice of thematic analysis as the research method, followed by an explanation of the processes involved in data collection and analysis. A case is made for the trustworthiness of the research using Lincoln and Guba's (1985) model and finally the ethical issues in selecting and researching the participant trainee teachers are explored.

Research questions

This research arose from the researcher's practice and experience as a senior lecturer in ITE. Having introduced the use of collaborative online documents as the medium for trainees' weekly reviews, she sought to build understanding of the nature of critical reflection within this environment and the roles played by tutors' interactions and the affordances of the online tools. The aim of the research was, through analysis and interpretation, to arrive at a theoretical conclusion that was grounded in the data and could be used to inform future practice in the use of such tools. Although "most [educational] research is either for or about policy or for or about practice" (Newby, 2010:27), this research straddles both purposes with a focus on the understanding of practice within ITE but with implications for the development of practice within the policy context of ITE in England, which currently prioritises craft skills over critical reflection (McNamara et al, 2014; Orchard and Winch, 2015; BERA and RSA, 2014). The research questions seek understanding of practice around critical reflection, while the analysis and underpinning theory draw on and critique policy in order to justify the importance of critical reflection in ITE.

The principal research question (RQ) was:

- RQ1 What is the nature of critical reflection in trainee teachers' collaborative online weekly reviews?

Understanding was developed through two supplementary questions that sought to provide a more rounded picture of the ways in which critical reflection could be supported:

- RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?
- RQ3 What are the affordances and constraints of collaborative online documents in relation to trainees' critical reflections?

The trainees' weekly reviews provided the raw data, which was used to investigate evidence of critical reflection in their accounts of their learning and development. The content of tutors' comments and the ways in which they responded to the points made by trainees were also examined in order to understand their contribution to critical reflection. The ontological and epistemological positions underpinning these RQs and the research approach adopted are explained in the next section.

Research process

Theoretical perspective

As the research questions sought to understand the nature of the process of critical reflection and the influences upon it, a qualitative enquiry was best suited to providing descriptions of features, interpretations of the significance of these features and the ways in which they were connected to social and cognitive contexts (Newby, 2010). The approach adopted arose from a critical realist ontology in which an "authentic reality exists" (Braun and Clarke, 2013:27) but where the context must be acknowledged as influencing both the reality itself and the researcher's understanding (Bryman, 2016:25). Consequently the researcher's understanding can be authentic, while also being "provisional" (Bryman, 2016:25) or "fallible and... open to critique and... replacement" (Scott, 2005:635). This reflected a constructionist epistemology in which knowledge is constructed within

social and cultural contexts and, as these contexts can change, so there can be no single, static truth (Braun and Clarke, 2013:30). Learning is a process that happens through interactions and knowledge is a shared outcome of this process, therefore “meaning is not discovered, but constructed” (Crotty, 1998:9). This definition of learning was reflected in the focus of the study: the nature of critical reflection in trainee teachers’ written reviews and the impact of their interactions with tutors and technological tools. It was also reflected in the approach of the researcher, who interacted with the reviews as an output of this process in order to understand “How have the people in this setting constructed reality? What are their reported perceptions, ‘truths’, explanations, beliefs, and worldview? What are the consequences of their constructions for their behaviors and for those with whom they interact?” (Patton, 2002:132).

Research approach

As a result of the ontological and epistemological positions described above, the researcher adopted an interpretative, contextual approach with an emphasis on “the representation of reality through the eyes of participants, the importance of viewing the meaning of experience and behaviour in context and in its full complexity” (Henwood and Pidgeon, 1993:16). The researcher sought a rich understanding of the nature of critical reflection and influential factors, pursuing “completeness not convergence” in the research (Madill et al, 2000:12). Hence a qualitative methodology was appropriate and advantageous, in that the meanings of data were recognised as contextual, and therefore variable, and the experiences of the participants were recognised as subjective and unique to the individual but nevertheless authentic and significant. A qualitative approach acknowledged that “warrantable knowledge” (Henwood and Pidgeon, 1993:16) about the nature of critical reflection could result from the study of texts that participants had written and that this knowledge was grounded in their descriptions, as represented by the researcher (Madill et al, 2000).

While quantitative and qualitative approaches share “theory as the goal of research”, the relationship between theory and the process of research varies (Henwood and Pidgeon, 1993:18). In this research, as in qualitative approaches more broadly, the emphasis was on an inductive approach in which theory could

be generated as a result of analysing the data. The active role of the researcher in the generation of theory was acknowledged, rather than the pre-existence of a theory waiting to emerge from or be discovered within the data. Whereas quantitative research seeks to test, verify or critique existing theory, in this study existing theory was inadequate to address the research questions and the need to generate additional theory was recognised.

Previous studies investigated how critical reflection could be supported by other online tools such as blogs (Muncy, 2014; Novakovich, 2015), e-portfolios (Oosterbaan et al, 2010) and online discussion forums (Ruan and Griffith, 2011), although only a small number related to ITE (Boulton and Hramiak, 2012) or the use of collaborative online documents (George, 2012). Similarly, while there was a wealth of theory regarding learning through participation in work-based communities of practice (Lave and Wenger, 1991; Wenger, 1998; Eraut, 2002 and 2004a) and the kinds of environments, experiences and dispositions that encourage workplace learning (Billett, 2001a; Fuller and Unwin, 2003; Hodkinson and Hodkinson, 2005), few studies related to ITE (Pridham et al, 2013) or online learning (Clarke, 2009). A combination of theories from across critical reflection, online learning, ITE and workplace learning was used during data analysis in this study. The theory that was developed was grounded in the data and was used to adapt and extend specific aspects of the existing literature to propose a 'Continuum of expansive-restrictive learning in collaborative online environments in ITE' (see Chapter 8 Conclusion - Contribution to knowledge).

While some have argued qualitative researchers should not be constrained by positivist definitions of validity that are applied to quantitative research (Maxwell, 1992; Guba and Lincoln, 1989), others have redefined validity as "fallibilistic" (Schwandt, 1997:169) in which research provides a plausible account rather than the reproduction of an independent reality. The latter view is in keeping with the critical realist and constructionist stance of this research and, as such, the research approach described here supported the production of "valid knowledge" (Braun and Clarke, 2013:31) or credible conclusions (Maxwell, 2013:125). Validity in this sense was established through the use of rich data that was "detailed and varied enough that they provide a full and revealing picture of what is going on"

(Maxwell, 2013:126) and the use of this data provided a grounding for the conclusions and theory generated by this research (Henwood and Pidgeon, 1993).

Research Methods

While there are numerous methods that would have been compatible with a constructionist, interpretative perspective, in this section an argument is made for the use of thematic analysis (TA) on the basis that it was well suited to:

- the analysis of qualitative data, such as that used in this study;
- the role of the researcher within these theoretical perspectives and in relation to her level of experience;
- the open-ended, investigative nature of the RQs.

The potential pitfalls of using TA are outlined and an explanation of how they were avoided in this study. The data collection, selection and characteristics of participants and the materials comprising the raw data are then explained. There is then a detailed explanation of the six phases of TA and how they were implemented in this study.

Thematic analysis

Put simply, “thematic analysis is the process of identifying patterns or themes within qualitative data” (Maguire and Delahunt, 2017:3352). However, thematic analysis (TA) has also been characterised as an analysis tool (Boyatzis, 1998), a process used within other methods and analytic approaches (Ryan and Bernard, 2000). At the other extreme, Guest et al (2012:15) defined applied thematic analysis (ATA) as “one methodological framework” that is rigorous and inductive and compared it with other theme-based methodologies such as phenomenology and grounded theory. This research is predicated on Braun and Clarke’s (2006:78) definition of TA as “a method in its own right” that can “provide a rich and detailed, yet complex, account of data” through application within “a range of theoretical and epistemological approaches”. By not being tied to a particular methodology, TA remains flexible and well-suited to the RQs, which are open and seek rich, diverse understanding (Maguire and Delahunt, 2017). Its use was congruent with critical realist ontology in acknowledging that an authentic view of critical reflection could

be achieved, while recognising that the broader context of ITE, schools and national policy was influential. It was also consistent with constructionist epistemology by enabling the researcher to “unpick or unravel the surface of ‘reality’” (Braun and Clarke, 2006:81) as revealed in the trainees’ weekly reviews, in order to construct an understanding of critical reflection that was predicated on the broader social context of ITE.

The use of TA was justified in relation to the role of the researcher within these theoretical perspectives. In TA the researcher constructs meaning from the data but, as in constructionism, this is not subjective because it is not a one way process, rather it is an “interaction between subject and object” (Crotty, 1998:45). Meaning is constructed as a result of intentionality (Crotty, 1998:45), in this case the interplay between the researcher and the data provided in the weekly reviews as she engaged with it. This is dependent on the cultural, social and cognitive context of the researcher, as these will influence her perception. The properties and context of the object or data being researched also play a role in the construction of its meaning (Crotty, 1998). In addition, Braun and Clarke (2006) recommend that TA is “the first qualitative method of analysis that researchers should learn, as it provides core skills that will be useful for conducting many other forms of qualitative analysis” (Braun and Clarke, 2006:78). Hence it was an appropriate method for the researcher in this study as she embarked on her first academic study.

The RQs were open questions for investigation rather than hypotheses to test. Inductive TA enabled the researcher to identify patterns (codes) from the data that did not simply fit into an existing theoretical framework but illuminated relevant aspects (themes) that could be used to construct meaning in response to the RQs (Braun and Clarke, 2006). This did not deny the role of the researcher’s “theoretical and epistemological commitments” (Braun and Clarke, 2006:84), which would have been inconsistent with the critical realist ontology and constructionist epistemological position adopted in this study. However, while recognising its potential influence, this research was not “driven by the researcher’s theoretical and analytic interest” and was therefore data-driven rather than analyst-driven (Braun and Clarke, 2006:84). This allowed for the development of the RQs during the process of TA and the identification of codes and themes in the data that did

not correspond directly to the RQs. This resulted in a rich account of the meaning of the data rather than a detailed account of a specific aspect of the data (Braun and Clarke, 2006).

A binary view of TA as either inductive or deductive, as presented by Braun and Clarke (2006), is unrealistic and would be more helpfully conceived as a continuum along which the researcher moves during a study. This is also relevant to the role of the literature review in relation to data collection and analysis. In this study a brief literature review was carried out prior to data collection, to support sensitivity to the subtle features of the data beyond those informed by the researcher's prior knowledge and experience. A more thorough literature review was carried out after data collection, initial coding and theme mapping were complete. This enabled the researcher to provide a rich account of the nature of critical reflection in collaborative online documents by using literature to enhance the later process of analysis.

Potential pitfalls and limitations of thematic analysis

While TA is a “relatively straightforward form of qualitative analysis” (Braun and Clarke, 2006:94), there are potential pitfalls and limitations. These are explored here and an explanation given for how they were avoided or addressed in this research.

The flexibility of TA, which is one of its advantages, could lead to inconsistency or incoherence in codes, themes and claims (Nowell et al, 2017). However, in this research this was mitigated by an explicit “epistemological position that coherently underpin[ned] the study's empirical claims” (Nowell et al, 2017:2). In addition, the codes and definitions were reviewed by an external researcher, resulting in redefinition, conflation or rejection where inconsistencies or incoherence was identified. This was further addressed through the use of a broad range of theory in analysis, combined with a closeness to the data that provided a supportive foundation for the claims made as a result of the analysis.

Topics can replace themes, particularly if they arise from questions that have been asked of participants or even the RQs (Braun and Clarke, 2016). Rather, in this research, the themes were constructed by the researcher as a result of close

reading and analysis of the data. They enabled the researcher to address the RQs by telling a rich story of the nature of critical reflection in online documents. Similarly, if analysis is weak, any claims may be limited to “a summary of data” (Javadi and Zarea, 2016:38) rather than an interpretation that informs understanding constructed from the data. Steps were taken to avoid this in this study through recursive checking of codes and themes against the data throughout data analysis (see Phase 3 of data analysis below). Also the extracts selected in the analysis were “illustrative of the analytic points” that provided an interpretation of the meaning rather than paraphrasing the content (Braun and Clarke, 2006:94). Weak analysis may also result in ill-defined themes that overlap or lack internal consistency (Braun and Clarke, 2006) or which lack a central focus around a specific concept (Javadi and Zarea, 2016). The themes in this study were clearly defined (Appendix 12) and, while they were distinct, the relationships between them were made explicit and supported the claims made in relation to the RQs (see Phase 6 of data analysis below).

In an attempt to achieve the reliability required of quantitative research, themes can be perceived as pre-existing and awaiting capture or discovery by the researcher (Braun and Clarke, 2016). This assumes an objective truth that is incompatible with a constructionist, interpretative epistemological position. However, this was avoided in this study by the active role taken by the researcher involving “rigorous coding followed by a recursive process of theme development” (Braun and Clarke, 2016:741), resulting in analysis that remained close to the data in order to retain authenticity and refinement, while also addressing the RQs.

A “mismatch between the data and the analytic claims that are made about it” (Braun and Clarke, 2006:95) can occur if the analysis and interpretations claimed are inconsistent with the data, particularly the illustrative extracts chosen. This was addressed to some extent through comparison with theory but also through the explicit exploration of alternative interpretations and atypical or contradictory extracts where appropriate, for example the level of critical reflection achieved in trainees’ exploration of potential future practice (P67: 0112GW - 67:3 in Chapter 7 Taking responsibility) and the non-linear nature of progression in critical reflection in trainees’ articulation of beliefs about learning and teaching (P85: 0116JF - 85:13 in Chapter 6 Articulating learning and teaching). Similarly, there can be a mismatch

between existing theory and claims made of the data as a result of analysis (Javadi and Zarea, 2016). This was avoided through clear and explicit explanation of the relevant theory and use of this theory during analysis. All conclusions were supported by references to theory, making it clear where interpretation of the data matched previous findings and where it contributed new or extended knowledge.

Data collection

Participants

The participants comprised 24 trainee teachers (15 from the 2014 cohort and 9 from the 2015 cohort) and the university tutor for each group, making a total of 26 participants in this research. Previous research into reflection in online learning has used a similar number of participants (Black and Plowright, 2010; Boulton and Hramiak, 2012; Khales, 2016; Novakovich, 2015; Wang and Woo, 2007; Wopereis et al, 2010). The trainees were engaged in a PGCE course and were members of the 2014 and 2015 cohorts at the participating university. This was a 10 month postgraduate course that qualified them to teach 3-11 year old children in English schools, during which the trainees spent 60 days in university and 120 days in schools. It ran from September to June. The tutor had an academic and pastoral role in supporting the trainees throughout the PGCE course during both university and school-based periods. The inclusion of tutors as participants in studies of critical reflection provided an additional perspective and depth of understanding (Hartnell-Young, 2007; Oosterbaan et al, 2010).

Purposive sampling was used to select the participants of this study (Cohen, Manion and Morrison, 2011). In order to address the research questions, the participants had to be engaged in a PGCE programme and had to produce weekly reviews using collaborative online documents. The participants included trainees who were training to teach 3-7 year olds and 5-11 year olds. They were typical of the wider cohort in this respect. The group of participants provided an information-rich case (Patton, 2002) from which to gain an in-depth understanding of the nature of critical reflection in collaborative online documents and the contribution of the tutor and technological tools used. They were engaged in weekly interactions using online tools, with the aim of using critical reflection to

understand and improve their thinking, teaching and learning. The study aimed to yield “insights and in-depth understanding rather than empirical generalizations” (Patton, 2002: 230).

The group of trainees comprised 20 female and 4 male participants aged from 21 to 43. All of them held a bachelor’s degree as a requirement for entry onto the programme and one held a master’s degree. Degrees covered a wide range of subjects. This was representative of the wider cohort and ITE more broadly. Both tutors were female, in their 30s and 40s with previous experience of teaching in Primary and Early Years schools and settings. Both tutors held master’s degrees.

Materials and sampling

The materials used to provide the data for this research were the trainees’ weekly reviews. In line with the use of thematic analysis, the data was defined as follows:

- Data corpus: all weekly reviews written by the participant trainees;
- Data set: sample of 8 weekly reviews from each participant trainee (see below for selection rationale);
- Data item: an individual weekly review from a participant trainee;
- Data extract: quotation from a weekly review that has been identified and coded as relevant to the RQs (Braun and Clarke, 2006).

While the original weekly reviews were written and stored as online documents, for the purposes of this research they were downloaded and stored in Atlas.ti 7 (Scientific Software, 2012). Each document was anonymised by the replacement of names of people and schools with initials and the renaming of documents using the cohort, date of original creation and initials of participant trainee. This ensured participant anonymity, while enabling the researcher to carry out analysis systematically and providing a source of data for any future audit or confirmation of the analysis (see Confirmability section below) (Nowell et al, 2017).

All trainees used a template for the weekly review (Appendix 4), which was completed throughout the PGCE. The review focused on progress, strengths, areas for development and development activities. This was provided by the university as an online document which the trainee was required to complete each week and share with his/her tutor. The trainee and tutor could view and edit the

weekly review, with the tutor leaving comments on at least 50% of the reviews. The purpose of these comments was to encourage trainees to analyse and critically reflect on their experiences of learning and teaching.

A selection of 8 weekly reviews from each trainee was collected and analysed by the researcher. The 8 reviews were taken from across the duration of the PGCE and related to the structure of the programme, particularly the taught elements of the course, expectations of experience in schools and assignments. These timeframes related closely to the professional development of trainees, particularly in relation to critical reflection (Appendix 8). This number of reviews was sufficient to reach saturation point in terms of the generation of new codes and themes (Charmaz, 2006; Cohen, Manion and Morrison, 2011). Indeed, taking samples from across the full length of the PGCE course went beyond a simplistic view of saturation. It enabled the researcher to consider codes, themes and patterns from different viewpoints, at different stages in trainees' development, in order to conceptualise the properties of these patterns, leading to "conceptual density" (Glaser, 2001:191). The use of trainees' online publications as a source of evidence of critical reflection was well established (Boulton and Hramiak, 2012; Granberg, 2010; Jones and Ryan, 2014; Kholes, 2016; Williamson et al, 2015).

Data analysis

Within this section the first person voice is used to describe the application of the method of thematic analysis. This situates the researcher as an active agent in the research process and provides an authentic voice with which to report on the analysis of data.

Once I had collected the data, I followed Braun and Clarke's (2006:87) six phase model of TA, starting with the identification of "patterns of meaning and issues of potential interest in the data" and concluding with the production of this thesis, reporting my interpretations of the meanings of the patterns in the data. Although, as recommended, this was a "more recursive process" (Braun and Clarke, 2006:86), moving back and forth between the phases in order to explore complex data and address the RQs thoroughly (Maguire and Delahunt, 2017) and also drawing on aspects of Attride-Stirling's (2001) six step thematic network analysis.

The six phase model is outlined below and subsequently each phase is explained in relation to the reality of the process of data analysis as it occurred in this study.

1. Familiarisation with the data;
2. Generation of initial codes;
3. Identification of themes;
4. Review of themes;
5. Definition of themes;
6. Production of the report (Braun and Clarke, 2006).

Phase 1 Familiarisation with the data

In common with any qualitative analysis (Maguire and Delahunt, 2017), I began by reading and re-reading the weekly reviews that comprised the data set in this study in order to familiarise myself with “the depth and breadth of the content” (Braun and Clarke, 2006:87). This began while the data was being collected and continued throughout the analysis process. While, as a tutor myself, I was familiar with the form of the weekly review, these were not trainees from my tutor groups and I read their reviews as data. Initial reading of the reviews revealed the richness of the data in terms of the ways in which the trainees made sense of their experiences, the assumptions underlying their accounts and the nature of the ‘world’ of the PGCE (Braun and Clarke, 2012). These initial observations of recurring ideas and patterns informed the next phase of analysis in which I identified initial codes and applied them to the data.

Phase 2 Generation of initial codes

The systematic analysis began with data-driven “open coding” (Strauss and Corbin, 1998:223), in that the codes arose from the data rather than arising directly from theory or a hypothesis and I revised and added to these throughout the coding process (Maguire and Delahunt, 2017). However, it is evident that some codes were influenced by my understanding of critical reflection from the reading of theory and experience in my role as a tutor, for example in the distinction between ‘reflection’ and ‘critique’, the roles of theory and practice and ‘assumptions’ (Appendix 10). In this case though, this served to enhance my “sensitivity to subtle nuances in data” (Thornberg, 2012:245), such as the

distinction between connecting theory and practice and exploring relationships between different theories.

Coding was an inductive, iterative process that identified features that I judged to be of interest in the data and facilitated the organisation of the data into meaningful categories. Initial coding comprised both semantic and latent levels of coding (Braun and Clarke, 2012). Semantic codes, such as 'Concern about workload', provided a summary of the surface meaning of the data. Whereas latent codes, such as 'Questioning assumptions/preconceptions', offered an interpretation of the data that looked "beyond the semantic content of the data to identify or examine the underlying ideas, assumptions and conceptualizations" (Braun and Clarke, 2006:84). I created codes and applied them to the data using Atlas.ti (Scientific Software, 2012), which enabled me to recognise of patterns within, between and across the data set and items through comparison of data extracts and their latent meanings and thereby "facilitating both depth and sophistication of analysis" (Nowell et al, 2017:7). The use of software enabled efficient management of coding across 188 documents. Thus I began to construct understanding at this stage of the analysis and theorise about the meaning beneath what was directly articulated in the weekly reviews, reflecting the constructionist epistemology underlying the study.

I used complete coding to identify a diverse range of interesting features that were potentially relevant to the RQs from across the whole data set, in order to broaden my understanding of critical reflection in collaborative online documents rather than aiming for "data reduction" through selective coding at this early stage of analysis (Braun and Clarke, 2013:206). The richness of the data was evident in that there was little that remained uncoded. As I identified codes, I went back to previously coded data and checked for evidence that had gone unnoticed on first coding (Braun and Clarke, 2012). This indicated that I was "reading the data in an active way" (Braun and Clarke, 2006:87) and contributed to familiarity with and knowledge of the data beyond the initial reading and re-reading.

Initial coding resulted in 62 codes (Appendix 9) and data extracts for each code were collated. Reading of these collated extracts provided further immersion in the data and enabled me to write a definition of each code (Appendix 10) and check

the coherence of my coding, indicated by the relevance of each extract to the code. It also added an additional element to the analysis by enabling me to recognise extracts that were attached to multiple codes (Braun and Clarke, 2012). Consequently the reading of the collated extracts informed the next phase of analysis: the identification of themes.

Phase 3 Identification of themes

Having established clear definitions and supporting extracts for each code, my focus moved to the identification of themes that captured “something important about the data in relation to the research question, and [represented] some level of patterned response or meaning within the data set” (Braun and Clarke, 2006:82). In this respect, a theme was more than a “unifying feature” (Braun and Clarke, 2012:63) in that it indicated what was meaningful about the data in relation to the RQ. Rather than waiting passively for themes to emerge from my reading of the data, I was active in constructing the themes by making judgements about their composition and significance (Maguire and Delahunt, 2017) based on knowledge of the data and experience in the field. “An account of themes ‘emerging’ or being ‘discovered’ is a passive account of the process of analysis, and it denies the active role the researcher always plays in identifying patterns/themes” (Braun and Clarke, 2006:80). This was consistent with a constructionist view in which there was intentionality or interaction between subject and object or researcher and data (Crotty, 1998). This was in contrast to a realist/positivist view that truth, in the form of themes that addressed the RQs, existed independently of the researcher and was waiting to be discovered.

In order to identify topics and issues around which the codes clustered (Braun and Clarke, 2012), I moved away from the use of software to a more visual and tactile representation of the codes (Braun and Clarke, 2006) by printing each onto a card. This enabled me to see all the codes at once and move them into different groups, each of which shared “a central organising concept” (Braun and Clarke, 2013:224). Taking one code and its definition, I identified a theme that could relate to the RQs, placed it on a sheet of paper and labelled it. Each label constituted a “candidate theme” that was provisional and open to revision and refinement as the analysis developed (Braun and Clarke, 2013:227). Taking another code, I made a

judgement about whether it fitted into the same theme or needed a new one, either adding to an existing sheet or creating and labelling a new one, thereby constructing a new candidate theme. I continued this process until all codes had been assigned to a theme, resulting in the thematic map seen in Figure 1. This was a very basic thematic map that did not include any hierarchy of the candidate themes or identify connections between them at this stage.

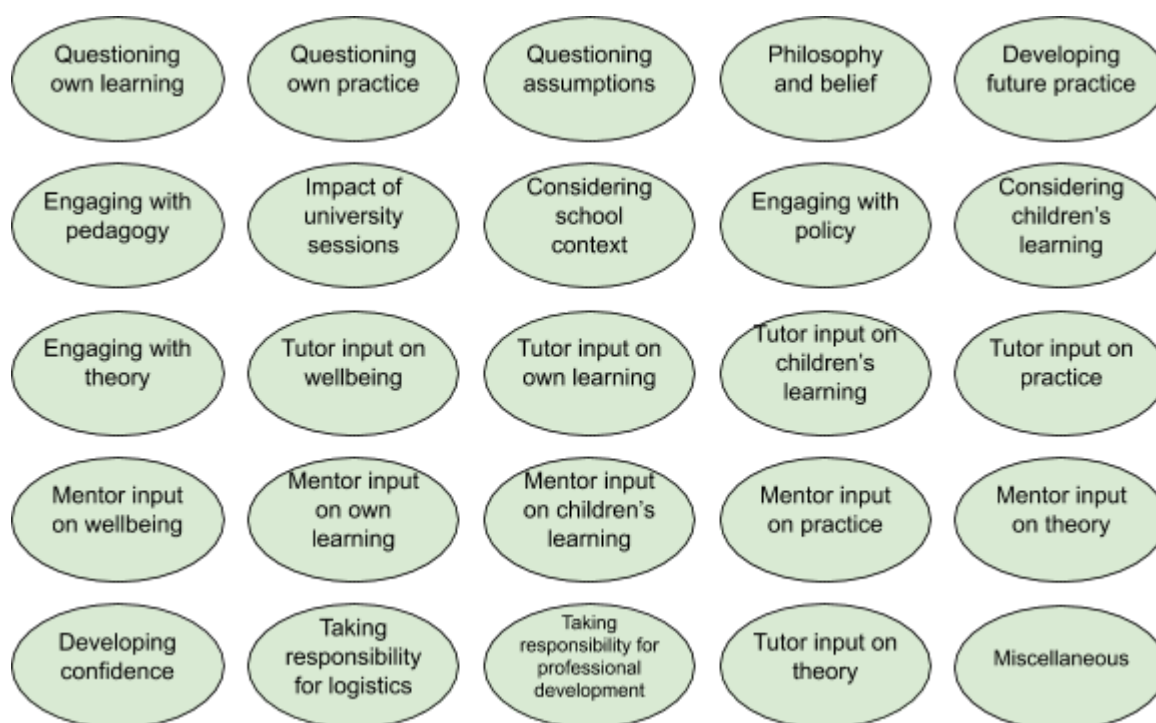


Figure 1 Thematic network version 1

While these candidate themes began to “say something specific about the research question[s]” (Maguire and Delahunt, 2017:3356), many were descriptive of their constituent codes, rather than interpreting or offering insights into the RQs. In addition, 13 out of 25 themes comprised only 1 code, which is not necessarily an issue where analysis is qualitative rather than quantitative, however, in combination with their descriptive nature, this indicated that many of the codes had insufficient “depth and detail to convey the richness and complexity” of the data (Braun and Clarke, 2012:65). To address this, I constructed a new set of 8 candidate “organizing themes” (blue) working inwards from the “basic themes” (green) (Attride-Stirling, 2001:388) “to create larger, unifying themes that condense[d] the concepts and ideas mentioned at a lower level” (Attride-Stirling,

2001:393). This resulted in the thematic network (Attride-Stirling, 2001) seen in Figure 2.

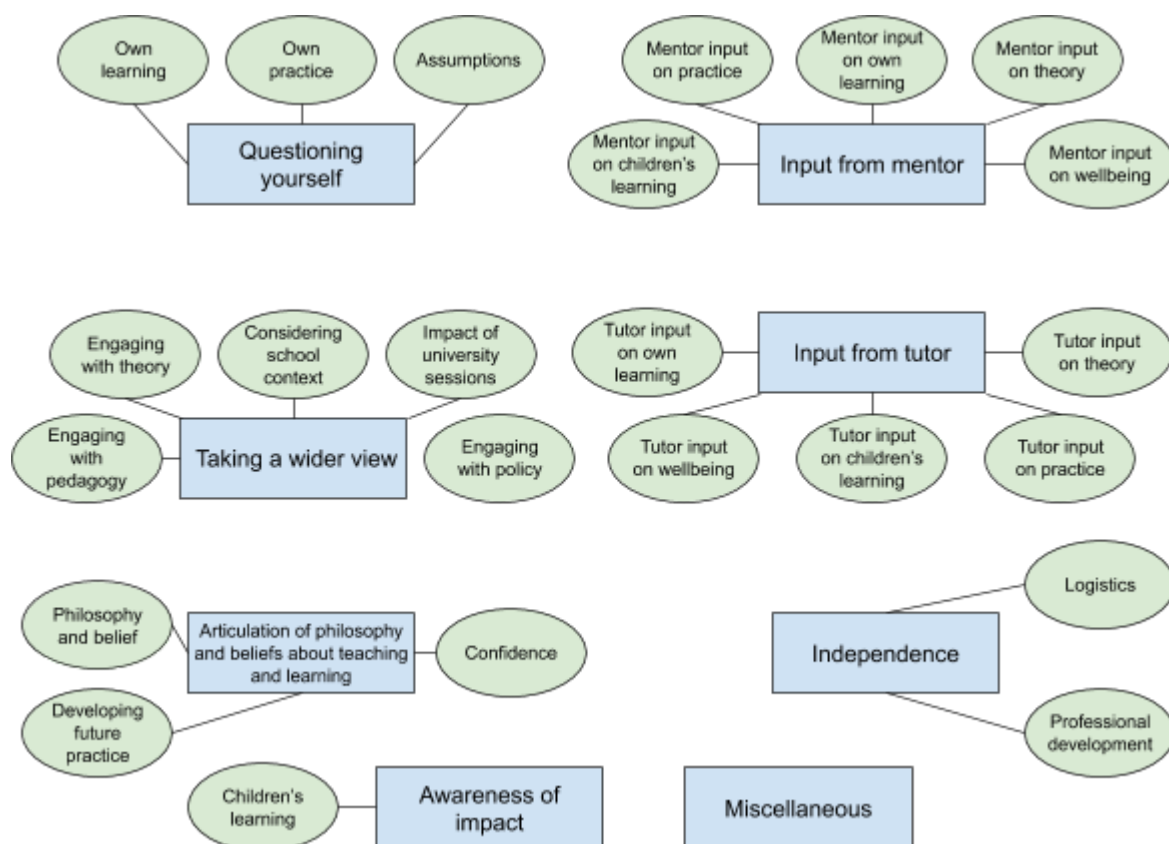


Figure 2 Thematic network version 2

The candidate organising themes now illuminated relationships between the data and RQs, although my inductive approach to analysis meant that themes arose from the data rather than being dictated by the RQs (Nowell et al, 2017:8). In Figure 2 the organising theme ‘Questioning yourself’ brought together basic themes that included codes that shared a focus on the reflexive examination of trainees’ own experiences that indicated an open and critical disposition (e.g. ‘Concern about quality of work’, ‘Critique of own practice’ and ‘Questioning assumptions/presuppositions’), whereas ‘Taking a wider view’ brought together basic themes that included codes that related to trainees’ engagement with multiple perspectives (e.g. ‘Connecting theory and practice’, ‘Reflection on pedagogy’ and ‘University session influencing confidence’). Each of these organising themes had its own “organising concept” (Braun and Clarke, 2013:224) that brought together several aspects of the data that contributed to understanding the nature of critical reflection in collaborative online documents (RQ1). My

development of a thematic network facilitated “the structuring and depiction of these themes” (Attride-Stirling, 2001:387). By representing the organising and basic themes in a thematic network, I was not attempting to create a model of critical reflection but rather seeking to “visualize the themes and creatively think about how the parts fit together” (Nowell et al, 2017:9).

Before proceeding to Phase 4, I collated the codes and extracts for each basic theme in readiness for reviewing the still provisional organising themes.

Phase 4 Review of themes

The aim of Phase 4 was to refine, group, divide and discard candidate themes in order to achieve clarity, or “internal homogeneity and external heterogeneity” (Patton, 2002:465) of the themes. By reading the collated extracts for each basic theme, I was able to assess the extent to which the data told a coherent story about the theme and each theme’s distinctiveness. By re-reading the whole data set, I was able to determine whether, together, the themes comprised a sufficiently detailed picture of the field relating to the RQs. This enabled me to achieve “a further level of abstraction... in the analytic process” (Attride-Stirling, 2001:393).

This review revealed that the basic theme ‘Developing confidence’ overlapped significantly with ‘Developing future practice’ and ‘Questioning yourself’. As this created repetition within the organising theme ‘Articulation of philosophy and beliefs about teaching and learning’ and between this and ‘Questioning yourself’, I discarded the basic theme ‘Developing confidence’, with any unique codes being subsumed into appropriate alternative basic themes. It also became clear that the organising themes ‘Awareness of impact’ and ‘Independence’ were rather “thin”, that is they lacked sufficient meaningful data to support a theme (Braun and Clarke, 2012:65). However, they did provide useful data in relation to the nature of critical reflection (RQ1) and related closely to codes in ‘Articulation of philosophy and beliefs about teaching and learning’. As a result, I conflated these three organising themes to form ‘Awareness, articulation and action’ in which the codes and data told a more logical story about the nature of progression in critical reflection in collaborative online documents (RQ1). The revised thematic network can be seen in Figure 3. I also represented the network in a spreadsheet (Appendix 11) that included a list of codes for each basic theme and two “global

themes” (Attride-Stirling, 2001:388) that brought together the organising themes of ‘Questioning yourself’, ‘Taking a wider view’ and ‘Awareness, articulation and action’ under ‘Trainee actions and processes’ and ‘Input from tutor’ and ‘Input from mentor’ under ‘Input from More Knowledgeable Others’, reflecting Vygotsky’s (1978) theory of how learning can be supported or scaffolded.

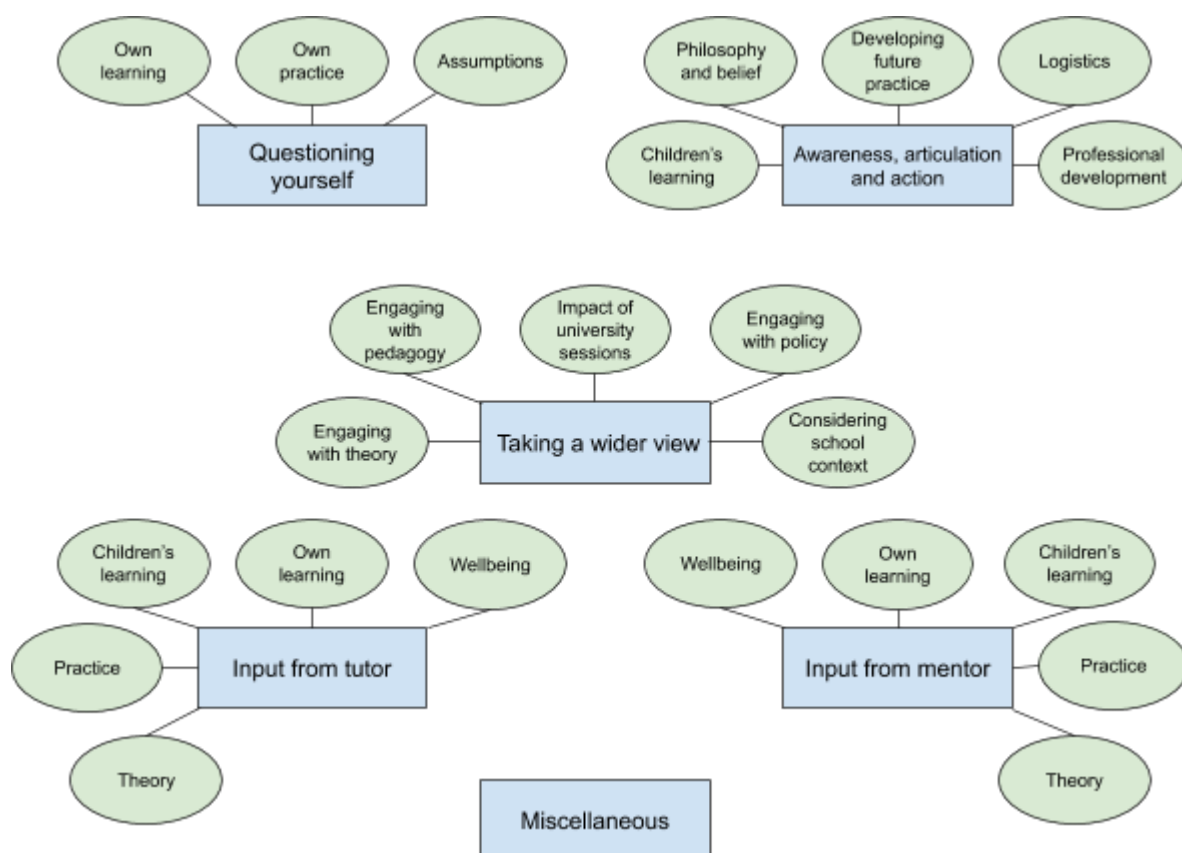


Figure 3 Thematic network version 3

At this stage the organising and basic themes did appear to “capture the most important and relevant elements of the data, and the overall tone of the data, in relation to [the] research question[s]” (Braun and Clarke, 2012:66). However, I continued the “recursive process” of theme development (Braun and Clarke, 2012:65) into the definition (Phase 5) and writing up (Phase 6) of the thematic analysis in order to provide clarity to the story told by the data in relation to the research questions.

Phase 5 Definition of themes

The aim of Phase 5 was to define the organising and basic themes more precisely (Appendix 12) and to refine the structure further in order to begin analysis and

writing up. As such, Phase 5 led into and overlapped with Phase 6, in which I completed the analysis and produced the report. Phase 5 began as I re-read the extracts for each basic theme, as they had been revised and reduced during Phase 4. With a view to developing a structure that would tell the coherent overall story about the data in relation to the RQs (Braun and Clarke, 2006), I divided and dispersed the organising theme 'Input from tutor', so that it formed a basic theme within each organising theme (yellow). It was not substantial enough to warrant being a separate organising theme, while embedding it across the themes enabled me to explore the contribution of tutors' comments within specific contexts, thus addressing RQ2 directly and demonstrating its relation to RQ1. I also discarded 'Input from mentor' as a separate organising theme, as it did not address the RQs directly. However, I embedded the data and codes across the other basic themes, as they contributed to understanding the nature of trainees' critical reflection (RQ1). As a result, I also discarded the global theme 'Input from More Knowledgeable Others', as it had been dispersed and embedded across the themes.

It became clear that the codes in the organising theme 'Miscellaneous' did not contribute to addressing the RQs, either because the extracts were covered by other codes (e.g. 'Tutor feedback and 'Mentor feedback') or because they were tangential or unrelated to the RQs (e.g. 'Research into assessment data' and 'Research into online presence'). I therefore discarded this organising theme, resulting in the thematic network seen in Figure 4. Although not a distinct theme, due to insufficient data, I also added a section to the concluding section of each organising theme as I wrote up, which addressed RQ3 directly. In this section I drew on data from across the basic themes that contributed to understanding of the ways in which affordances of collaborative online documents contributed to or constrained trainees' critical reflections.

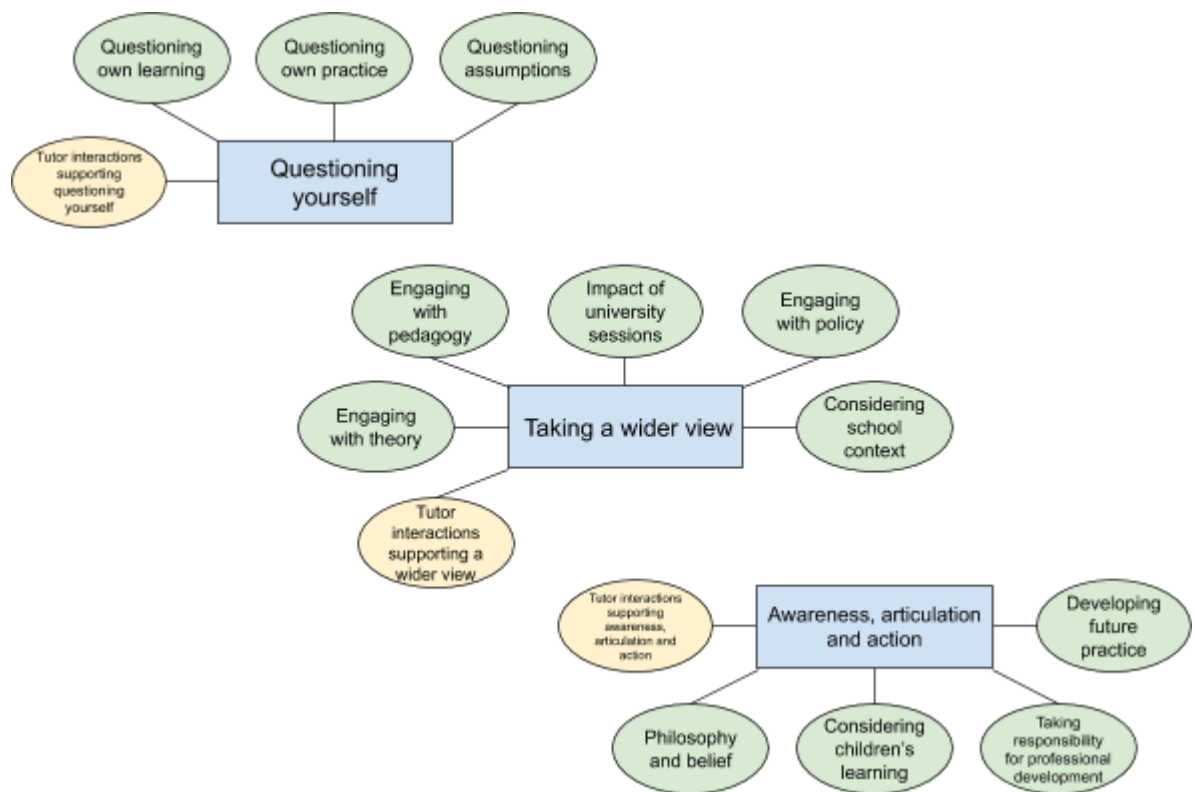


Figure 4 Thematic network version 4

Figure 4 shows the iteration that was produced as I was considering the structure of the written chapters and selecting extracts that provided “vivid, compelling” examples that illustrated the analytic points I wanted to make in relation to the RQs (Braun and Clarke, 2012:67). The analytic points provided the finer detail of the structure within each basic theme and went beyond a description or summary of the extracts to provide an account of my “interpretation of the data and their meaning” (Braun and Clarke, 2012:67). The supporting extracts were drawn from across the data set to show the prevalence of the theme (Braun and Clarke, 2006) and ensure that I was not overly reliant on a small number of trainees’ weekly review for extracts and each extract was “accompanied by a unique identifier to demonstrate [to the reader] that various participants were represented across the results” (Nowell et al, 2017:11). Reflecting the constructionist epistemology that meaning does not inhere in the data but is constructed as the researcher engages with it (Crotty, 1998), I interpreted the data and constructed a narrative to explain why each extract was relevant and of interest in terms of the RQs and the broader theoretical field in which the research was situated. Because of the strong connections with existing theory concerning critical reflection (Dewey, 1933; Mezirow, 1990; Korthagen and Vasalos, 2005) and the expansive-restrictive

continuum (Fuller and Unwin, 2003), I combined findings and discussion into a chapter focussing on each organising theme when writing up (Phase 6). In order to provide depth of analysis and discussion and additional credibility to my interpretations of the data, I carried out an extensive literature review before proceeding to Phase 6.

Phase 6 Production of the report

The ultimate aim of Phase 6 of thematic analysis is communication of the findings constructed from analysis of the data in relation to the RQs. The report should be “concise, coherent, logical, non-repetitive and interesting” (Braun and Clarke, 2006:93) in order to convince the reader of the researcher’s interpretation of the data, as there is no one “true and valid interpretation” but there are “useful interpretations” (Crotty, 1998:47) and it is this usefulness of which the reader must be convinced. However, “writing and analysis are thoroughly interwoven in qualitative research” (Braun and Clarke, 2012:69) and this led to some final revisions to the themes and structure of the chapters.

After following Phases 1-5 for the organising theme ‘Awareness, articulation and action’ and drafting a complete findings and discussion chapter on this theme, it became clear that the data was too diverse and broad reaching to maintain coherence. Therefore I divided it into two new organising themes, ‘Articulating learning and teaching’ and ‘Taking responsibility’, resulting in the final thematic network seen in Figure 5. Each of these new organising themes was distinct from the others and possessed internal coherence that enabled me to construct a more concise analytic narrative.

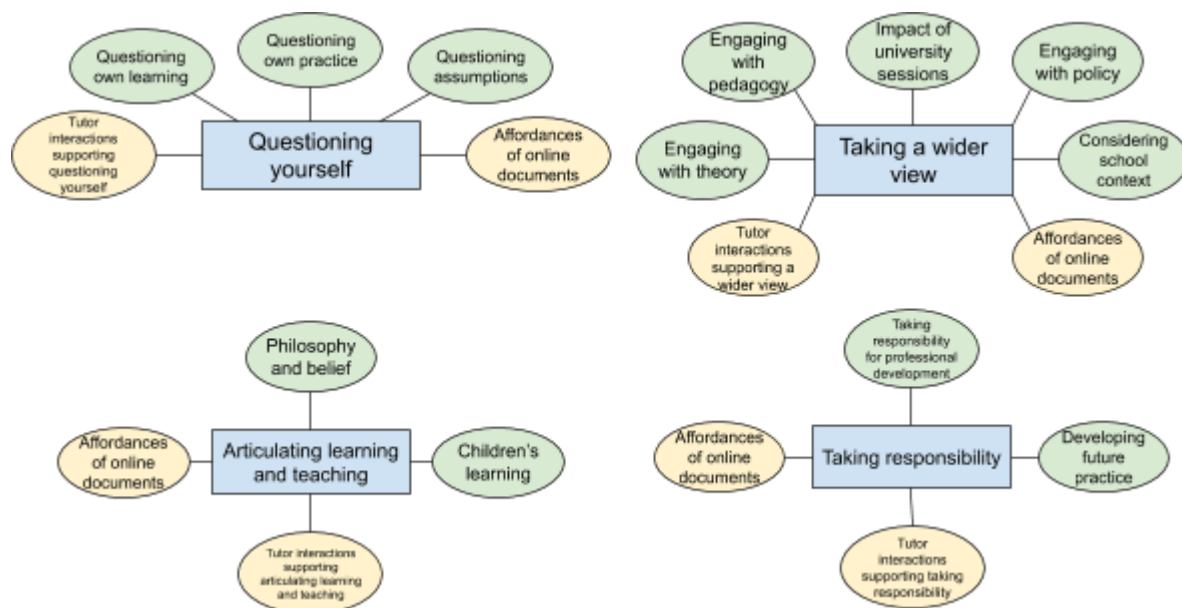


Figure 5 Thematic network version 5

I produced a chapter for each organising theme to ensure that the scope and diversity of each was clear and that they were “logically and meaningfully” connected (Braun and Clarke, 2012:69). The order in which I presented them formed a chronology in terms of the increasing complexity of critical reflection and echoed the structure of the participating university’s PGCE programme. It also echoed the progression from the periphery to full participation described by Lave and Wenger (1991) and provided opportunities to explore expansive and restrictive factors that enabled or inhibited this progress (Fuller and Unwin, 2003). It began with ‘Questioning yourself’ in which I focused on trainees’ own learning and development processes and was therefore somewhat introspective. This enabled them to develop the skills of critical reflection and provided a foundation, established in the early university-based phase and developed throughout the PGCE, before applying them in a wider context. This was followed by ‘Taking a wider view’, in which I explored how trainees encountered and interacted with multiple perspectives. This was introduced and encouraged throughout the PGCE in order to increase the depth and potential challenge of critical reflection, particularly in relation to experience of classroom practice and pedagogy and its relation to a range of ideas from theory. In ‘Articulating learning and teaching’ I explored the ways in which trainees’ understanding, developed through the processes examined in the first two organising themes, was expressed, shared and developed. This corresponded with the level of detailed evaluation of learning

and teaching required of the trainees in lesson evaluations, weekly reviews and assignments as the PGCE progressed. In the final organising theme, 'Taking responsibility', I built on the preceding themes by exploring how critical reflection was manifested in trainees' developing practice and their proactivity in professional development. This echoed the increasing expectations of the PGCE with regard to trainees' teaching responsibilities and independence in taking responsibility for their own learning and development during ITE and in preparation for a future teaching career.

The analytical narrative of each chapter was accompanied by illustrative examples from the data that supported and communicated my understanding of the nature of critical reflection in collaborative online documents and the contribution made by the tutor and affordances of the online tools. The narrative was interpretative rather than descriptive, exploring the underlying assumptions and implications and relating this to existing literature about critical reflection, the expansive-restrictive continuum, ITE and workplace learning in order to broaden the scope and support my claims of new knowledge. In the concluding section of each chapter I explicitly stated claims that I had constructed from analysis of the data, which were therefore grounded in the data and went beyond the surface level of the data to address the RQs (Braun and Clarke, 2006).

Trustworthiness

The rigour and trustworthiness of this qualitative research was established through its credibility, transferability, dependability and confirmability (Bryman, 2016; Davies and Dodd, 2002; Lincoln and Guba, 1985). This provided an alternative to the validity and reliability, more appropriate as indicators of high quality in quantitative research (Bryman, 2016).

Credibility

When there are "multiple accounts of social reality" provided by qualitative research, the account given by the researcher must be shown to be credible (Bryman, 2016:384). In this research credibility was provided by:

- the researcher's experience and knowledge of ITE and the use of online

tools;

- the collection of data throughout a full 10 month PGCE course;
- the range of participants (trainees and tutors);
- the researcher's track record for establishing trusting, professional relationships with colleagues and trainees.

The researcher in this study had begun work in ITE in 1998 and therefore had the status of 'insider' (Robson, 1993; Thomson and Gunter, 2011). This presented both advantages and challenges to the credibility of the research. While deserving of consideration here, "the utility of the insider/outsider binary construct" (Thomson and Gunter, 2011:26) has been questioned on the grounds that the role of researcher practitioner can facilitate both research and the development of an organisation (Sikes and Potts, 2008).

As an insider the researcher understood the context of ITE in considerable depth, including developments in policy and practice over many years and immersion in and understanding of the culture of ITE not accessible to an outsider. This mitigated against misinterpretations of meanings and practices (Thomson and Gunter, 2011). Insider status also provided easy access to participants and a visible relevance of the research to practice. However, it also raised potential issues of sensitivity and ethics when participants are colleagues or students, particularly in the light of stressful or difficult situations (Munn-Giddings, 2012). Being an insider could also prove challenging in maintaining objectivity (Robson, 1993) and avoiding preconceptions in terms of "everyday taken-for granted events, mores and teleologies" (Thomson and Gunter, 2011:18). The researcher took steps to address the potential challenges of her insider status by selecting participant trainees for whom she was not the tutor and tutors with whom she did not work closely. The consent form made it clear that participation in the research would have no detrimental effect on trainees' progress on the PGCE and this was emphasised in a face-to-face meeting about the research.

Credibility was enhanced by space triangulation of data through the analysis of weekly reviews across two cohorts of trainees and their tutors (2014 and 2015). This provided checks on trustworthiness and illuminated consistencies across the data, as well as highlighting any inconsistencies that added depth and realism to the study (Patton, 2002). This also went some way to addressing the potential

limitations of carrying out a study within a specific culture or group, such as a PGCE cohort (Cohen, Manion and Morrison, 2011). In addition, the participation of trainees and tutors provided different perspectives from which to view and analyse critical reflection within the process of producing online weekly reviews (Newby, 2010). Further triangulation was achieved through the engagement with multiple theoretical lenses that allowed “different facets of problems to be explored” (Tracy, 2010:843), increasing the scope, deepening understanding and encouraging consistent interpretation of the data rather than finding a single, ‘accurate’ reality. Therefore the approach to credibility adopted during this research was commensurate with the constructionist epistemological stance of the researcher and the focus of the RQs.

Transferability

Transferability of research is the extent to which the findings are applicable or transferable to contexts outside of the study itself. Qualitative research tends to result in “thick description” rather than the breadth of evidence that is typically the focus of quantitative methods (Bryman, 2016:384). In this study transferability was achieved through the depth of detail available from the large number of weekly reviews (188) and was enhanced by the researcher’s knowledge of the ITE process, and the participating university’s PGCE course in particular. This increased the extent to which the research could be used by other lecturers, universities, teachers and trainee teachers to inform practice in the use of collaborative online documents to support critical reflection. The use of theory from ITE across English universities and international contexts, online learning from a range of undergraduate, postgraduate and professional learning contexts and workplace learning from education and other sectors made connections that increased the transferability of this research beyond the participating university’s PGCE.

Dependability

Dependability is concerned with the consistency and repeatability of the findings of research. As this was an interpretative study, dependability was achieved through the availability of the data to all participants and the involvement of external

readers and advisers. While the data could be made available for audit, an external audit would not be appropriate, as understanding was created during TA resulting in “plausible accounts” (Charmaz, 2006:132) rather than an objective truth to which the results can be compared, reflecting the constructionist approach of the research (Crotty, 1998). This aligned with Popper’s (1972) assertion that it is possible, through research, to move towards truth but not attain one true understanding or definition.

Confirmability

Confirmability concerns the neutrality of the findings; in this case, that they derived from the data rather than the presuppositions or prejudices of the researcher. Within the constructionist approach of this research the goal was not “complete objectivity” (Bryman, 2016:386) or to find one “true or valid interpretation” (Crotty, 1998:47). Rather, the researcher sought to identify “useful interpretations” of the data (Crotty, 1998:47) that were, as far as possible, free from the overt influence of “personal values or theoretical inclinations” (Bryman, 2016:386). Confirmability was pursued through the triangulation outlined above and the reflexivity of the researcher. The researcher made every effort to recognise the context of the knowledge construction, including the effect of her own knowledge and experience on the choice of perspective, significance of evidence and findings, methods and conclusions (Malterud, 2001). The storage of the data set provided opportunity for future audit and confirmation of the analysis (Nowell et al, 2017).

Ethical Considerations

Throughout this study, the researcher adhered to Bath Spa University’s (2017) ethical protocols and British Educational Research Association’s ethical guidelines (BERA, 2011). As part of the BSU PhD application procedure an Ethics Committee Approval Form was submitted and approved.

The value of the research, in terms of its original contribution to knowledge, was made apparent to all participants at the start of their involvement. This research was neither deceptive or covert in nature.

Informed consent

Free and informed consent was gained from the trainees (Appendix 13) and tutors (Appendix 14) in writing before the start of the data collection in September 2014 and 2015. Before signing consent forms, participants were provided with details of the aims, objectives and likely outcome of the research (publication of the thesis, articles and conference papers) in face-to-face meetings. It was made clear to the participants that they were giving their continuing consent for the duration of the research.

Right of withdrawal

It was made clear to all potential participants, as part of the informed consent process, that they were free to withdraw from the research project at any time. They could also request that consent be withdrawn retrospectively and that any accrued data regarding them be destroyed. This was stated at the start of the data collection.

Confidentiality

As the data was stored electronically, it was coded and stored in a manner that did not allow direct recognition of individuals within the stored data sets by anyone other than the researcher. Data was not shared with others without the consent of the subject. Plans to publish research were made clear at the outset.

It was important to emphasise confidentiality when seeking participants consent, as the trainees' weekly reviews focused on their learning experiences in school and university and, as such, needed to be both honest and professional in order to support the process of professional development. The anonymisation of the data meant that individuals would be sufficiently masked, while retaining a sense of the authentic voices of the trainees that was essential to the credibility of the research and was consistent with the RQs and aims of the research (Braun and Clarke, 2013). They were reassured during a face-to-face meeting that the content of the weekly reviews, the collection and analysis of the data would not be used to influence their progress during the PGCE, with the caveat that confidentiality may be breached if the researcher discovered evidence of violence, abuse, self-inflicted

harm, harm to others or criminal activity in the course of collecting and analysing the data.

Data security

Collection, storage and use of the data complied with the Data Protection Act (2018). The participants were fully informed about how and why the data was used and how it would be published and shared. Participants were able to check the data and evidence that related to themselves. All evidence was anonymised before use in this research, this was carefully checked and addressed if necessary.

Chapter summary

This chapter has presented the principles and processes of the research approach. Its interpretative starting point results in an inductive, theory-seeking study that adopts a thematic approach to data analysis. This ensures that the findings and conclusion are grounded in the data. The next chapter, 'Questioning yourself', is the first of four findings and discussion chapters in which the organising and basic themes that the researcher constructed during data analysis are defined and explored.

Chapter 4 Findings and discussion - Questioning yourself

Chapter introduction

The organising theme (Attride-Stirling, 2001) 'Questioning yourself' encompasses three aspects of trainees' critical reflection that were evident in the analysis of the data: 'Questioning own learning', 'Questioning own practice' and 'Questioning assumptions'. These form the basic themes (Attride-Stirling, 2001) explored in this chapter, definitions of which are included at the start of each section. 'Questioning' includes:

- the recognition and evaluation of features of trainees' own learning processes;
- analysis and evaluation of their classroom practices;
- the identification, exploration and reformation of their existing assumptions about learning and teaching.

The basic themes echo the structure of the PGCE programme in that it starts with a period of university taught sessions introducing subject knowledge and theoretical knowledge regarding learning and pedagogy, this is followed by the first school placement in which trainees observe and gradually develop classroom practice. As these phases of the course progress, trainees are encouraged to identify and critique assumptions about learning and teaching in their weekly reviews, the readings, discussions and activities of university taught sessions and evaluations of their own and others' teaching in school.

This is the first of four findings and discussion chapters because, while 'Questioning yourself' provides evidence of reflection, core reflection and perspective transformation, it does not rely upon specific prior experience and can occur from the start of the PGCE. However, it is important to recognise that not all trainees are new to critical reflection and some are already able to reflect critically before engaging in ITE. It is possible to engage in 'Questioning yourself' before encountering the wider view or context provided by theory, pedagogy, university

sessions, educational policy and school experience. Arguably it is important to do so in order to establish an open disposition and willingness to question and critique, thereby providing a foundation for critical reflection by enabling trainees to recognise their own perspectives and assumptions that influence their understanding of and reflection on learning and teaching (explored further in Chapters 5,6 and 7).

The chapter explores the ways in which tutors' comments contributed to trainees' critical reflections through their support for the questioning of learning, practice and assumptions. It also provides a summary of the nature of trainees' critical reflections, the ways in which tutors' comments support this and the affordances and constraints of collaborative online documents in relation to critical reflection. The chapter concludes by identifying ways in which the expansive-restrictive continuum (Fuller and Unwin, 2003) could be extended and tailored for ITE.

Questioning own learning

The basic theme of 'Questioning own learning' captures an aspect of critical reflection involving trainees' examination of their own learning experiences and processes, either explicitly or implicitly. 'Questioning' includes the examination of specific features of the learning process, such as progress, enabling factors and barriers, as well as direct evaluation of the process, including the impact of individual dispositions.

'Questioning own learning' builds understanding of the learning process and an openness to considering influential factors and alternative approaches or ways forward (explored further in Chapter 6 Articulating learning and teaching - Considering children's learning). It is a first step towards critical reflection, in that it provides an accessible focus for reflection through the development of a "systematic, rigorous, disciplined way of thinking" (Dewey cited in Rodgers, 2002:845). It is not reliant on school experience or interaction with a wide range of views and possibilities, although these elements do occur here and will be explored further later in this research (Chapter 5 Taking a wider view - Engaging with theory and Influence of university sessions). It also provides opportunities to introduce elements of core reflection, such as the examination of the underlying

“meaning schemes” (Mezirow, 1991:44) and consideration of influences, implications and identification of the “ideal situation” (Korthagen & Vasalos, 2005:54).

This ‘Questioning own learning’ is explicitly encouraged from the start of the university’s PGCE programme through the writing of weekly reviews, beginning while trainees are being taught at the university and not engaged in school placements. It provides a first step before trainees are asked to question their own classroom practice, the observed practice of others, children’s learning, published theories about and accounts of learning and teaching. It then continues throughout the PGCE programme while trainees are in school and university.

There were indications that trainees recognised their progress across curriculum subject knowledge, pedagogical theory and classroom practice and that this led to increased confidence and satisfaction in their achievements. This suggested that they were developing theoretical and practical knowledge typical of professional education programmes as well as the codified knowledge, skills and knowledge resources more characteristic of workplace learning (Eraut, 2004b). There was also recognition of progress in the form of engagement with the “powerful scholarly influence” of theory and research literature (Shulman, 1987:10) that can enrich understanding arising from observation and practice (Cordingley, 2015) and is essential to becoming a “professional teacher” who is self-directed, ethical and decisive (Orchard and Winch, 2015:14). Recognition of progress in terms of learning about classroom practice provided a motivation and foundation for learning during the PGCE, perhaps because it reified the learning process (Fox et al, 2010).

Trainees recognised progress in their own subject knowledge and made positive connections with their ability to use this in their teaching in the future, showing that trainees’ own scholarship could lead them towards developing the “wisdom of practice” (Shulman, 1987:11). For example:

P121: 0123SS - 121:5 In... English... where we had to carry out our own creative writing in the form of a mini saga, I learned a great deal about the creative writing process for children. I really struggled to get started ... This highlighted for me how children might feel in literacy lessons ... By chatting through ideas with others, and listening to a couple of finished sagas, I was

then inspired and able to get started myself. I will take this forward and ensure that children are given opportunity to share ideas, and where possible, read the start of their work out to inspire others that may be finding it hard to get started.

Here, SS recognised clear progress and the individual steps involved: struggling to start, discussion, inspiration, successful writing and identifying future applications, demonstrating an analytical and “disciplined way of thinking” (Dewey, 1933 cited in Rodgers, 2002: 845) that indicated reflection. However, she did not proceed to core reflection by identifying or critiquing the underlying reasons for these barriers to learning, or why peer support may be helpful (Mezirow, 1991).

Trainees also recognised the contribution that theory could make to their progress and the ways in which it related to practice:

P3: 0104EH - 3:9 I feel as though I have made good progress with regards to my phonics knowledge this week. Carrying out and analysing the readings has made me more aware of how to teach and the possible misconceptions children may encounter. My understanding of all of the terminologies is now clear and I am particularly looking forward to seeing phonics lessons on placement as this is something I have not yet had the opportunity to experience first hand

EH identified significant progress in her understanding of phonics, leading her to the logical next step of observing the teaching of phonics in the classroom, echoing the first three steps of Dewey’s (1933) five step process of reflection. Step one was implicit: the difficulty posed by a lack of knowledge of phonics. In step two she further defined the issue, scoping what was involved in the teaching and learning of phonics through reading theory. Theory also informed the identification of the possible, albeit partial, solution of her improved understanding of the associated terminology, constituting step three (Dewey, 1933).

As trainees began to spend time in the classroom, they recognised signs of progress in their learning about and from classroom practice.

P44: 0108LM - 44:7 I feel that over the last week I have begun to make small steps towards being regarded, and feeling like, one of the main teachers. My experience of delivering a lesson was daunting but also exciting and after it began I felt immediately at home in front of the children.

I felt proud after the children were able to understand what I had taught them and enjoyed the fact that they enjoyed my lesson.

LM had a clear focus on progress in learning about and from classroom practice, rather than the use or development of specific strategies (this is covered in 'Questioning own practice' below). This demonstrated recognition of progress in the classroom context, rather than in personal subject knowledge: "educational materials and structures" rather than "scholarship in content discipline" (Shulman, 1987:8-9). The steps indicating progress from the periphery towards full participation (Lave and Wenger, 1991) were quite different from the previous example: being perceived to be a teacher, confidence in front of the class, children developing new understanding and motivating them to learn. LM denoted his progress through participation in the practice of the classroom (Lave and Wenger, 1991), rather than the acquisition of specific skills (Sfard, 1998), with his sense of legitimacy in the role of teacher providing an "empowering position" (Lave and Wenger, 1991:36). However, the lack of association of any specific ideas or concepts with progress resulted in insufficiently rigorous reflections (Dewey, 1933 cited in Rodgers, 2002). This indicated that, in this review from early in his first placement, LM's learning was limited to a process of socialisation into the culture and habits of his mentor, rather than the construction of new understanding (James and Brown, 2005; Edwards, 2005). However, later reviews revealed evidence of core reflection through explicit exploration of the ways in which both theory and practice enabled him to critique the assumptions underlying his understanding of learning behaviour (P118: 0123LM - 118:1; P118: 0123LM - 118:3).

Trainees identified factors that enabled their learning, indicating increasing rigour and discipline in their reflections (Dewey, 1933 cited in Rodgers, 2002) and elements of core reflection in their explorations of their "identity" and "mission" as a teacher (Korthagen and Vasalos, 2005:53). This occurred both explicitly and implicitly, demonstrating variation in the trainees' levels of awareness of the existence and impact of these factors. These factors either related to the trainees' own learning processes or to the learning environment provided by school, university or peers. This supported a view of learning that takes into consideration the affordances of both the learning opportunities offered and the ways in which

learners choose to engage with these (Billett, 2001a). This was a view usually applied to workplace learning but extended here to include the learning opportunities offered by the university. The enabling factors explored also reflected the underpinning themes of the expansive-restrictive continuum (Fuller and Unwin, 2003), participation, personal development and institutional arrangements, illuminating expansive features of trainees' learning experiences.

Trainees frequently identified ways in which working with professionals in school was an enabling factor in the development of their understanding of learning and teaching. This combined with an open-minded disposition towards the ongoing development of their practice, including a sense that learning was a continuous and divergent process involving discourse with other professionals and self-evaluation. This was more closely aligned to a dialogic model of learning (Wegerif, 2011) and emphasised the agency of the learner in responding to the learning environment and opportunities (Billett, 2001a; Hodkinson and Hodkinson, 2004).

P192: 0223JC - 192:1 I was observed on Monday doing the first lesson in the sequence and again my reflections 'reflected' what [my mentor] had written about the lesson – again showing that I am being honest and accurate in my own reflections on myself – I feel this is vitally important as I see being observed and having feedback, as well as reflecting on my practice myself is vital to help me to develop and improve, which is something I have always done in previous jobs and know I will continue to do in my (hopefully) onward career as a teacher...

JC highlighted the influence of his own dispositions and previous work experiences on the ways in which he engaged with the learning opportunities afforded to him (Billett, 2001a); there was strong evidence that he was “bringing prior skills, understanding and abilities into the workplace” (Hodkinson et al, 2004:10). JC had agency in his own learning due to recognition of the interplay between his individual dispositions and the broader context of his learning, including his ongoing career trajectory (Fuller and Unwin, 2003). This enabled JC to perceive the expansive nature of the learning environment, recognise and take advantage of the learning opportunities afforded to him, echoing Hodkinson and Hodkinson's (2004) findings that teachers' interactions with learning opportunities vary significantly depending on previous experiences. JC also presented a positive view

of working with his mentor, who enabled him to learn about teaching through feedback and professional discussion in a collegial environment conducive to critical reflection (Sim, 2006; Jones and Ryan, 2014).

Observing others teach could be an enabling factor, particularly when feedback alone had not been effective in enabling a trainee to develop his/her own learning. The following example illustrated a more difficult, but nonetheless enabling, learning process:

P201: 0233JT - 201:14 ... sometimes I am told my plans are good but just not delivered in the right way. It's hard to understand how that can be... so seeing another teacher teaching a good lesson from the plan I wrote made me realise that the problem is not with the plan but the way I taught it.

JT found the observation of another teacher, who provided a model of a 'good lesson', enlightening in ways that the feedback on her own teaching was not. This reflected a view commonly expressed by other trainees: that observing other teachers enabled them to learn about teaching through 'picking up tips' (P44: 0108LM - 44:7), giving greater insight into specific aspects of teaching (P82: 0116GJ - 82:13) and applying observed practice to their own planning and teaching (P49: 0110CH - 49:3). There was a danger that this would result in imitation and replication of practice (McNamara et al, 2014) rather than deeper learning that contributed to improvements in practice. However, observation as part of the process of LPP enabled the learner to build understanding of the practices of the CoP, providing a transparency so that meaning was visible within practices, which then enabled discussions to take place 'within' the practice rather than 'about' the practice, thereby breaking down divisions between "abstract and concrete knowledge" or theory and practice (Lave and Wenger, 1991:104).

In addition to school-based factors that enabled learning, trainees also identified features of the university-based elements of the PGCE (see also Chapter 5 Taking a wider view - Impact of university sessions), and peer interactions within this, that had a positive impact on their learning. Trainees identified specific activities within taught sessions that enabled them to learn, explain what they had learned and relate this to classroom application, indicating a "systematic, rigorous, disciplined" reflection (Dewey, 1933 cited in Rodgers, 2002:845). For example:

P193: 0223JT - 193:1 In completing the online e-safety module, I have a deeper understanding of the issues surrounding this subject... The podcasts about how internet can be used in other ways to support learning were really interesting; it shows a perspective that varies from the fear that dominates the narrative about young people using technology. If children have the right training and attitude, technology can be a really enriching resource for learning. This ties in with a recent staff meeting about using an educational app and may link into some of my teaching later in the term when the children might use iPads to create work.

Here, JT recognised what she learned and how it related to previous learning during a training session in school and she began to consider how she might use it in future classroom practice. She was able to apply her new knowledge of the issues around e-safety to ideas about how to use a specific app with children. She also countered the popular view of technology as dangerous, thereby questioning assumptions underlying issues around e-safety and developing new understanding (Mezirow, 1990). This learning occurred through an online module, completed while the trainees were based in school, arguably enabling the integration of a didactic discourse (about e-safety) into the discourse of classroom practice in which the trainees were engaged on a daily basis, questioning the distinction made by Lave and Wenger (1991) between a didactic discourse and the discourse of practice. The use of collaborative online documents facilitated trainees' engagement with the multiple views of peers, wider societal views and theory while they were also engaged in classroom practice. Technology provided a space in which to engage with multiple dialogues and consider different points of view in a "living shared enquiry" (Wegerif, 2013:97). This led to reassessment and reformation of assumptions about children's use of technology and resulted in new understanding or perspective transformation (Mezirow, 1990).

Some trainees identified barriers to their learning from both school- and university-based aspects of the PGCE programme, while other barriers were implicit in the dispositions of individual trainees, evident in their reflections. Understanding the barriers to learning indicated knowledge of the learning process and recognition of the factors that impact upon it. Identification of these factors highlighted the active role played by the affordances of the learning experiences

and environments on offer (Billett, 2001a) and the ways in which these could be restrictive (Fuller and Unwin, 2003).

P8: 0104KB - 8:6 We did a plan for maths lesson which I found very useful but also found it hard. I was able to come up with ideas but it was putting it into the context and getting it down onto the paper which I found the hardest part.

P33: 0108CC - 33:6 I observed a phonics session and the children worked really hard but I think it magnified how little experience I have of teaching phonics. I think this will become more apparent when I do my second placement and will have to teach KS1

P113: 0123HM - 113:15 I enjoyed the first part of the session playing on blockly games but when it came to inserting algorithms to make things move on screen (without a fun, gaming element) it became quite annoying at times as I was just not able to get on with the Scratch programme. I found the variety of instructions almost overwhelming and this took away the enjoyment. This is an area I need to develop and practise before teaching programming to children

There was evidence of core reflection, as trainees implicitly identified an ideal situation, for example in which a lesson plan was quick and easy to write or teaching phonics came naturally, but the main focus was on the “limiting factors” (Korthagen and Vasalos, 2005:54) that they perceived to be impacting on their learning. The limiting factors evident here were beliefs that writing down ideas was difficult, that confidence only came with experience and the feelings of frustration at feeling left behind in subject knowledge development. In contrast to previous examples, there was little evidence here of the social (Vygotsky, 1978; Bruner, 1986) or dialogic (Wegerif, 2011) elements of learning or membership of a CoP (Wenger, 1998) that might provide support. Learning was largely presented as a process of the acquisition of basic skills and knowledge (Sfard, 1998), many of which they felt they lacked, embodied in the demands of the PGCE.

Restrictive modes of participation (Fuller and Unwin, 2003) were evident where trainees felt isolated and unable to access support and stimulation from multiple CoPs (Fuller and Unwin, 2003). The focus of learning narrowed to specific subject knowledge and skills, such as lesson planning, which may have felt more closely related to meeting the requirements of the course or compliance with policy (DfE, 2011) than contributing to the trainees’ personal development (Fuller and Unwin,

2003; Hodkinson and Hodkinson, 2005). These restrictive modes of participation could arise from the affordances of the learning experiences offered by the PGCE programme but may have also resulted from the trainee's responses to these experiences (Billett, 2001a), influenced by their previous experiences (Evans et al, 2006), tacit skills, self-perceptions and choices as learners (Thomas and Pring, 2004).

Trainees' individual dispositions impacted on how they engaged with learning opportunities (Billett, 2001a) and unless they could make connections with enabling factors that would help them to overcome these barriers, they were unlikely to be able to address the "tension or discrepancy" between the ideal and the limiting factors (Korthagen and Vasalos, 2005:54). Indeed, Korthagen and Vasalos (2005:55) confirm that "the essential thing here is for the teacher to take a step backward and to become aware of the fact that she has a choice whether or not to allow these limiting factors to determine her behaviour", drawing on awareness of "their own capacities, limitations and potential for change" (Winch, 2017:95). Without this, trainees could not become autonomous learners who engaged in core reflection in which they recognised how to draw on their "core qualities" (Korthagen and Vasalos, 2005:55) in order to realise the ideal situation. They were limited to the identification of "a felt difficulty" (Dewey, 1993:72) or problem and could not progress to the proposal and development of a solution resulting from further reflection (Dewey, 1933).

Some trainees went beyond recognition of the individual features of the learning process, to evaluation of the whole process and identification of the ways in which it could be changed or improved. These trainees were able to take a greater degree of responsibility once they began to understand the process at this deeper level. Rather than addressing the evidence of progress, enabling factors and barriers as separate elements, a more holistic view of the learning process was evident, indicating that the journey or trajectory of learning from peripheral to full participation was visible to them (Lave and Wenger, 1991; Fuller et al, 2005). Trainees identified an area for development, proposed a strategy to address this and then reassessed their understanding, following Dewey's (1933:72) five steps of reflection: "(i) a felt difficulty; (ii) its location and definition; (iii) suggestion of possible solution; (iv) development by reasoning of the bearings of the suggestion;

(v) further observation and experiment leading to its acceptance or rejection". They went on to make connections with confidence levels and explore the impact of their learning on that of the children they were teaching.

Building on their recognition of features of the learning process, trainees advanced to identifying an area of their own learning that required development, arising from their own academic learning and/or learning about pedagogy and classroom practice:

P198 0233CS - 198:15 After discussions with my mentor I will be focusing on my learning intentions within my planning. I feel I have more of an idea of what this looks like and am attempting to change my thought processes when I plan, beginning with learning intentions and pinpointing the learning I want to take place and then drawing on my knowledge of the children's interests to support this. I have discovered I have been going through this cycle in a different order which has led to my learning intentions to become slightly confused. This is something I will be working towards throughout the next week

Here CS, with help from her mentor, showed awareness and understanding of her own learning about lesson planning, including an evaluation of her current understanding and recognition of a goal or ideal situation (Korthagen & Vasalos, 2005). She went beyond the identification of a problem to provide more detail of "location and definition" (Dewey, 1933:72) to more clearly define the area in need of development and explored the context and implications. Mezirow (1991:102) asserts that the identification of a problem alone constitutes only a "pre-reflective" stage, however, CS's further analysis showed that she had reviewed her previous assumptions about what constituted a learning intention, resulting in a new understanding of the nature of learning intentions, namely that they were very precise and should relate to children's interests. She was beginning to reassess her previous interpretations and see beyond these to new meanings, indicating that she was developing new "meaning perspectives" through a process of core reflection and "transformation" (Mezirow, 1990:14).

Questioning own practice

The basic theme of 'Questioning own practice' captures the ways in which trainees reflect critically on their own teaching practices in the classroom. 'Questioning'

includes the evaluation of specific features of his/her practice and analysis of the impact on children's learning and behaviour. Factors that influence practice are also identified, including context, theory, relationships and technology. This section builds on the previous section, 'Questioning own learning', and focuses on the specific context of developing classroom practice and pedagogy.

'Questioning own practice' builds understanding of pedagogy (explored further in Chapter 5 Taking a wider view - Engaging with pedagogy) and the impact of teaching on children's learning (explored further in Chapter 6 Articulating learning and teaching - Considering children's learning). It is the first step in professional development and trainees being able to take responsibility for this (explored further in Chapter 7 Taking responsibility - Taking responsibility for professional development). It provides a clear focus for critical reflection through the development of a "systematic, rigorous, disciplined way of thinking" (Dewey cited in Rodgers, 2002:845), critique of underlying assumptions (Mezirow, 1991) and consideration of other points of view leading to perspective transformation. It highlights the role that engagement with theory plays in developing a deep understanding of practice (Brouwer and Korthagen, 2005; Orchard and Winch, 2015; Winch, 2017b) (explored further in Chapter 5 Taking a wider view - Engaging with theory) and, in the case of ITE, the contribution made by the involvement of universities (Orchard and Winch, 2015; Beauchamp et al, 2013; Whitty, 2014; Furlong, 2013).

Trainees are encouraged to evaluate their own practice as soon as they start to teach at the beginning of their first school placement. The university's lesson plan format (Appendix 3) includes an evaluation section that asks trainees to identify what went well and what could be improved.

Analysis of the data revealed that trainees analysed positive and negative aspects of their teaching but weekly reviews also showed how their evaluations extended to the examination of alternative strategies, the impact on children's learning and the comparison of different approaches.

In questioning the effectiveness of their own practice, trainees suggested improvements that could be made to their teaching, including specific examples of alternative strategies. Trainees took action as a result of evaluating their own

practice, indicating that they engaged in the “trial” (Korthagen et al, 2001:7) or “experiment” (Dewey, 1933:72) steps of critical reflection, leading them to conclusions about the nature of problems they encountered and the solutions they applied.

P42: 0108KF - 42:4 I found myself relying heavily on looking at the planning and sometimes losing my place because I was trying to read from it as I taught. The children were challenging at times and it was sometimes hard to control their behaviour as they have not yet built up respect for me as a teacher. I still managed to get through the lesson and the children successfully completed their task. After this experience on Monday, I went home and replanned what I was going to do for the literacy lesson on Tuesday. I included more slides in my powerpoint presentation so I didn't have to hold the planning whilst teaching and I found that this made the lesson flow a lot better. The children were easier to manage as they did not see me struggling to teach as much.

KF attributed the ‘problem’ of children’s challenging behaviour to her need to refer to her plan and their lack of respect for her as the teacher. This could signify that she lacked legitimacy in the role of teacher due to “ambivalent institutional recognition of, and support for, [her] status as learner” (Fuller and Unwin, 2003:411), with the classroom having a restrictive influence on her learning. However, as she was able to address this issue in the following lesson, this may have been a symptom of being a “newcomer” (Lave and Wenger, 1991:56) occupying an as yet unestablished position at the periphery of practice. The advantage of having this legitimate position on the periphery of the CoP was that it was possible for KF’s problematic practice to be used as an opportunity for learning rather than a “cause for dismissal, neglect, or exclusion” (Wenger, 1998:101). Indeed, this enabled her to follow all five of Dewey’s (1933) steps in reflection from recognising the felt difficulty of the children’s behaviour, to locating a potential cause, suggesting a solution based on reasoning and evaluating the solution, with a positive outcome.

Trainees also gathered and compared evidence from the application of different solutions to a problem in order to analyse and understand it. This openness to different views, or the “cultivation of a variety of alternative suggestions” signifying reflection (Dewey, 1933:75), resulted in an ongoing exploration or divergence of ideas rather than a single, fixed solution. While this may not be a comfortable

position for a trainee faced with the immediate challenges of the classroom, engagement in a dialogic process of learning enabled JT to “draw isolated moments of experience up into larger dialogues” (Wegerif, 2011:188) that continued to develop her understanding of teaching and learning.

P157: 0210JT - 157:1 I had differing experiences of using groups in my lessons. In phonics, having 3 separate adult-led groups in the same class, differentiated by their respective understanding of blending/segmenting/initial sounds contributed to a less settled learning environment; making it harder for all children to progress. The contributing factors for this were both raised noise levels and too many focuses making it hard for the children to concentrate in each group. Meanwhile, for my maths session... I split the class into 2 groups (with as much a mix of learning dispositions/levels of understanding) as possible. The reason for which was to ensure each child got more of a chance to participate than if they had been in a whole class. This was effective to elicit children's understanding of the concept, and enabled them to be more interactive... Also having mixed groups and targeting questions at different children seems more effective than trying to differentiate in groups by their level of understanding. This might be because the children get a broader exposure to different ways of thinking; they could be learning when a peer is answering, or even motivated to think about answers when challenging questions are asked. I don't know whether it is true in all contexts. It is something I need to look into further.

Here JT considered two established approaches to the differentiation of teaching to meet a range of children's learning needs within a primary classroom, both used during the same week with the same class of children. In questioning the impact of different strategies, JT reassessed her understanding and began to reformulate her rationale, from assuming that there is one effective approach to differentiation, to recognising the need to apply different strategies in different contexts. While this may indicate a transformation in her understanding (Mezirow, 1990) and an ability to “focus on why things do and don't work in different contexts to develop an underpinning rationale or practical theory alongside practice” (Cordingley, 2015:241), limitations exist on the extent of her learning. She recognised that she needed to investigate further and, in order to maximise her learning, this would need to take place in a broader range of contexts and include “making use of specialist expertise, including expertise in the form of research evidence” (Cordingley, 2015:240). This would enable her to develop “a body of theory that

supports [her] practical skill in such a way that it can be applied to [her] day-to-day professional decision-making and actions... Such knowledge is important in teaching because it provides a significant part of the rationale for teachers' thinking and judgment in planning bespoke lessons for particular classes" (Orchard and Winch, 2015:16).

Analysis of the data revealed several factors that influenced trainees' practice and the ways in which they questioned and evaluated it. These factors arose from engagement in multiple CoPs (Wenger, 1998), an indicator of an expansive learning environment (Fuller and Unwin, 2003). In the classroom, there were opportunities to observe others' practice and receive feedback on trainees' own practice. In university taught sessions there were opportunities to engage with a range of ideas and experiences. Within the peer group of the PGCE, there were opportunities to collaborate, support and share experiences in a trainee-led environment facilitated by technology.

The CoP of the classroom comprised the trainee, mentor, other school staff and visiting university tutor. Trainees were directed to carry out observations (Appendix 15,16) of other teachers from the start of each placement. The provision of opportunities to observe other teachers implied that the trainee had a recognised role and status as a learner within the classroom, which was indicative of an expansive learning environment (Fuller and Unwin, 2003).

P90: 0116NH - 90:7 I observed one of my profile children in maths on Thursday and in doing so watched another [trainee] teaching. I was struck by how differently [the classteacher] had taught the same topic to our group earlier this week, and for me it reinforced the need for clear modelling of the process.

Here, NH observed another trainee and her mentor teaching the same topic to different groups of children and this enabled her to recognise the impact of modelling as a teaching strategy. This confirmed that "boundary crossing" into different classes (Hodkinson and Hodkinson, 2005:124), in this case to observe a peer as well as an old-timer, offered an expansive learning opportunity that clarified the power of modelling.

The role of the mentor was more clearly defined when trainees explored the ways in which their practice was questioned in feedback from observations of their teaching.

P159: 0210LH - 159:6 Following my observation on November 17th, I tried to make better use of the space in the classroom which is why I had the children stand up to do their actions. I recognised that making more use of the space was enjoyable for the children, it kept them engaged and it eradicated low level disruptions.

In response to feedback from her mentor, LH made changes to her practice and identified the impact on children's learning. The mentor's feedback helped to make clear the issue of LH's use of space, confirming Korthagen and Vasalos' (2005:49) claim that "supervisor intervention" is necessary to enable stage 3 of their ALACT model of reflection: "awareness of essential aspects" of practice. This enabled LH to progress to stage 4 "creating alternative methods of action" and stage 5 "trial" (Korthagen and Vasalos, 2005:49), before evaluating the impact. However, without the consideration of other points of view, there were possible limitations to LH's questioning, and subsequent understanding, of her practice particularly if theory was discounted in favour of practical advice (Otteson, 2007).

Lave and Wenger (1991:107) make a clear distinction between "talking about a practice from outside and talking within it", with the former lacking the credibility and integrity of the latter in terms of learning through participation. However Fuller and Unwin (2003:411) recommend "planned time off-the-job including for college attendance and for reflection" in order to create an expansive learning environment and stronger, richer learning experiences. Fuller et al (2005:66) go on to propose that structured courses are "merely another form of participatory learning" and that they should be "accepted as a legitimate activity". Analysis of the data revealed that university taught sessions were influential in trainees' questioning and understanding of their own practice. In some cases this led to the critique of "distortions" (Mezirow, 1990:14) that constrained previous assumptions and the reformation of ideas about teaching and learning.

P110: 0123EH - 110:18 Writing as Design was an interesting concept taught this week in the English lecture and seminar. It really helped to address and challenge some of the ways which I had been teaching children during placement one. I used to scaffold children quite a lot during their writing

tasks, providing them with writing frames and word-banks as well as giving them starting sentences and modelling ideas for them on the IWB. By giving children such a rigid structure could I have actually been limiting their creativity and preventing them from developing their independence? Writing should be something that children understand rather than mimic. They should be able to shape a piece of writing, thinking of it as a design process or a problem solving activity and something that should be revised and reflected on. Giving children one or two days may not be enough time for them to carry out all of this, therefore I should not be scared to set a writing task which stretches over a longer period in order for children to develop their practice of re-reading and re-drafting

Without this taught session, EH may not have encountered alternative approaches to the teaching of writing, emphasising that trainees' learning was enriched by considering theoretical perspectives alongside evidence from practice (Cordingley, 2015). McNamara et al (2014:191) strongly warn against a hierarchy that "privileges performativity and practical knowledge over theoretical, pedagogical, subject and curriculum knowledge, and knowledge about learners and learning" and Orchard and Winch (2015) make a strong argument for the role of universities in ensuring theoretical engagement in ITE. This was confirmed by EH's construction of her own understanding of how children learn to write, that drew on both "conceptual knowledge, generalized over many situations", from the theory included in the university taught session, and "perceptual knowledge, personally relevant and closely linked to concrete contexts" (Korthagen et al, 2001:8), from her own practice and experience of participation in a classroom CoP.

One of the groups of participants, who were in the same tutor group and were taught together at the university, established their own "digital habitat" (Wenger et al, 2009:37) using collaborative online documents. This enabled them to collaborate and share logistical information, influencing organisational aspects of their practice as well as contributing to feelings of confidence and support. NH evaluated the impact of the group's use of collaborative online documents:

P12: 0104NH - 12:15 [the group] had a bit of a game-change with to-do-lists... The collaboration was amazing, tremendously supportive and really shared the load, and we've already got one ready for these two weeks, and one for Term 2! Eyes are now open to the real strengths of google docs.

The group recognised Google Docs's affordances in terms of sharing information and began to use it to serve the needs of the group as a CoP. Although the tool was presented as affording opportunities to write and share reflective reviews, the trainees also elected to use it to support organisational aspects of their practice (Billett, 2001a). There were parallels with Clarke's (2009) professional online district (POD) in which the tools met the learning and communication needs of the trainees and were easy and appealing to use. This supported the construction of a socially supportive CoP (Wenger, 1998), both face-to-face and within the digital habitat (Wenger et al, 2009).

Although the focus here was on organisational practice rather than pedagogy, Dewey's (1993) steps in reflection were evident in NH's analysis of the use of Google Docs. She defined the problem of each trainee creating his/her own to do list, thereby replicating work and creating the potential for omissions and errors. She went on to explore the possible solution of a shared list and concluded that the collaborative online documents enhanced the group's practice in terms of their organisation for learning and teaching. Despite this resulting in new understanding for NH, it cannot be said to constitute perspective transformation (Mezirow, 1990), as there was no evidence of examination or reformation of previously held assumptions about this aspect of practice or the use of online tools.

In questioning trainees' own practice, there was evidence that reflection was facilitated by LPP, in which evaluation and improvement of their practice was recognised and valued. Analysis of the data revealed that opportunities to compare different teaching approaches, through self-evaluation, observation and feedback, facilitated core reflection. However, development of conceptual understanding alongside practice skill was limited without engagement with wider ideas from theory (Cordingley, 2015; Orchard and Winch, 2015). Trainees' critical reflections on university sessions, in which alternative perspectives from theory were used to challenge their underlying assumptions, demonstrated how these could contribute to perspective transformations in trainees' understanding of learning and teaching (Mezirow, 1990).

Questioning assumptions

The basic theme of 'Questioning assumptions' encapsulates trainees' reassessment of their presuppositions about learning and teaching and the resulting modification of their understanding. This could be explicit, where a trainee stated that he/she previously believed X, but after a specific experience, now understood Y. Alternatively, questioning could be tacit, where the previous assumption is not explicitly stated but it is clear that questioning has taken place, perhaps through the consideration of alternative points of view. 'Questioning' was usually provoked by a specific event: experiences and observations in the classroom, ideas presented during university taught sessions or theory encountered through recommended readings. This emphasises the important role played by engagement with theory and alternative views in ITE (Orchard and Winch, 2015; Beauchamp et al, 2013; Whitty, 2014; Furlong, 2013) (explored further in Chapter 5 Taking a wider view), alongside learning through participation in the workplace of the classroom (Lave and Wenger, 1991).

This section builds on the previous sections, 'Questioning own learning' and 'Questioning own practice', by examining evidence of core reflection that goes beyond consideration of concrete experiences, placing a greater emphasis on the exploration of the assumptions underlying trainees' perceptions of learning and teaching (Mezirow, 1990). Trainees demonstrated broader consideration of pedagogy and the nature of learning, beyond their immediate experiences and including awareness and development of their attitudes, characteristics and values or "core qualities" (Korthagen and Vasalos, 2005:55). This provided opportunities for the questioning of "epistemic, sociocultural and psychic distortions" (Mezirow, 1990:14), resulting in perspective transformation through reassessment and reformation of assumptions informing future actions and decision making. There was evidence that this contributed to changes in the trainee's understanding of his/her identity as a teacher and the values and philosophy underpinning this.

'Questioning assumptions' is included in university's Level 7 criteria for assignments (Appendix 6) during the PGCE. In order to prepare trainees for writing these assignments and to encourage critical reflection, it is explicitly encouraged during lectures and seminars (Appendix 1a,1b,1c,5). It can be applied

to trainees' own learning and attitudes, children's learning and teaching, both experienced and observed.

Trainees questioned their assumptions about their own learning processes and experiences, both during university taught sessions and school placements. Weekly reviews provided evidence of development in understanding and changes in attitudes towards learning. Some trainees described and explored aspects of the learning process explicitly, including their assumptions at the start and how these changed, providing evidence that their questioning resulted in perspective transformation (Mezirow, 1990). Here EH reflects on her learning experience during an online independent study task on e-safety:

P110: 0123EH - 110:4 Although I originally stated my initial negative thoughts regarding the group task set up of the activity, upon reflection I found it very useful to consider everyone else's ideas. I wrote my own thoughts before reading the other answers in order to not be persuaded or dissuaded. As I have not yet had the opportunity to observe/teach any lessons in e-safety, it was very useful to see how others have addressed this issue and given me some good ideas for the future teaching of this subject. Some of the questions have challenged some of my previous thoughts and forced me to deepen some of my existing values.

This session included encounters with research presenting different points of view and issues around e-safety, as well as online discussion with peers, bringing together theory and experiences from practice. It took place within a digital habitat (Wenger et al, 2009) provided by the university's VLE with the addition of collaborative online documents in which to share experiences and ideas. This provided an expansive learning environment through opportunities for collaboration, time to "stand back, reflect and think differently" (Hodkinson and Hodkinson, 2005:24) about school experiences and take part in multiple CoPs (school community and university group) in order to broaden the learning experience and extend professional identity (Fuller and Unwin, 2003). Indeed Fuller and Unwin's (2003) definition of 'expansive' is extended here by the inclusion of opportunities to engage in virtual "spaces of meaning" and dialogic learning (Wegerif, 2011:180) or "Learning to Learn Together (L2L2) online" (Wegerif, 2013:102) in a CoP that exists within and engages with the voices and multiple perspectives provided by the wider internet. In this case, multiple

perspectives were provided by the views of peers in different schools, published research into children's e-safety (Holloway et al, 2013) and podcasts of professional and academic discussion of the pedagogy and issues around e-safety (November, 2010).

EH stated explicitly that the questions posed challenged her previous thinking and developed other aspects of her knowledge of e-safety. The tutor's "scholarly and pedagogical expertise" (Orchard and Winch, 2015:27) scaffolded (Bruner, 1996) EH's learning and enabled her to bring together theory and practice, thus affording opportunities to clarify and extend her understanding and confirming the role of theory and critical reflection in ITE, best provided through university involvement (Orchard and Winch, 2015; Beauchamp et al, 2013; BERA and RSA, 2014).

Indeed EH's perspective transformation was brought about by her engagement with "Technological pedagogical content knowledge (TPCK)" (Mishra and Koehler, 2006:1028): an understanding of the variety of ways in which concepts relating to e-safety were represented through technology; recognition of the collaborative pedagogical techniques afforded by technology; the ways in which technology made new and challenging ideas about e-safety more accessible; understanding of her prior knowledge of e-safety and the epistemology underlying how she might learn more; revised understanding of this epistemology and how technology could provide new opportunities to build knowledge (Mishra and Koehler, 2006).

There was also evidence that trainees questioned their assumptions about their own learning over longer periods of time, revisiting them and leading to perspective transformation through the critique of "psychic distortions" (Mezirow, 1990:16). This enabled them to overcome barriers posed by "unwarranted anxiety that impedes taking action" (Mezirow, 1990:16) that could limit their learning and development. Here two quotations from HM, from 4 and 12 weeks into the PGCE respectively, illustrate how the questioning of her assumptions led to a transformation in attitude towards her own learning:

P5: 0104HM - 5:12 This week has made it seem so much more real and therefore, in a way, quite daunting but yet I am feeling excited to be entering school and working with children again. A mixture of emotions! This is due to my own past experiences of teaching. An issue for me is the expectations I have of myself. I have to understand that things sometimes do not always go to plan and that this is not a direct reflection on me as a person and that

it is ok to get things wrong. Nobody is going to achieve perfection all the time and that is acceptable!

P68: 0112HM - 68:13 When I reflect on how my lessons have gone, I sometimes feel it is a shame that they hadn't gone to plan but thinking more about this, this is the ever changing environment of the school and things constantly change. It is about being flexible about the teaching and just appreciate that sometimes things won't always go to plan. I think the fact that some of my lessons haven't been as prescribed as I'd planned shows that I am able to think on my feet and be flexible in my approach which is no doubt a good skill to have!

In P5 HM (P5: 0104HM - 5:12) expressed the assumption that the high expectations she had of herself would be an issue, particularly because things rarely go to plan in school. This was supported by previous experience of working in school. An associated expectation of negative consequences could be inferred and there was an implied assumption that discouragement was inevitable. HM's critique of her own presuppositions (Mezirow, 1990) led her to articulate the transformation of attitude that was needed, that she must accept that teaching does not always go to plan, but the transformation itself was not achieved at this time. These actions mirrored phases 1 to 3 of Korthagen and Vasalos's (2005) process of core reflection as HM identified an issue from past experience, demonstrated "awareness of the area of tension, and the choice of whether or not to identify oneself with the limiting factor" and went on to suggest the "core quality [that] is needed to realise the ideal situation and overcome the limitations" (Korthagen and Vasalos, 2005:56-57). She demonstrated awareness of the core qualities of flexibility, resilience and courage that she needed to develop in order to learn to be a teacher.

Progress was evident in the subsequent quotation from HM (P68: 0112HM - 68:13), written 8 weeks later after several weeks of her first school placement of the PGCE. In P68 HM viewed her newfound flexibility as a positive mark of progress towards becoming a teacher, indicating perspective transformation (Mezirow, 1990). This signalled recognition of her progress in the process of professional development and an emerging sense of her identity as a teacher, a key indicator of core reflection (Korthagen and Vasalos, 2005).

In addition to critical reflection on their own learning, trainees questioned their assumptions about the nature of learning more broadly, including the role of creativity and play and the potentially limiting impact of stereotypes. In doing so, they began to engage with learning at a conceptual level; this is essential to “thinking through educational problems” and to engaging with ideas beyond the personal “to their wider professional role” (Orchard and Winch, 2015:20-21). This emphasis on depth of understanding at a conceptual and theoretical level went further than the expansive-restrictive continuum that calls for opportunities for “personal development that goes beyond school or government priorities” (Hodkinson and Hodkinson, 2005:124) and the extension of professional identity through boundary crossing (Fuller and Unwin, 2003; Hodkinson and Hodkinson, 2005). Rather than the introspective questioning and understanding of their own learning, “perceptual knowledge” of learning developed through interactions with tutors and peers in university taught sessions, as well as ideas from theory (Winch, 2017a:673). “Awareness of the development of perceptual ability” is essential to “the transition from novicehood to expert”, in ITE (Winch, 2017a:685), echoing Lave and Wenger’s (1991) claim that learning occurs through LPP, moving centripetally towards full participation in a CoP.

There was evidence that university taught sessions provided opportunities for trainees to question their existing understanding of gender equality and highlight how this can impact on learning. In this example, ‘questioning’ took the form of emphasising the importance of an issue and examining it in more detail to develop a deeper understanding, drawing on theory, a university taught session and classroom experience:

P140: 0205JT - 140:23 Although gender issues have been at the back of my mind since starting the course (after noticing that c.90% of the PGCE course are female) I hadn’t really focussed on it at all. In our Teaching in a Diverse Society session, we were exploring different stereotypes including gender roles. Meanwhile, I read about gender differences in scientific play... due to their play choices (home corner for girls, cars and ramps for boys; quite a generalisation but one which I have seen evidence to support). I hadn’t considered that gendered play could genuinely influence later learning.

The session and reading afforded JT the opportunity to use theory to illuminate aspects of learning from her experience of which she would otherwise have remained unaware. Her questioning, critical reflection and engagement in “formal educational scholarship” (Shulman, 1987:10) contributed to the transformation of her understanding (Mezirow, 1991) and the development of the core values underpinning her identity as a teacher (Korthagen and Vasalos, 2005). This confirms how important it is that ITE “should equip teachers to engage actively with the findings of educational research” (Orchard and Winch, 2015:22).

At times the assumptions were implied rather than explicit and questioning, through the consideration of new perspectives introduced during university taught sessions, led to a transformation in the trainee’s understanding of the nature of learning with implications for his/her future classroom practice.

P96: 0120EM - 96:10 I have enjoyed the creative writing lecture; it provided me with some tools to promote creative writing, most importantly it allowed me to see that it is ok to have a creative space that is not scrutinised; having a place to be creative is very important to children they still need to try out things and have no fear of the editing process.

Here the implied previous assumption was that learning should always be monitored by a teacher. EM identified a tension between this view and the importance of giving children space to be creative. Learning through participation (Lave and Wenger, 1991) in classroom CoPs in which creativity was not given space and time had not afforded EM the opportunity to question this assumption about the nature of learning. However, drawing on research, she was able to fully evaluate an approach “in relation to the alternatives” (Cordingley, 2015:245). This led to a perspective transformation (Mezirow, 1990) in which she came to understand that constant scrutiny of learning could be stifling and creative space could contribute to confident, creative learners.

There was evidence that trainees questioned the assumptions underlying their own teaching and their understanding of pedagogy more broadly. They stated intentions for their future teaching practice, demonstrating how critical reflection on “critical incidents” (Brookfield, 1990:177) either in school or university, could result

in perspective transformation (Mezirow, 1990), learning and the development of new practices (Cordingley, 2015).

The questioning of assumptions about trainees' own teaching was often triggered by unexpected responses from children. This was particularly evident in their reflections on children's behaviour, "a major preoccupation of new and early career teachers" (Orchard and Winch, 2015:21). Trainees' analysis led to the explicit identification of presuppositions, and critical incidents caused them to question their assumptions and develop new understanding of their identities and responsibilities as teachers and how these impacted on children's behaviour. This mirrored the process of critical reflection defined by Brookfield (1990:177) "comprising three interrelated phases: (1) identifying the assumptions that underlie our thoughts and actions; (2) scrutinizing the accuracy and validity of these in terms of how they connect to, or are discrepant with, our experience of reality...; and (3) reconstituting these assumptions to make them more inclusive and integrative".

P71: 0112KF - 71:12 On Tuesday my training mentor was out of the class for the day and she asked myself and the other [trainee] to teach and manage the class while she was out. I thought that the day would be challenging and that the children would not behave as well or get on with their work because their teacher wasn't in the classroom. However, the children behaved better than expected, I used praise and rewards such as house points to encourage good behaviour and good work. If children were misbehaving they received a warning and then they had to stay in at break if they continued to misbehave. I found that these methods of behaviour management worked quite well.

Here, KF clearly stated her previous assumption that the positive learning behaviour of children was caused by the presence of a familiar and experienced teacher, therefore they would exhibit more challenging behaviours when a trainee was teaching them. In reality their behaviour was less challenging than she expected and she realised that a clear, consistent response to behaviour was a significant factor in maintaining positive learning behaviour and this could be achieved by a trainee. The event enabled her to recognise and critique a "sociocultural distortion" (Mezirow, 1990:15) in her understanding of the power and social relationships between teacher and pupil. The resulting perspective

transformation provided KF with understanding of aspects of her identity as a teacher that would impact children's behaviour.

Critical incidents also occurred during the introduction of teaching methods and theories that were new to trainees in university taught sessions. This enabled the questioning of assumptions about teaching and pedagogy through the exploration of ideas, points of view and implications of specific teaching strategies, such as 'learning without limits' (Hart et al, 2004). Here EH's previous experience led her to assume that learning was differentiated through the provision of tailored tasks or learning experiences, an epistemic assumption (Mezirow, 1990) arising from her participation in an individual classroom CoP.

P95: 0120EH - 95:15 I hadn't really considered the benefits of allowing children to take control of the differentiation within their learning however this is something that I intend to try within my next placement school. By allowing children the opportunity to be more autonomous within their learning, you would be raising your expectations of them which is something that the children I have previously worked with have reacted well to and have shown that they can live up to these expectations. It is also encouraging children to 'have a go' which is the kind of attitude I would like the children in my care to have. There are obviously certain drawbacks to this method, careful scaffolding and monitoring would need to put into place more-so than within a class where children are set differentiated work, however I feel as though the benefits could be positive for a child's learning outcomes.

EH considered an alternative pedagogy and its potential advantages, compared this with her previous experiences of children's learning, identified potential drawbacks and implications and came to a conclusion about its efficacy. EH demonstrated the rigour and discipline of Dewey's (1933) five step model of reflection, but such reasoning was also evidence of stages six and seven of Kitchener and King's (1990) reflective judgement model, more typical of mature graduate students. EH demonstrated an openness to new ideas from which it could be inferred that she perceived knowledge to be "uncertain and open to interpretation", as well as involving evaluation across contexts (Kitchener and King, 1990:165). Her meaning perspective was transformed through a "critically reflective assessment of epistemic... distortions" (Mezirow, 1990:14), with her exploration of potential drawbacks, or "questioning from other perspectives"

(Wegerif, 2011:188), alluding to a provisional or divergent perception of knowledge typical of dialogic thinking.

Tutor interactions supporting questioning yourself

The basic theme 'Tutor interactions supporting questioning yourself' captures the nature of tutors' comments and how they supported trainees' questioning of their own learning, practice and assumptions. 'Supporting' includes recognition of critical reflection, constructive criticism, questioning and guidance. This section arises from the previous sections of this chapter, as the comments considered respond to trainees' questioning of their own learning, practice and assumptions. It begins to build understanding of the contribution made to critical reflection by tutors' comments regarding questioning and this is extended in Chapters 5,6 and 7 to examine the contribution made to critical reflection by tutors' comments regarding trainees 'Taking a wider view', 'Articulating Learning and Teaching' and 'Taking Responsibility'.

Tutors' comments helped trainees to recognise critical reflection and opportunities to extend it. There was constructive criticism in the form of guidance about how to extend understanding and critical reflection. In parallel with Lave and Wenger's (1991) old-timer or master within situated learning, there was little direct instruction. Included in the role here was the provision of scaffolding (Bruner, 1996) that enabled a trainee to bridge the ZPD (Vygotsky, 1986) from one stage to the next in the process of critical reflection: reflection, core reflection and transformation.

Dialogic was also supported through the provision of alternative points of view within tutors' comments, either directly or through suggested readings, creating a potential "new space of meaning" (Wegerif, 2011:180). Tutors' comments could be said "to open them up to questioning from other perspectives" (Wegerif, 2011:188). This supported trainees' critical reflection by encouraging a "systematic, rigorous way of thinking" (Dewey, 1933 cited in Rodgers, 2002:845) and promoted core reflection by assisting trainees in recognising and activating "character strengths", essential to critical reflection in ITE (Korthagen and Vasalos, 2005:56).

Analysis of the data revealed ways in which tutors' comments contributed to the creation of expansive learning opportunities within ITE by providing "dedicated support", helping trainees to bridge boundaries between "communities of practice inside and outside the workplace" (Fuller and Unwin, 2003:411) and supporting "opportunities to integrate off the job learning into everyday practice" (Hodkinson and Hodkinson, 2005:124). This affirmed the contribution made by a tutor, as an agent of formal education provided by a university, largely discounted or overlooked in the workplace learning literature (Fuller et al, 2005), despite being an influential factor in encouraging trainees' critical reflections (Korthagen and Vasalos, 2005; Brouwer and Korthagen, 2005).

Tutor interactions supporting questioning own learning

Tutors' comments supported trainees' recognition of their progress in understanding teaching practices, relevant theory, alternative points of view and the development of identity and philosophy as a teacher. This provided "reification" of progress and critical reflection within the PGCE by providing form for these abstract concepts (Wenger, 1998:59) and contributed to an expansive learning environment by making these aspects of learning clear and accessible to the trainees (Fuller and Unwin, 2003). For example, tutors asked questions that supported trainees' recognition of progress in their learning about practice and confirmed progression from a focus on their own learning to understanding the impact of this on children's learning.

Tutors' comments and questions such as 'Unpack this further. What have you noticed in particular about your own practice and about how to support children in making progress in learning?' (P168: 0212LH - 168:9) encouraged trainees to go beyond description of their classroom practice, by using a "systematic, rigorous, disciplined way of thinking" (Dewey, 1933 cited in Rodgers, 2002:845) to analyse events more precisely. This example and comments such as 'Good to make connections between subject knowledge and impact on learning' (P192: 0223JC - 192:7) suggested that tutors encouraged trainees to make connections between what they had learned through acquisition, participation and construction, recognising this as an indicator of progress and capitalising on the variety of perspectives offered by a "plurality of metaphors" for learning (Sfard, 1998:11).

The consideration of different perspectives was viewed as a mark of progress towards enriched professional judgement (Dewey, 1929) and related to critical reflection in comments such as ‘You have written very reflectively, JT. It seems that this training has had significant impact in broadening your perspectives’ (P193: 0223JT - 193:3). Here JT’s tutor supported recognition of progress through interaction with multiple perspectives about e-safety in an online session, including empirical research, theoretical viewpoints and the experiences and views of peers. This placed progress within dialogic (Wegerif, 2013) and connectivist (Siemens, 2005) paradigms of learning in which an online space can provide opportunities for divergent thinking, multiple points of view and dialogues from which meaning can emerge.

Tutors’ comments supported recognition of progress through the development of a clear identity and philosophy as a teacher. This could be explicit, through comments such as ‘There is evidence of emergent principles for practice here’ (P164: 0212EW - 164:12), in response to EW’s conclusions about the influence of teachers’ spoken language on children’s learning. Whereas CS’s tutor identified a specific philosophical approach as evidence of progress: ‘You demonstrate attunement to children’s emergent lines of enquiry’ (P181: 0219CS - 181:9), highlighting progress towards an ideal situation which was “closely connected with the level of identity” as a teacher (Korthagen and Vasalos, 2005:54). Both comments were in response to trainees’ statements of new or deeper understanding of children’s learning, signaling perspective transformation (Mezirow, 1990) with regard to spoken language and child-centred teaching respectively.

Tutors’ comments encouraged trainees to recognise enabling factors in their learning including the role of the mentor, analysis of experiences of teaching and engagement with theory. In addition to supporting trainees’ recognition of these enabling factors, tutors’ comments and questions promoted expansive learning experiences through clearly defining learner and mentor roles and making connections across CoPs.

EW's tutor encouraged her to draw on her mentor's feedback and deeper analysis of her experiences of differentiating learning during a mathematics lesson to enable further learning through critical reflection:

P138: 0205EW - 138:5 It would be good to unpack your reflections as well as the feedback from your mentor. For instance, were there any 'light bulb' moments during the session? Did you experience any strong feelings? If so what were they linked to?

The tutor encouraged EW to pay close attention to her mentor's feedback as an enabling factor informing her reflections, leading to deeper understanding of differentiated learning. This signaled an expansive learning opportunity in the connection of school and university-based CoPs and the bridging of boundaries between the two, as well as confirming the clearly defined roles of learner and mentor (Fuller and Unwin, 2003). This connection also indicated that the trainee, tutor and mentor were members of a small CoP themselves as they shared a common purpose, supported and learned from each other (Wenger, 1998).

Tutors' questions also encouraged trainees' openness to new ideas and reconsideration of existing understanding, which contributed to deeper analysis of learning experiences:

P149: 0208JT - 149:8 This is insightful, JT... How has your assumption been challenged? What new understandings do you have?

Here, JT's tutor asked questions that explicitly supported the adoption of an open disposition that could enable her to exploit opportunities to learn from experiences. The tutor's comment explicitly encouraged the questioning of assumptions and articulation of potential perspective transformation (Mezirow, 1991) that may have occurred through the comparison of ideas about planning and assessment presented in a lecture with JT's experiences in the classroom.

The role of formal education in the provision of expansive learning opportunities was also confirmed by tutors' comments that encouraged trainees to use theory to extend learning from participation, thus increasing the breadth of learning experiences (Fuller and Unwin, 2003). Comments such as "I recommend that you have a look at Rose and Rogers (2012)... as it has some very useful insights into the role of the 'creator' or planner" (P148: 0208JC - 148:11) aided trainees in the

identification of theory as an enabling factor by highlighting how a learning experience could be enriched by consideration of theoretical perspectives alongside evidence from practice (Cordingley, 2015). This supported the combination of practical knowledge of the classroom with understanding of theory that is essential to being a professional teacher (Orchard and Winch, 2015; Winch, 2017b), also illustrating the complexity of PCK (Shulman, 1987) in which theory, practice and critical reflection are integrated.

Tutor interactions supporting questioning own practice

Tutors' comments supported trainees' questioning of their own practice through encouraging analysis and evaluation of classroom experiences. Tutors' questions and comments called for consideration of alternative strategies or actions and identification of the impact of trainees' teaching on children's learning before moving on to the evaluation and comparison of specific teaching strategies. There is evidence that this supported learning about practice through steps one to four of Dewey's (1933:72) five step process of reflection: "(i) a felt difficulty; (ii) its location and definition; (iii) suggestion of possible solution; (iv) development by reasoning of the bearings of the suggestion".

Comments from tutors encouraged trainees to look beyond their own practice to the impact that it had on children's learning and behaviour.

P154: 0210CS - 154:9 Great, CS. What impact did this have on children's engagement and motivation levels, and their learning?

Here, CS's weekly review described how she had adapted her practice in response to the children's learning needs, following steps one to four of Dewey's (1933) process of reflection by (i) identifying that groups of children were at different stages in their writing at the end of the first lesson, (ii) explaining that some children needed further explanation and time on the planning task, (iii) suggesting differentiated tasks, seating arrangements and adult support were provided and (iv) reasoning that this approach would enable a greater majority of the children to achieve the learning intentions.

Tutors' comments supported trainee's questioning of their own practice through the identification of influences on their practice and suggestions about how to use

these to maximise learning. Influential factors included observation of other teachers, mentors' feedback and the content of university taught sessions.

Tutors' comments asked direct and precise questions that could inform the development of trainees' practice.

P142: 0205LH - 142:22 Which ones in particular? What impact did the session have on the child's learning? You reflect on motivation levels - did you notice an impact on other areas of learning? Are you aware of other critical perspectives on Reading Recovery? Try to engage with literature in order to support you in developing more analytical and critical reflections on these important 'light bulb' moments.

Here LH's tutor encouraged her to capitalise on an opportunity to "learn from looking through exploration of evidence about pupil outcomes and from observing teaching and learning exchanges" (Cordingley, 2015:240). The tutor's questions served to focus and clarify LH's learning about practices within Reading Recovery and went on to recommend that she "explore the principles underpinning the practices teachers are exploring, as well as their surface features to help them transfer learning between contexts" (Cordingley, 2015:244) by considering theoretical perspectives. In contrast to much workplace learning literature, the value of engagement with theory alongside learning from practice in ITE is emphasised by Brouwer and Korthagen (2005), Orchard and Winch (2015) and Sloat et al (2014).

Tutors' comments alerted trainees to the value of mentors' feedback in informing the questioning of their own practice. Comments such as "I can see that you received feedback from your mentor - reflect on how this has developed your understanding of the role of the teacher" (P151: 0208LO - 151:5) advocated the use of feedback to question the deeper purpose of practice or even the mission of a teacher (Korthagen and Vasalos, 2005), indicating that tutors' comments could support core reflection.

Trainees were encouraged to look beyond their immediate experiences, explore alternative perspectives and underlying principles in order that they understood their practice and made informed decisions in future practice: "There are some good readings on Minerva which will help you develop understanding of supporting children with EAL" (P203: 0233LO - 203:1). It could be argued that this promoted

dialogic by “drawing learners away from over-identification with closed and limited identities” and opening “them up to questioning from other perspectives” (Wegerif, 2011:188). This was facilitated by the “dynamic, sociotechnical environment” (Bell, 2011:106) available through the university. This provided a digital habitat (Wenger et al, 2009) in which online tools, such as access to academic journals via a VLE and asynchronous interaction within collaborative online documents, extended learning opportunities and the definition of a CoP, to include the trainee, tutor, mentor “triad” (Brouwer and Korthagen, 2005:159). This combination of face-to-face and online learning environments facilitated expansive learning experiences in which trainees were encouraged “to integrate off the job learning into everyday practice” (Hodkinson and Hodkinson, 2005:124). Although neither Fuller and Unwin (2003) nor Hodkinson and Hodkinson (2005) consider the role that online learning can play in an expansive learning environment, here it contributed to the integration of theory and practice necessary for critical reflection that enables teachers to question, re-evaluate and re-develop teaching and learning practice and policy (Zeichner and Liston, 1987; Nichol, 1993, Brouwer and Korthagen, 2005; BERA and RSA, 2014; Sloat et al, 2014).

Tutor interactions supporting questioning assumptions

Tutors’ comments directly encouraged trainees to identify and question the assumptions underlying their reflections on teaching and learning. In parallel with evidence from the trainees, early comments tended to focus on assumptions underlying trainees’ concrete experiences of learning and teaching. Later comments encouraged the examination of assumptions underlying conceptual understanding of learning and teaching, relating to trainees’ identity, values and philosophy as a teacher. This supported trainees’ critical reflection by emphasising the “critique of the presuppositions on which our beliefs have been built” (Mezirow, 1990:1). It also promoted core reflection through the consideration of core qualities that contribute to trainees’ identity and mission as a teacher (Korthagen and Vasalos, 2005). Subsequently, there were opportunities for perspective transformation (Mezirow, 1990) through the reassessment of assumptions and modification of trainees’ understanding of learning and teaching.

Rather than learning through “transmission” (Bruner, 1996:21) or “acquisition” (Sfard, 1998:5) of new knowledge, tutors’ comments supported learning by explicitly encouraging trainees to identify assumptions about their own learning.

P143: 0205LO - 143:8 Considering your learning more deeply will enable you to move from describing events to understanding your own assumptions which in turn will support your development.

Here, the tutor emphasised the importance of moving from description to core reflection, leading to professional development. The tutor was in the role of old-timer, contradicting Lave and Wenger’s (1991) rather dismissive view of the role of formal teaching in workplace learning (Fuller et al, 2005), with LO as an apprentice “learning the habits of reflective practice before doing so as [a] professional teacher” (Kagle, 2014:21). While this appeared to follow a model of apprenticeship explored within workplace learning, core reflection goes beyond the recognition of the impact of learners’ dispositions and characteristics (Evans et al, 2006; Hodkinson and Hodkinson, 2003; Billett, 2001a) to the questioning of fundamental values and core qualities, leading to the restructuring and transformation of underlying assumptions (Mezirow, 1990).

Moving on from focusing on trainees’ own learning, tutors’ comments such as “Can you predict children's learning in this way?” (P180: 0216VG - 180:2) and “‘Delivered’ is an interesting word in teaching...it implies that you have pre-determined the outcomes of the session and will ‘present’ knowledge to children. Is this in line with your thinking?” (P155: 0210EW - 155:4) encouraged trainees to consider their underlying philosophical and epistemological beliefs when evaluating their practice (Sloat et al, 2014). This progression, from reflecting on concrete experiences to conceptual questions about learning and teaching, signified recognition that “gradual transition to full participation” was vital to ensuring the development of a “rounded expert/full participation” (Fuller and Unwin, 2003:411). Furthermore, it indicated that the “critique of presuppositions” (Mezirow, 1990:1) underlying understanding of learning and teaching played a significant role in progression from LPP (Lave and Wenger, 1991) to full participation in ITE. Thus supporting arguments for the inclusion of critical reflection in ITE, rather than relying on a craft-based view of teaching, to ensure that trainees develop “a conceptual map of the wide educational field” or the

“practical wisdom” that can be used and applied “in a variety of complex settings” (Orchard and Winch, 2015:14).

Chapter summary

How this chapter addresses the research questions

RQ1 What is the nature of critical reflection in trainee teachers’ collaborative online weekly reviews?

Analysis of the data illuminated the nature of critical reflection in trainees’ online weekly reviews (RQ1). There was evidence of reflection, core reflection and transformation in trainees’ questioning of their own learning, questioning of their practice in the classroom and questioning of their assumptions about the nature of learning and teaching.

Reflection occurred during trainees’ questioning of their learning and practice. Rigour and a “disciplined way of thinking” (Dewey, 1933 cited in Rodgers, 2002:845) was evident in trainees’ recognition of progress in their learning (P121: 0123SS - 121:5) and their identification of factors that enabled their learning (P192: 0223JC - 192:1). They reflected on specific events and identified the impact these had on their learning, both during university taught sessions and in classroom practice. This was related to the affordances of the learning environment, the individuals’ responses to the environment and dispositions (Billett, 2001a), informed by previous experiences in work and learning (Hodkinson and Hodkinson, 2004). There was evidence that trainees engaged in all five of Dewey's (1933:77) steps of reflection, resulting in “experimental corroboration” or “trial” (Korthagen et al, 2001:7) of alternative teaching strategies (P42: 0108KF - 42:4). This critical reflection was facilitated by their holding a legitimate position of newcomer on the periphery of practice (Lave and Wenger, 1991) without the “the most severe operational pressures of full participation” (Orchard and Winch, 2015:31). However, there was some indication that, particularly at the beginning of placements, their position on the periphery limited their learning to the replication of practice, rather than the development of new understanding informed by critical reflection (P44: 0108LM - 44:7) (James and Brown, 2005; Edwards, 2005). It could

be that this socialisation into the existing culture and practice of the school was a necessary step for some trainees in their progress from the periphery to full participation or that replication of practice resulted from “unequal relations of power” between trainee and mentor (Lave and Wenger, 1991:42).

Core reflection occurred during trainees’ questioning of their learning and practice and in the questioning of their assumptions about the nature of learning and teaching. There was evidence of explicit core reflection in the recognition of an initial assumption, an exploration of the event that caused questioning or critique of this assumption and the potential for perspective transformation (Mezirow, 1990) (P110: 0123EH - 110:4). This was scaffolded by questions, tasks and theory provided by taught sessions, confirming that “scholarly and pedagogical expertise” provided by the university (Orchard and Winch, 2015:27) was a factor that enabled the questioning of underlying assumptions. This included exposure to a range of views through participation in “constellations” of CoPs (Wenger, 1998:126) that enriched understanding through diverse experiences and interactions (P193: 0223JT - 193:1; P90: 0116NH - 90:7).

Phases one to three of Korthagen and Vasalos’ (2005) model of core reflection were supported by trainees’ analysis of experiences and observations in the classroom (P5: 0104HM - 5:12; P68: 0112HM - 68:13), enabling them to identify an ideal situation (Korthagen and Vasalos, 2005) (P201: 0233JT - 201:1; P90: 0116NH - 90:7). This facilitated the critique of psychic distortions (Mezirow, 1990) that enabled trainees to overcome “unwarranted anxiety” by recognising and activating core qualities (Korthagen and Vasalos, 2005). Core reflection also occurred through critique of their assumptions when considering and comparing different solutions to a problem (P157: 0210JT - 157:1). The “cultivation of a variety of alternative suggestions” (Dewey, 1933:75) led to dialogic thinking that related individual experiences to broader dialogues about learning and teaching (Wegerif, 2011). Mentor feedback was a positive influence, supporting identification and definition of a problem (Korthagen and Vasalos, 2005) (P42: 0108KF - 42:4; P159: 0210LH - 159:6), while the questioning of previous assumptions and openness to new understanding of practice was extended by

research and theory (Cordingley, 2015; Orchard and Winch, 2015; Otteson, 2007) (P140: 0205JT - 140:23).

There was evidence that the critique of underlying assumptions led to perspective transformation (P198 0233CS - 198:15). All of Dewey's (1933) five steps of reflection were evident and informed reassessment of previous understanding and the development of new meaning perspectives (Mezirow, 1990). Critical reflection was informed by engagement with theory and facilitated explicit perspective transformation (Mezirow, 1990) (P193: 0223JT - 193:1). In particular, university taught sessions enabled trainees to compare theoretical perspectives with evidence from practice (Cordingley, 2015) (P110: 0123EH - 110:18), facilitating the identification and questioning of distortions that influenced previous assumptions, resulting in new understanding of learning and teaching (Mezirow, 1990). Critical reflection on conceptual understanding of learning and teaching resulted in "formal educational scholarship" (Shulman, 1987) (P140: 0205JT - 140:23; P95: 0120EH - 95:15) and perspective transformation in terms of understanding and values underpinning identity as a teacher (Mezirow, 1990). This occurred through critique of epistemic distortions (Kitchener and King, 1990:165) (P95: 0120EH - 95:15) in which knowledge became "uncertain and open to interpretation" and perspective transformation occurred through the questioning of assumptions (Mezirow, 1991) about practice using theory. Critical incidents (Brookfield, 1990) during classroom practice led trainees to identify and question presuppositions. Challenging the sociocultural distortion (Mezirow, 1990) that constrained understanding of power and social relationships between teacher and pupils contributed to the trainee's developing identity as a teacher (P71: 0112KF - 71:12).

RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?

Analysis of the data illuminated the ways in which interactions with the tutor in online weekly reviews contributed to trainees' critical reflection (RQ2). Tutors' comments provided reification of abstract concepts of critical reflection (Wenger, 1998).

Tutors' comments encouraged trainees to analyse events in more detail (P168: 0212LH - 168:9), supporting steps one to four of Dewey's (1933) process of

reflection in order to understand the impact of their teaching on children's learning (P154: 0210CS - 154:9). This supported greater precision in trainees' definition of an issue or problem and the exploration of possible solutions and scaffolded their progress (Bruner, 1996) across the ZPD (Vygotsky, 1986) towards the final step of reflection, experimentation leading to a conclusion (Dewey, 1933). In doing so, the tutor was in the role of old-timer, modelling the reflective practice of a professional teacher for the trainee (Kagle, 2014).

Tutors' comments included questions that explicitly encouraged trainees to question their existing assumptions (Mezirow, 1990) and remain open to new ideas (P149: 0208JT - 149:8). This open disposition supported trainees in exploiting opportunities to learn afforded by participation in classroom practices (Billett, 2004) and extended this to include university taught sessions and online resources. By encouraging trainees to critique their presuppositions about both practice and theory, tutors' comments enabled trainees to develop understanding of the influence of these assumptions on their interpretations, decision making and learning, creating opportunities for the articulation of perspective transformation (Mezirow, 1990).

Tutors' comments encouraged trainees to consider multiple perspectives, including those encountered during taught sessions (P193: 0223JT - 193:3), reading of theory and mentor feedback. This supported recognition of the ways in which learning from participation could be enriched by the consideration of alternative ideas and practices from literature and experience (Cordingley, 2015; Brouwer and Korthagen, 2005) (P148: 0208JC - 148:11; P142: 0205LH - 142:22). It also promoted the exploration of the underlying principles and presuppositions of the practices that they experienced and observed (Mezirow, 1991) and counteracted the potentially limiting impact of "occupational socialization" (Brouwer and Korthagen, 2005:154) if trainees learned through classroom participation alone (P203: 0233LO - 203:1).

RQ3 What are the affordances and constraints of collaborative online documents in relations to trainees' critical reflections?

Analysis of the data illuminated the ways in which the affordances of collaborative online documents contributed to trainees' critical reflection (RQ3). Trainees

commented on the use of collaborative online documents during a university taught session but not on the process of writing weekly reviews.

During an online taught session on e-safety (P110: 0123EH - 110:4), ideas arising from research and interactions with peers within collaborative online documents resulted in the questioning of previous assumptions about children's safety and learning online (P193: 0223JT - 193:1). The collaborative online documents facilitated a dialogic "living shared enquiry" (Wegerif, 2013:97) within a digital habitat (Wenger et al, 2009) that made connections across a constellation of CoPs (Wenger, 1998) comprising each trainee in his/her school placement and the university tutor group. This enabled core reflection through the critique of presuppositions (Mezirow, 1990), leading to alterations in meaning perspectives and potential perspective transformation expressed through explicit references to 'deeper understanding' (P193: 0223JT - 193:1) and 'questions [that] have challenged some of my previous thoughts and forced me to deepen some of my existing values' (P110: 0123EH - 110:4). As well as affording opportunities for critical reflection on content (e-safety), collaborative online documents also afforded a perspective transformation in EH's "nuanced understanding of the complex relationships between technology, content, and pedagogy" (Mishra and Koehler, 2006:1029), particularly in relation to the epistemology underlying collaborative learning with technology (P110: 0123EH - 110:4).

How this chapter contributes to theory

Extension of the expansive-restrictive continuum

Online documents facilitated membership of multiple CoPs or constellations (Wenger, 1998), particularly opportunities to bridge boundaries between school- and university-based CoPs and learning (P193: 0223JT - 193:1; P110: 0123EH - 110:4; P138: 0205EW - 138:12) and extend professional development by crossing these boundaries (Fuller and Unwin, 2003). Not only did trainees participate in multiple CoPs but *simultaneous* engagement with both school- and university-based CoPs was facilitated by tutor comments suggesting theory (accessible online) that supported deeper critical reflection and enabled trainees to

make “informed and reliable judgments” (Orchard and Winch, 2015:19) about classroom experiences (P203: 0233LO - 203:1).

Online documents provided a space for “planned time off-the-job including for college attendance and for reflection” (Fuller and Unwin, 2003:411). Although they did not equate with attendance at the university, they did afford opportunities to ‘attend to’ ideas introduced through the university, including critical reflection and engagement with theoretical perspectives through an ongoing dialogue with tutors (Pridham et al, 2013:61) (P110: 0123EH - 110:4; P148: 0208JC - 148:11). This emphasised the need for “conceptual knowledge and understanding” of learning and teaching (Orchard and Winch, 2015:19), alongside the practical, extending “personal development that goes beyond school or government priorities” (Hodkinson and Hodkinson, 2005:124).

There was evidence that a “collegial approach” to mentoring (Sim, 2006:80) supported the “collegial nature of the reflective practice” (Jones and Ryan, 2014:134) and was conducive to critical reflection (P192: 0223JC - 192:1). This went beyond the requirement for an expansive learning environment to provide a “named individual [who] acts as dedicated support” (Fuller and Unwin, 2003:411) because it defined the nature of this role in more detail, and was distinct from the existence of “colleagues [who are] mutually supportive in enhancing teacher learning” (Hodkinson and Hodkinson, 2005:124) because the trainee and mentor were not colleagues and therefore this helped to define the dynamics of power in the relationship.

This chapter has documented the findings arising from thematic analysis of the data, comprising the weekly reviews, in relation to the organising theme of ‘Questioning yourself’. Discussion in relation to theory presented in Chapter 2 resulted in the identification of three aspects of critical reflection that were evident through analysis of the data: ‘Questioning own learning’, ‘Questioning own practice’ and ‘Questioning assumptions’. These are grounded in and supported by illustrative examples from the data. The next chapter, ‘Taking a wider view’, is the second of four findings and discussion chapters in which the organising and basic themes that the researcher constructed during data analysis are defined and explored.

Chapter 5 Findings and discussion - Taking a wider view

Chapter introduction

The organising theme (Attride-Stirling, 2001) 'Taking a wider view' comprises five aspects of trainees' critical reflection that were evident in the analysis of the data: 'Engaging with theory', 'Engaging with pedagogy', 'Impact of university sessions', 'Engaging with policy' and 'Considering school context'. These form the basic themes (Attride-Stirling, 2001) explored in this chapter, definitions of which are included at the start of each section. The process of 'Taking a wider view' includes:

- exploration of theory, comparison with practice and use to inform evaluation of practice;
- analysis and comparison of pedagogical strategies;
- exploration of the impact of university sessions on trainees' subject and pedagogical knowledge and classroom practice;
- consideration of the efficacy and impact of national policy, as implemented in schools;
- consideration of aspects of the school context and how they may or do impact on learning and development.

The basic themes are indicative of a change in focus, from the trainees' own learning, practice and assumptions, to a broader view of the education landscape, encompassing technical, conceptual and, to some extent, ethical aspects of learning and teaching (Orchard and Winch, 2015). This echoes the wide range of learning experiences offered as the PGCE progresses, including participation in the practices of multiple classrooms and schools and engagement with theory, research and alternative practices during university taught sessions, readings and assignments.

This is the second of four findings and discussion chapters. This chapter addresses the manner in which trainees' critical reflections are informed and challenged by alternative perspectives from theory and practice. 'Taking a wider

view' builds on the foundations laid in Chapter 4 'Questioning yourself', highlighting trainees' developing understanding of learning and teaching. This understanding is necessary before they are able to articulate well-informed beliefs about learning and teaching and take responsibility for their own professional development and the improvement of their practice (explored further in Chapters 6 Articulating Learning and Teaching and 7 Taking Responsibility).

This chapter also explores the ways in which tutors' comments contributed to trainees' critical reflections in their support for engagement with theory, pedagogy and policy and consideration of the impact of university sessions and school contexts. It also provides a summary of the nature of trainees' critical reflections, the ways in which tutors' comments support this and the affordances and constraints of collaborative online documents in relation to critical reflection. The chapter concludes by identifying ways in which the expansive-restrictive continuum (Fuller and Unwin, 2003) could be extended and tailored for ITE.

Engaging with theory

The basic theme 'Engaging with theory' captures an aspect of critical reflection in which trainees consider wider views from academic literature and research.

'Engaging' includes exploration and synthesis of ideas from theory, comparison of theory and experience, use of theory to inform decisions about practice and analysis of teaching and learning.

'Engaging with theory' enhances trainees' critical reflection, enabling deeper analysis of their own learning and practice through comparison with established notions of pedagogy. It also extends their view of learning and teaching beyond their own practice and observed experience so that they can draw "on a well-thought-through and coherent conceptual framework, on knowledge of well-substantiated empirical research" (Orchard and Winch, 2015:14) to inform their understanding. Increasing experience and understanding allow trainees to critique theory by evaluating or questioning specific ideas or comparing contrasting views. This informs the examination of assumptions underlying the theory and trainees' own understanding (Mezirow, 1990) and reassessment of these

assumptions can lead to perspective transformations that influence classroom practice.

The theory with which trainees engage is largely provided by the university and linked to specific taught sessions, required tasks and assignments. Trainees are also provided with recommended further readings enabling them to follow lines of enquiry in more depth if relevant to their practice and/or interests. Some theory is independently sourced by trainees.

Most trainees demonstrated engagement with theory through readings required for sessions and tasks. This exposed them to new perspectives and contributed to the construction of new knowledge about learning and teaching.

P106: 0120SS - 106:3 This week I read the Jo Boaler reading for Maths, which was good timing to coincide with my target of building awareness of differentiation techniques. The research analysed in the Boaler chapter clearly demonstrated the advantages of having mixed ability groups rather than grouping pupils by ability. It was interesting to read the pupils' opinions of working in these mixed groups, and see the improvements all pupils made from doing so. The maths lecture on differentiation showed an interesting approach to varying work within these mixed ability groups. The children that spoke to us explained how they enjoyed challenging themselves by picking their own level of work. With the right classroom culture, I think this is a really interesting approach to ensure all children are extending themselves in lessons.

Rather than starting with a problem arising from practice or learning, here the theory itself began a process of reflection by raising the “perplexity” (Dewey, 1933:72) of an alternative approach to differentiated learning not previously experienced by the trainee in school. The theory informed SS’s further exploration of the nature of the problem during the lecture and resulted in a potential solution in the form of a new perspective on differentiation and teaching strategy. This stimulus and exploration via theory provided a new slant on steps one to three of Dewey’s (1933) five steps of reflection in that, rather than arising directly from experience, an encounter with theory illuminated aspects of SS’s previous practice that she had not perceived to be problematic but now recognised as such. Engagement with theory, combined with perspectives from practice furnished by the lecture, provided SS with access to a breadth of learning from across different schools and research, typifying an expansive learning experience (Fuller and

Unwin, 2003). In addition, the consonance between introduction of the theory and SS's personal target for her own learning demonstrated the alignment of individual and organisational development (Fuller and Unwin, 2003) with potential for her to extend her professional identity by crossing boundaries into the practices of other schools and beyond into research findings (Hodkinson and Hodkinson, 2005).

Although analysis of the data showed that most trainees engaged with theory at some point, SS was in a minority in her tutor group in the depth of her consideration of the perspectives presented and, even then, she did not go on to use theory to analyse or develop her own practice or consider alternative views. Most trainees in this group made only general comments such as 'I have read around goal setting and I have included goals that challenge and stretch all pupils in my planning' (P64: 0112CH - 64:3) and 'It has been interesting to look at different perspectives on AfL and how this really should promote children to become independent learners' (P99: 0120HM - 99:9). There was no evidence of core reflection on theory in this group and none of the trainees demonstrated perspective transformation as a result of critical reflection on theory. While trainees' biographies may have affected individuals' responses to the learning affordances offered (Hodkinson and Hodkinson, 2004) by access to theory and reflective writing in weekly reviews, the data did not provide insight into this. It was evident, however, that the tutor's comments for this group did not include any references to theory and therefore did not provide reification of engagement with ideas from theory in relation to practice or to deepen critical reflection. Tutors' comments of this nature could have constituted "learning objects and symbols which are highly valued...but which fall outside the mandatory requirements" (Fuller and Unwin, 2003:422) and lack of access to such objects may have contributed to restricted participation in critical reflection.

In contrast, there was evidence that the majority of trainees from the other tutor group went on to use ideas from theory to inform their practice. Here, CS interpreted ideas from neuroscientific and family-oriented research into her practice in a nursery setting, demonstrating that she was able to make comparisons between theory and practice and synthesise ideas into a new context.

P181: 0219CS - 181:4 Following on from our music seminar on Friday I read some suggested articles: Time.com 'How music can change your brain' The Conversation 'Jamming with your toddler, how music trumps reading for childhood development'. Both emphasized the importance of music from a young age and spoke of how music can help early brain development. When reflecting on what this would look like in context of an early years setting I realized it needn't be anything complicated or extensive but simply incorporating singing in to the everyday routine is something that can be hugely beneficial for young children. I have tried this week to incorporate more singing whilst I am in the setting and am learning the daily songs used during group time. There was also a nursery music making day this week and I helped to contribute some ideas for this as well as observing some fantastic opportunities for music making using all sorts of resources.

CS's explanation indicated that engagement with the theory enabled her to recognise and critique an epistemic distortion that limited her understanding (Mezirow, 1990) of the role of music in children's learning, indicating core reflection. However, as she did not evaluate the impact of her practice or draw any conclusions about its efficacy, this did not result in a perspective transformation (Mezirow, 1990). Contrary to Lave and Wenger's (1991) separation of the didactic discourse from the discourse of the practice itself, CS showed how she was able to develop her practice directly from critical reflection on the theory by taking advantage of "opportunities to integrate off the job learning into everyday practice" (Hodkinson and Hodkinson, 2005:124). These expansive learning opportunities were afforded by a combination of taught elements of the PGCE and participation in the CoP of the classroom.

A few trainees critiqued theory by exploring views from different authors, putting these into practice and comparing the outcomes to draw conclusions about learning and teaching.

P190: 0223CS - 190:1 I read Siraj-Blatchford 2009 paper around the pedagogy of play and sustained shared thinking [SST] in order to further my understanding of how to extend children's learning within the setting. Siraj-Blatchford talks about an association between SST and open ended questioning. I was struck by a quote taken from Vygotsky: "...teaching should always be aimed at the child's emerging skills, not the existing ones." I find this particularly resonant within my work in Foundation Stage as much of the daily and weekly planning is child led and so I think it can be easy to fall into the trap of simply supporting existing interests rather than

supporting them and then extending them. This links in to a later notion that Siraj-Blatchford explains about play not being the only way that young children learn and that its providing of context for learning and development is vitally important... When setting up a role play activity this week, to give context to mark making and numeral recognition, I was interested to see who would engage in the play. Over the course of this week I have set up this same activity for both groups of children with a focus on how the children interacted with the resources as well as which children did. I found a few surprises from children I wasn't expecting to engage and some predictions about children who would decide not to engage proved accurate. It has certainly made me think carefully about my planning and differentiation for each child within both groups – what some children explore and learn through role play others would learn from stories/science exploration or climbing outside.

As in the previous example, CS's understanding of her own practice was challenged by a critical incident (Brookfield, 1990) caused by reading theory. However, here she went on to evaluate the impact on her own understanding and perceptions of the children's learning, effectively testing the theory by putting it into practice. This resulted in a process of reflection involving deeper analysis informed by theory and a "concluding belief" (Dewey, 1933:77) about the variety of learning experiences resulting from planned activities. The inferred reformation of her assumptions about children's learning constituted a perspective transformation (Mezirow, 1990) that allowed her to make "wise pedagogical decisions" (Shulman, 1987:14) about her future practice, indicating that she remained "open to questioning, reflection, and revision, and to recognizing that conceptual and practical ideas of teaching are neither static nor universal in their application" (Sloat, 2014:9). Indeed it could be argued that the role of theory here was to return CS to the periphery (Lave and Wenger, 1991) of teaching practice, temporarily, to enable her to "deconstruct, reconceptualise, or reaffirm" her "choices, decisions, and actions" (Sloat et al, 2014:8). The way in which CS used theory could be said to typify "the best teaching practice [that] combines elements of technical know-how with knowledge of research and theory", as she began to build "a conceptual map of the educational field." (Orchard and Winch, 2015:14).

Engaging with pedagogy

The basic theme 'Engaging with pedagogy' captures the ways in which trainees reflect critically on teaching approaches beyond single occurrences from their own practice. This includes the identification, analysis and comparison of specific aspects of pedagogy and is informed by 'Engaging with theory' (above) to clarify understanding at a conceptual level (Orchard and Winch, 2015). This builds on Chapter 4 Questioning yourself - Questioning own practice but examines pedagogy more broadly, through practice, observation, reading or learning in a university taught session, with a focus on conceptual principles rather than specific techniques.

'Engaging with pedagogy' challenges Dewey's (1933) linear five step model of reflection by beginning not with the identification of a problem but with analysis of the implications of a pedagogical approach and elaboration on its impact on learners and teachers, sometimes involving exploration of the underlying assumptions (Mezirow, 1990). This leads trainees to draw conclusions about the pedagogy they have examined, sometimes resulting in the critique of established pedagogy and the emergence of questions or problems for further investigation.

Trainees used theory to analyse pedagogy adopted in school, here the Letters and Sounds (DfES, 2007) approach to phonics, and identify its impact on children's learning.

P138: 0205EW - 138:12 Having planned and delivered a phonics session this week on the ee sound, using the structure that the class teacher uses, I could identify with what Glazzard and Stokoe (2013) say. They highlight that the letters and sounds programme, which is used in school, propose that a four-part structure to phonics is the most effective. This involves revisiting/reviewing, teaching, practising and applying which are the exact steps used in my school. I can see how this structure benefits both the teacher and the children in the class. The children know what to expect during each session and it means that a consistent approach is delivered. I recognise that it is essential for children to be able to apply phonic knowledge and so the fact that this aspect is incorporated into a clear structure is essential.

EW was rigorous in her reflection (Dewey, 1933), using theory to identify specific features of the pedagogical approach and drawing on experience to examine the

implications for both children and teacher, bearing out Otteson's (2007:38) claim that "by constructing and discursively expanding objects of reflection, using a range of theoretical and practical resources, student teachers learn what are seen as reasonable, appropriate and legitimate actions in teaching". Indeed it could be argued that, in only the fifth week of her first school placement, EW displayed evidence of progress towards the "two necessary conditions for occupational competence": the core activities of class teaching, planning, assessment and collaboration with colleagues and "the application to practice of the underlying systematic knowledge and understanding (theory) that enable the former activities to be undertaken with the greatest effect" (Winch, 2017b:171-2). In order to achieve this, she took advantage of an expansive learning experience afforded through the opportunity to "integrate off the job learning into everyday practice" (Hodkinson and Hodkinson, 2005:124) in which she was able to make a connection between a reading from a recent university session and her own practice. However, she did not explore the underlying assumptions (Mezirow, 1990) or consider alternative perspectives, that would have indicated core reflection.

More restrictive learning experiences occurred when there was not a timely "opportunity to integrate off the job learning" (Hodkinson and Hodkinson, 2005:124), leading to less insightful, more descriptive reflections that do not progress past steps one and two, the identification and definition of a problem, of Dewey's (1933) reflective process.

P137: 0205CS - 137:13 It was interesting to see her teach the same lesson but to different children. Her structure was the same but the behaviour of the children required her to take a different approach as they were more responsive than the previous class. There were less distractions around children talking but the class as a whole struggled more with the task instructions.

Here, the structure of the taught programme meant that CS had not yet encountered theory relating to behaviour or differentiation and therefore was not able to use this to analyse her observations further and develop a deeper understanding of why children may respond differently to the same pedagogy. This learning opportunity could have been made more expansive through support for the use of "theory with a small t" that could have promoted the development of

“perceptual knowledge, personally relevant and closely linked to concrete contexts” (Korthagen et al, 2001:8), perhaps through the tutor’s comments. The restrictive nature of this learning may have resulted from current ITE policy in England that places ‘formal’ (university-based) and ‘informal’ (school-based) learning in opposition (Beauchamp et al, 2013), rather than learning being “interdependent between the individual and the social practice” in both contexts (Billett, 2002a:56).

There was evidence that trainees noticed patterns in their own practice, in this case that children’s writing improved when the subject was not prescribed, and that this led to consideration of broader pedagogical principles and approaches.

P196: 0223VG - 196:21 Something I learnt at St B’s in literacy is that results tended to be more varied and of better quality when children had more of a free rein to use their own imaginations rather than retell a story. Reception are showing the same reaction here with the writing, that they like writing about something that feels real. This does make me question the amount we plan and teach around a text and the structure of programmes like the ‘Big Read’ and ‘Power of Reading’ as they often come with quite prescriptive work to do and are not used as inspiration for the children’s own stories, which I think is a shame.

VG looked beyond her immediate practice to make a comparison with another year group in a different school, demonstrating an open disposition that enabled her to engage (Billett, 2001a) with an expansive learning opportunity that crossed the boundary between schools, thus extending her learning and developing her professional identity (Hodkinson and Hodkinson, 2005). From learning through participation in two CoPs, VG began to construct understanding that enabled critical reflection on pedagogy, signalling progress towards full participation (Lave and Wenger, 1991). The process of reflection changed the order of Dewey’s (1933) five steps, beginning with (iv) as she explored the implications of imaginative writing opportunities and progressing to (v) as she drew conclusions about how to improve learning outcomes. This resulted in (i) the identification of a problem, in this case the prevalence of limiting pedagogical approaches, suggesting that the process of reflection is non-linear. VG’s conclusions also led her to question the efficacy of established pedagogical approaches to writing. The experience enabled her to recognise that an epistemic distortion had constrained

her previous understanding of children's learning and resulted in the identification and critique of the underlying assumption (Mezirow, 1990) that teachers should prescribe the content and structure of children's writing. This indicated core reflection through recognition that "conceptual and practical ideas of teaching are neither static nor universal in their application" (Sloat et al, 2014:9).

Impact of university sessions

The basic theme 'Impact of university sessions' epitomises the ways in which taught sessions influence trainees' critical reflections. It includes impact on trainees' own learning in terms of subject knowledge, pedagogy and practice, the ways in which these aspects of learning are related and their influence on each other. This builds on 'Engaging with theory' but examines a broader range of learning experiences that occurred during taught sessions.

Through the introduction of a range of perspectives, ideas and theory, university sessions enabled deeper analysis of experiences from trainees' practice and facilitated systematic reflection (Dewey, 1933) that extended learning experiences from participation in classroom practice. This confirmed that the university can provide a bridge between theory and practice, enabling trainees "to consider the theoretical perspectives as a means to 'make meaning' of their specific experiences" (Sim, 2006:80). The use of focused peer discussion during sessions promoted core reflection through the identification and critique of trainees' assumptions (Mezirow, 1990), particularly in relation to professional identity and the core qualities of a teacher (Korthagen and Vasalos, 2005). Lecture content, combined with theoretical perspectives from literature, enabled trainees to identify and question the principles underlying the fundamental mission of teaching (Korthagen and Vasalos, 2005) and its contribution to people's lives. Not only is this at the heart of critical reflection (Korthagen and Vasalos, 2005) but it also resulted in the articulation of a perspective transformation (Mezirow, 1990) regarding the central purpose of teaching.

Trainees identified the impact of university sessions on their understanding of subject knowledge and pedagogy and used this to analyse classroom experience.

This reflection contributed to the construction of new knowledge beyond what they had learned through participation in classroom practice.

P101: 0120KB - 101:5 I enjoyed the creative writing lecture. I felt it very useful to see how to incorporate this into teaching. I feel there wasn't as much creativity in my placement, therefore I found it hard to fit it into lessons. After that lecture I have more of an idea how to do it and look forward to trying it in the placement. Especially as you can just do small short tasks throughout the day

Here, the lecture highlighted KB's previous lack of knowledge of creativity in writing and enabled her to identify the contributing factor of lack of opportunity in her previous school placement. This constituted the identification of a problem and its definition, steps one and two of Dewey's (1933) process of reflection. The lecture enabled KB to move on to step three by providing possible solutions, including the integration of creative writing into her teaching of the curriculum. The lecture offered an expansive learning opportunity that broadened KB's view beyond the practice of her placement school (Fuller and Unwin, 2003). It could be argued that the lecture helped KB to move from the fuller participation of classroom practice back to the periphery (Lave and Wenger, 1991) in order to develop understanding through deconstructing and reconceptualising her actions and experiences (Sloat et al, 2014).

There was also evidence that taught sessions enabled trainees to discuss and develop their own possible solutions to problems through collaboration and discussion of scenarios with peers (P120: 0123RC - 120:5) and the exchange and comparison of experiences (P108: 0123CC - 108:7; P121: 0123SS - 121:4). This facilitated the "cultivation of a variety of alternative suggestions" (Dewey, 1933:75), signifying another aspect of step three of the reflective process, as well as exploration of the implications of different teaching approaches, to behaviour in this case, indicating step four. Rather than converging on a single truth about children's behaviour, the lecture encouraged dialogic thinking by exposing RC and CC to multiple perspectives (Wegerif, 2011) in terms of both potential challenges regarding behaviour in the classroom and possible solutions.

There was little evidence of trainees progressing to step five of Dewey's (1933) reflective process by drawing conclusions about ideas introduced in taught

sessions. There were, however, frequent references to looking forward to applying new knowledge in the context of their practice in school (P1: 0104CC - 1:5; P101: 0120KB - 101:4; P120: 0123RC - 120:5). It could be inferred from this that trainees sought corroboration from practice before drawing firm conclusions, confirming the roles of learning through both construction and participation in ITE (Hodkinson and Hodkinson, 2005).

There was evidence that taught sessions facilitated core reflection through the identification and critique of assumptions, in this case regarding the nature of reflection. Sessions included introduction to theory, which trainees used to analyse their own learning in more depth and inform their professional aspirations.

P111: 0123GJ - 111:3 This week's lecture looked at reflection and preparation for assignment 3, we looked at the importance of reflection as it enables us to be conscious of our potential for bias and discrimination, it enables us to make best use of the knowledge available, it helps us to avoid past mistakes and to challenge and develop the existing professional knowledge base as well as maximise our own opportunities for learning. We looked at different reflective frameworks for use in our assignment such as Dewey's (1938) 5 stage model and Schon's (1983) 'Reflection in Action'... Our group discussed that at the moment we are more reflective on action (after the event) and that it is hard to reflect in action at our stage of training, ideally we aspire to become practitioners who reflect in action. As we become more experienced teachers we will gain a higher subject knowledge which will enable us to become more equipped to adjust a lesson and become the type of practitioner who is able to reflect in action.

The lecture provided an opportunity to weigh “alternative suggestions” (Dewey, 1933:210) that illuminated and extended GJ’s understanding of reflection within ITE and beyond. She related this to her perceptions of her identity as a teacher, which lies at the heart of reflection and influences teachers’ behaviour, competencies and beliefs, while also being influenced by these aspects (Korthagen and Vasalos, 2005). Here, GJ’s competency in reflecting on action confirmed her identity as a trainee, whereas her aspiration to be a reflective teacher inspired her intention to be able to reflect in action. The lecture enabled her to visualise the trajectory of career progression, in terms of reflection, beyond ITE, indicating that this was an expansive learning experience (Fuller and Unwin, 2003). Another lecture inspired WF to consider his professional identity in terms of the core qualities (Korthagen and Vasalos, 2005) of being ‘adventurous,

connected, ethical and unique' (P107: 0120WF - 107:1). This core reflection enabled him to consider his personal and professional development beyond the priorities of school, ITE or government (Hodkinson and Hodkinson, 2005) to consider deeper "qualities seldom appearing on the official lists of important basic competencies" (Korthagen and Vasalos, 2005:56).

For EM, a combination of lecture and theory, read for an assignment, introduced ideas that enabled her to question the principles underlying her identity as a teacher and clarify her mission through a perspective transformation regarding her understanding of learning and teaching.

P96: 0120EM - 96:6 The lecture on differentiation also made me reflect on what type of teacher I want to be. I have with Assignment 2 also explored the promising effects of self and peer assessment. I believe that the development of self esteem, challenge and collaborative working is the way forward for teaching. I think it will benefit the children in later life and make them resilient, life-time, curious learners... I want to promote the idea that you learn from mistakes and therefore will not been seen to fail

Rather than focusing on her own development and identity, she reassessed her understanding of differentiation in the light of challenging ideas experienced in the lecture and assignment readings. This brought about a perspective transformation (Mezirow, 1990) in which she came to a new, explicitly stated understanding of children's learning and realisation of the emancipatory role that education can play. She began to consider her mission as a teacher in the wider context, the significance of the role and how it relates to others and society, signifying the deepest levels of critical reflection (Korthagen and Vasalos, 2005).

Engaging with national policy

The basic theme 'Engaging with national policy' captures an aspect of critical reflection in which trainees consider the nature and impact of national education policy. 'Engaging' includes analysis of the impact on teaching and learning, consideration of the efficacy and implementation of policy in a school context and rudimentary exploration of implications for trainees' future teaching careers.

'Engaging with national policy' involves trainees looking beyond their own practice to the national policies and how they influence teaching and learning, particularly

inspection, assessment and the curriculum. Subsequently, this informs their understanding of pedagogy and the values and structures of schools, through examination of evidence of impact on teachers and children. Reflections on national policy were provoked by critical incidents (Brookfield, 1990) arising during participation in classroom practice, resulting in the critique of the trainees' presuppositions about the policy or of the assumptions underlying the policies themselves. Arguably, critical reflection on national policy relies on a conceptual knowledge of learning and teaching, arising from experience and engagement with theory, if teachers are "to understand [policies] and their implications, in order to make sense of, plan and evaluate their work; and... make up their minds and contribute to debates about them" (Orchard and Winch, 2015:17). It is therefore significant that trainees' reflections on national policy tended to occur in later reviews but even then, were restricted to considering the impact on their own practice and pupils rather than any wider exploration or critique.

Trainees analysed the impact of national policy, in this case the Ofsted inspection process (Ofsted, 2014), on staff and children, thereby relating the national to the local to provide an alternative perspective from which to view practice.

P174: 0216JC - 174:1 One of the things I really noticed during the inspection is that although it was obvious that everyone really pulled together and worked hard to ensure that they supported each other, is that actually, it felt quite a lot like a normal couple of days as most of what was happening around is what happens on a day-to-day basis, and it was done well, with the children really being at the centre of what was being done.... It is quite pleasing to see that actually if what is in place is already a solid foundation and done well, that it can actually be a 'business as usual' kind of day (albeit with more pressure) – I think the fact that everyone went about their day as they normally would meant the children were really natural and relaxed as they normally would be, I would have thought if it was not like that it could reflect onto the children which I am sure would not be helpful

JC made an implicit assumption that the school would respond to the inspection by departing from usual routines and practices and that it would be a stressful experience for staff and children. However, he was able to critique these presuppositions, drawing on evidence from first hand experience. The experience enabled JC to critique the "sociocultural distortion" that had constrained his

knowledge (Mezirow, 1990:15), resulting in a transformation of his meaning perspective regarding school inspections: the power and social relations he expected during an inspection did not occur and he identified a possible explanation. This resulted in a perspective transformation that included understanding of the impact of the inspection process and a deeper understanding of the values and pedagogy of the school.

Trainees engaged in direct critique of national policy, questioning whether the impact on teachers' workload and the clarity of assessment arrangements resulted in accurate or useful results.

P204: 0233VG - 204:6 S and I spent all day Thursday moderating writing and still did not get through the whole class. We have to read 6 pieces of writing for every child and fill out the paperwork and then assess where that child's gaps are so that we feel we can justify our choice... There just seems to be some very mixed messages about moderation and it makes the process extremely stressful for all involved. We are lucky that one of the teachers at St BPS has been trained as a moderator but even she has been getting conflicting messages from the lead moderator. It has been really useful seeing this part of the job though and I feel like I am really well equipped to go into teaching with a clear understanding of how to show evidence and how to prove that work is independent, so that if I were ever in the same position I would be prepared.

VG engaged in core reflection by critiquing the presuppositions (Mezirow, 1990) underlying the policy: that moderation results in fair and accurate assessment. However, she did not go on to draw a conclusion or articulate a perspective transformation. Nevertheless this proved to be an expansive learning experience, as it enabled her to envision her career beyond ITE (Fuller and Unwin, 2003) and provided an opportunity to work with other teachers from her school and the wider educational CoP, thereby extending her "professional identity through boundary crossing into other departments, school activities, schools and beyond" (Hodkinson and Hodkinson, 2005:124).

Another critique of national assessment policy involved a focus on the impact on children and led to a conclusion about the role of a teacher:

P199: 0233EW - 199:7 Now that you assess against an 'all fit' model, not a 'best fit' model, it meant that lots of children just missed out on achieving a higher level in writing. For example one boy who had lots of evidence for all

of the features within his writing but was not consistent in his use of tenses, did not achieve 'working at'. I find this very unfair as I know that he deserves to be 'working at'. Previously he would have definitely achieved this when it was a 'best fit' model but because of one aspect he did not get it this time. Also this particular boy has English as an additional language which could be the reason for this, which therefore seems even more unfair. There is not much that can be done about this as it is a Government requirement but it makes me even more enthusiastic about making sure that children achieve what they deserve and can demonstrate their full potential.

National assessment policy changed during EW's ITE, enabling her to examine the differences between the two systems as a problem or "felt difficulty" (Dewey, 1933:72): she felt there was conflict between the means and the end. She questioned the fairness and accuracy of the new policy, drawing on evidence from an individual child to support her argument and provide more precise "definition of the difficulty" (Dewey, 1933:73). This enabled her to make an informed suggestion as to a possible solution (Dewey, 1933), however she did not go on to explore alternatives, provide reasoning to support her suggestion or test it in practice, confining her reflections to the first three of Dewey's (1933) five steps of reflection.

This process could be argued to be an implicit critique of the assumptions underlying the policy and her reflections informed a reformation of her vision of her mission as a teacher (Korthagen and Vasalos, 2005). It could be inferred from the final sentence that EW's previously held view, that teachers should enable children to fulfil their potential, was confirmed and that she now saw this responsibility to the children she taught as transcending the demands of national policy.

Consequently she recognised that "teachers need to learn how to align their own beliefs with the ethical code of their profession, taking into account policy initiatives for which they are responsible but with which they may, or may not, agree personally" (Orchard and Winch, 2015:18). This indicated that EW had begun the process of perspective transformation but had only completed phases one to five: experiencing a dilemma; examining her feelings, including guilt about the unfairness of the policy; critiquing the sociocultural and epistemic assumptions; an implied recognition that her discontent is shared by other teachers; and exploring possible "options for new roles, relationships and actions" (Mezirow, 2000:22).

EW's critical reflection is limited by the omission of a clearly expressed concept of

social justice or the support of established research or theory. Without this, her critique relies upon “intuition or common sense [which] is an unreliable basis on which to make good decisions in the classroom... Without transparent, clear and authoritative sources on which to base classroom decisions, teachers’ conflicting common sense judgments are difficult if not impossible to resolve” (Orchard and Winch, 2015:13). As a trainee, this is exacerbated by her lack of experience and conceptual knowledge of the field of education.

Considering school context

‘Considering school context’ captures trainees reflections on aspects of the wider context of their placement school, beyond, but sometimes relating to, immediate classroom experiences. This includes reflection on aspects such as the size, Ofsted rating, sociocultural and policy context of the school and on the potential impact of these on trainees’ learning and development or that of the children.

‘Considering school context’ provided opportunities for trainees to analyse specific features of the school context and extended their understanding of teaching and learning by providing a broader context for their own practice. However, this was limited to reflection and there was no evidence of progression to core reflection or transformation due to a lack of identification or critique of the underlying assumptions.

Trainees contrasted their placement schools with others in which they had worked, identifying potential areas of learning arising from differences.

P1: 0104CC - 1:33 Having been a TA in a small requires improvement school, it will give me a good contrast. I am particularly interested in seeing how teachers in the same year work and plan together.

Here, CC considered what she might learn about collaborative working practices during a placement in a large, outstanding primary school. In doing so, she engaged in the first two of Dewey’s (1933) steps in reflection: identifying a perplexity caused by the contrast between schools of different sizes and Ofsted ratings and defining this more precisely by focussing on the ways in which teachers work together when there are multiple classes in each year group. Other

trainees progressed to Dewey's (1933) third step in reflection by considering a possible solution:

P162: 0210ZB - 162:13 I think the main points I have taken away with me [from attending a school community meeting] is the importance of every child's individual story and the effect this can have on their learning and behaviour. I also have more awareness of the parents' role for example, many parents may want to help their children with homework, but despite many children being bilingual, many parents are monolingual. Furthermore, the majority of students are Somalian. Up until around the 1970s this language was only verbal, it was not written, therefore not all parents are able to write, and help their child. R explained the importance of making homework 'parent' friendly eg research on the internet etc rather than comprehension. There are lots of facilities available to help parents learn English, learn how to help their children learn, build confidence and mix with other parents

Here ZB's learning about the sociocultural context of the school broadened her understanding of children's learning and the factors that impact upon it. However this was limited to "particular knowledge, beliefs, value judgements and feelings that become articulated in an interpretation" (Mezirow, 1991:44), or the transformation of a meaning scheme, rather than a meaning perspective, which would have required ZB to examine and critique her underlying presuppositions. There was no indication that she considered "a variety of alternative suggestions" typical of "good thinking" (Dewey, 1933:75) or reflected on her own core qualities and how they could contribute to her identity and mission in this context (Korthagen and Vasalos, 2005), nor did she consider wider implications of the proposed solution, such as the impact on communication and relationships. Indeed, she did not question the assumptions made about the impact of the parents' home language on children's learning or the premise that this posed a problem to be solved by the school. Therefore, although there was evidence of reflection and learning, she did not engage in any aspect of core reflection.

Assimilation and synthesis of the school's policies enabled deeper levels of reflection:

P186: 0219LH - 186:1 I have read over the Nursery School's behaviour policy. The policy empowers children to feel safe, respected and valued. When challenging behaviour becomes difficult to manage the team come up with a variety of solutions and choose the most appropriate so that all

members of staff are consistent in their approach with that child. This is effective as children are receiving a clear message from all members of staff and often consistent routine and structure helps children to feel secure. The policy also promotes use of conflict resolution where the children's feelings are validated, they are able to share what they believe the problem is and then are encouraged to think of a solution to resolve the disagreement. This week I was able to put this method into practice... I think this method is useful as it models to children how they can problem solve and hopefully the more the children take part in coming up with solutions they will be able to come up with solutions to avoid conflict independently.

Here, LH analysed and interpreted the school's behaviour policy and in doing so explored the implications for practice, thereby completing step four of Dewey's (1933) process of reflection. By putting the policy into practice herself, she demonstrated step five through "experimental corroboration" (Dewey, 1933:77), leading her to draw a tentative conclusion about the efficacy of the policy in classroom practice, demonstrating that her understanding had been extended. Despite having attended taught sessions focusing on behaviour and emotional regulation, LH did not make any comparison between the policy, practice and theory, thereby avoiding exploration of the underlying principles or assumptions of the policy or consideration of alternative views. Without "the application to practice of the underlying systematic knowledge and understanding (theory)" (Winch, 2017:172b), trainees only articulated a limited view and understanding of the impact of contextual features of a school and did not engage with "multiple and contested conceptions" of education (Winch, 2017b:173) inherent in the variation between the contexts of schools.

Consideration of aspects of the school context provoked reflection to varying degrees and this resulted in new understanding (P162: 0210ZB - 162:13) or extended knowledge (P186: 0219LH - 186:1). However, there was no evidence that trainees progressed to core reflection or perspective transformation, as they did not identify or critique the assumptions underlying the critical incidents upon which they reflected. Perhaps their position on the periphery of the school CoP (Lave and Wenger, 1991) and the power relations inherent in the trainee-mentor relationship meant that they were unwilling to question or critique the school in any depth or articulate this in a weekly review. A feeling of powerlessness was indicated in reflections such as 'I am starting to realise that perhaps me and my

training mentor have different values and beliefs' (P40: 0108JF - 40:11) and 'I had to do games because that was what the other teachers decided would be the plan. I didn't feel confident that games would help children' (P201: 0233JT - 201:19). This is a disadvantage of the peripheral position only briefly mentioned by Lave and Wenger, although they do identify "unequal relations of power" as an issue deserving of further attention (Lave and Wenger, 1991:42).

Tutor interactions supporting a wider view

The basic theme 'Tutor interactions supporting taking a wider view' captures the ways in which tutors' comments encourage trainees to look beyond their immediate experiences of classroom practice in order to build understanding of learning and teaching. The 'wider view' includes comments that promote making connections between theory and practice by comparing ideas from theory with their classroom experiences and exploring how theory has informed their teaching, observations or reflections. This also covers tutor support for making connections between school and university-based learning, where comments support the application of strategies and ideas introduced in university taught session to classroom practice and conversely the use of examples from classroom practice to understand and critique ideas from university sessions. Also included is support for reflection on pedagogy at a conceptual level, arising from analysis of themes and patterns from practice, university sessions or theory and recognising alternative views from theory and practice.

Tutor interactions supporting engaging with theory

Tutors' comments encouraged trainees to engage with theory by using it to inform their practice, comparing it with classroom experience and employing it to deepen analysis. This provided a broader view than reflecting on practice alone and supported trainees' reflections and core reflections on aspects of teaching and learning from their participation in classroom practice. There was evidence that tutor interactions could support and reinforce the role of theory in developing trainees' knowledge of conceptual, practical and ethical elements of teaching and learning, thus providing "a significant part of the rationale for teachers' thinking and judgment in planning bespoke lessons for particular classes" (Orchard and Winch,

2015:16). However, analysis of the data also revealed that, where tutors' comments lacked engagement with theory and encouragement to use theory to enhance critical reflection, trainees' own engagement with theory was limited to very general comments and did not inform core reflection or perspective transformation.

Where trainees had followed Dewey's (1933) first two steps of reflection by identifying and defining an issue from practice, tutors supported step three, the suggestion of possible solutions, with comments that encouraged the "cultivation of a variety of alternative suggestions" (Dewey, 1933:75) from theory: 'Great to see you referring to your developing understanding of theoretical perspectives, LH. You may also like to explore Bloom's taxonomy to support your understanding of questioning' (P159: 0210LH - 159:13). This extended LH's critical reflection by encouraging her to compare ideas from different theorists and confirmed that "opportunities for ongoing dialogue with university lecturers should be a part of the structure of practicum, not limited to pre- and post- involvement" (Pridham et al, 2013:61) so that they are able to draw on both school and university-based expertise to inform their learning. In this case, the tutor encouraged LH to take advantage of an expansive learning opportunity that enabled her to "integrate off the job learning into everyday practice" (Hodkinson and Hodkinson, 2005:124). By encouraging LH to explore different theoretical perspectives, the tutor also encouraged her to "be discriminating and not take popular and influential educational theories at face value" (Orchard and Winch, 2015:16).

In contrast, where tutors did not explicitly encourage the use of theory to enhance reflection and deepen learning, trainees reflections could be limited. For example, EH's reflection that 'Gaining a deeper understanding of how children learn has helped me to plan and deliver successful Literacy, Numeracy and Phonics lessons' (P65: 0112EH - 65:9) was not accompanied by a comment from her tutor that encouraged her to explain how learning theory informed her planning and teaching or to use theory to analyse why teaching strategies seemed to have a positive impact on learning. As a result, her reflections were restricted to rather bland statements that 'Using visual aids during numeracy input and starters really helped children to understand the concept' and 'children seemed not only to understand the concept more when it was being visualised, but also engaged with it more than

if it were just another slide on the IWB' (P65: 0112EH - 65:9). Without the reification of engagement with theory, the tutors' comments became a restrictive influence on the trainee's learning (Fuller and Unwin, 2003) and the depth of critical reflection in particular.

Tutors' comments encouraged deeper reflection through the comparison of theory and practice: 'Consider the relationship between your reading for Assignment 2 and your experience of AfL in the classroom. How does the theory relate to practice?' (P179: 0216KD - 179:18). This assisted KD's reasoning about the implications of different assessment techniques adopted in school, by providing a broader view of assessment strategies and impact, and drew her towards conclusions. It thereby enabled the completion of steps four and five of Dewey's (1933) reflective process and supported the development of "conceptual knowledge" that enables teachers to "make sense of, plan and evaluate their work" (Orchard and Winch, 2015:16). It also guarded against a restrictive learning experience in which KD's learning comprised "mainly strategic compliance with government or school agendas" regarding assessment (Hodkinson and Hodkinson, 2005:124).

Core reflection was supported through recommendation of specific theories that enhanced trainees' exploration of teacher identity (Korthagen and Vasalos, 2005) in response to areas for development they had identified. Analysis of the data revealed this to be an expansive learning opportunity that enabled trainees to "extend professional identity through boundary crossing" beyond the CoP of the school and into academic theory (Hodkinson and Hodkinson, 2005:124).

Comments such as 'I recommend that you have a look at Rose and Rogers (2012) The Role of the Early Years practitioner in settings as it has some very useful insights into the role of the 'creator' or planner' (P148: 0208JC - 148:11) encouraged JC to look beyond his own practice, taking a wider view of the role of the teacher, specifically in Early Years practice. This promoted the critique of a sociocultural distortion (Mezirow, 1990) by raising issues of social and power relations between teacher and children, with the potential to bring about core reflection in JC. By suggesting literature relevant to a real issue arising from practice in a timely and direct manner, the tutor's comment went some way to equipping JC "to engage actively with the findings of educational research"

(Orchard and Winch, 2015:22) and encouraged him to consider the “ethical basis” (Orchard and Winch, 2015:17) of his decision making about his role in terms of planning and differentiating children’s learning experiences.

Tutor interactions supporting engaging with pedagogy

Tutors’ comments encouraged trainees to engage with pedagogy by exploring deeper pedagogical issues arising from their practice and using these to draw conclusions about teaching and learning. This encouraged trainees to look beyond their own practice, providing a wider view of the concepts, values and aims underlying pedagogy and supporting reflection and core reflection.

By encouraging trainees to extend their view from a single critical incident to the broader pedagogical context, tutors enabled them to consider the implications of specific pedagogical approaches and the underlying values and assumptions.

P157: 0210JT - 157:15 The issue of adult intervention (or even 'adulteration') in play is contentious. Have you looked at the article on play I posted onto Minerva in the EY specialist folder?

Here, the tutor extended JT’s reflection on planning for learning through play, enabling core reflection through the consideration of the core qualities of a teacher in relation to this issue (Korthagen and Vasalos, 2005). She encouraged her to draw on a staff meeting discussion alongside research presenting critical perspectives on play in order to help JT clarify her identity as a child-centred teacher “whose actions are sincerely rooted in a pedagogical ideal” or mission (Korthagen and Vasalos, 2005:53). The tutor also opened JT to dialogic thinking by engaging in discussion with her while emphasising the ongoing contention and multiple perspectives around play, drawing on online sources to broaden her view further and provide access to multiple dialogues from which meaning can emerge (Wegerif, 2013). The digital habitats (Wenger et al, 2009) of the weekly review and the university’s VLE provided access to alternative points of view about pedagogy in which the tutor could be responsive to the trainee’s learning needs. Here the digital habitats were used dynamically to provide access to materials when needed in response to the learning community (Wenger et al, 2009), providing a learning environment that was “technologically enabled...learning and learner centred...[and] permeable” (Clarke, 2009:525). Thus collaborative online

documents afforded authentic learning through rich, contextualised interaction between trainee and tutor, including support for critical reflection on “relevant real-life practices and processes” (Burden and Kearney, 2017:112).

There was evidence that tutors’ comments encouraged trainees to complete Dewey’s (1933) fifth and final step of reflection by identifying patterns and relationships across sequences of lessons, leading to “corroboration of an idea and formation of a concluding belief” (Dewey, 1933:77). Although this seemed at odds with the use of dialogic thinking in the previous example, conclusions were defined as being valid “until contrary facts shall indicate the advisability of its revision” (Dewey, 1933:77). Comments such as ‘What insights did you gain about supporting the differing needs of groups of children?’ (P137: 0205CS - 137:31) encouraged CS to articulate the conclusions she drew about the pedagogy she had observed. While others such as ‘How are these made visible and modelled to children, VG? It would be beneficial to tune into this and begin to develop models for supporting children in developing their skills in reasoning’ (P161: 0210VG - 161:18) encouraged VG to propose specific pedagogical approaches and strategies for developing children’s problem solving and reasoning skills in mathematics. This supported the development of conceptual knowledge that underpins “pedagogic choices” (Orchard and Winch, 2015:17) with the potential for perspective transformation (Mezirow, 1990), where new or reformed understanding of pedagogical principles, and/or their underlying assumptions, occurred.

Tutor interactions supporting impact of university sessions

Tutors’ comments encouraged trainees to make connections between their learning in university sessions and their practice in the classroom. They directed trainees to extend learning from university sessions by arranging observations that would provide examples and context:

P1: 0104CC - 1:39 It is so useful to hear how much you are taking from your sessions and how you are beginning to link this with what you might see in school. Do ask your class teacher to make sure you have the opportunity to see some phonics in a younger year group, to support your development and put the university based learning into context

Here, CC's tutor suggested that learning through participation in the classroom CoP (Lave and Wenger, 1991) would provide a broader view of how phonics is taught, building on what she learned during taught sessions at the university. This was in response to CC's identification of a "felt difficulty" (Dewey, 1993:72), that she may not experience phonics teaching in her placement in an older age group. The tutor suggested a solution, scaffolding CC's progression to deeper reflection, encouraging her to take advantage of her "empowering position" (Lave and Wenger, 1991:36) on the periphery of practice to connect learning from university and school from the start of her first placement.

Conversely, other comments encouraged trainees to draw on learning from university sessions to enrich learning from participation in the classroom CoP. Here, HM's tutor explicitly promoted engagement with alternative perspectives provided by university sessions in order to examine presuppositions about teaching.

P5: 0104HM - 5:16 It is good to see that your training has helped you to see some aspects of teaching in a different light. You are right to remind yourself that you have high expectations of yourself, yet you are learning and need the opportunity to make mistakes alongside successes.

Analysis of the data suggested that core reflection, stimulated by ideas in university sessions, occurred through questioning of these presuppositions (Mezirow, 1990) and examination of HM's identity as both a teacher and learner (Korthagen and Vasalos, 2005). This indicated an expansive learning experience in which HM was able to cross the boundaries of school and university in order to extend her professional identity (Fuller and Unwin, 2003). This resulted in HM identifying that she needed to learn from mistakes rather than aim for perfection in teaching, a planned perspective transformation (Mezirow, 1990) that was realised and articulated in a later weekly review (P68: 0112HM - 68:13).

Tutors supported the critique of pedagogical strategies used and observed in classrooms by encouraging comparison with a range of ideas from theory introduced during university sessions and assignment readings, encouraging a deeper level of critical reflection. Comments such as 'Make links to your research on theories of learning, i.e. how does this relate to behaviourism and extrinsic rewards?' (P145: 0205ZB - 145:5) advocated consideration of alternative

perspectives in order to find a “possible solution” to a “felt difficulty” (Dewey, 1933:72) and encouraged ZB to question assumptions (Mezirow, 1990) underlying a specific approach to learning behaviour. It can be inferred from the comment that engagement with the ideas from the taught session would enrich ZB’s reflection and core reflection and result in improved understanding of this aspect of teaching and learning. Whereas tutors’ comments on later weekly reviews, such as ‘Will you use this to support your critical analysis in A2?’ (P184: 0219JT - 184:2) acknowledged JT’s ability to use evidence from practice “to engage actively with the findings of educational research” (Orchard and Winch, 2015:22). This indicated that the tutor encouraged a more complex process of reflection and core reflection in which evidence from one was used to critique the other, in this case regarding JT’s understanding of formative assessment strategies, thereby promoting the recognition and questioning of “distortions” that limited her understanding (Mezirow, 1990:14)

ZB and JT shared a tutor whose comments were precisely targeted to respond to issues raised by the trainees and were inserted alongside the original reflection, rather than being included in a general comment at the end of the review. These comments were closely aligned to the provision of “theory with a small t” that promoted the development of “perceptual knowledge, personally relevant and [was] closely linked to concrete contexts” (Korthagen et al, 2001:8). This supported an ongoing process of reassessment and reformation of understanding, highlighting similarities between Mezirow’s (1990) conception of adults learning through perspective transformation with Wegerif’s (2011) process of learning through reflective dialogue with others, in this case the tutor.

Chapter summary

How this chapter addresses the research questions

RQ1 What is the nature of critical reflection in trainee teachers' collaborative online weekly reviews?

Analysis of the data illuminated the nature of critical reflection in trainees' online weekly reviews (RQ1). There was evidence of reflection, core reflection and transformation in trainees' engagement with theory, pedagogy, university sessions, national policy and school context.

Reflection occurred during trainees' engagement with theory, pedagogy, the impact of university taught sessions and school context. Ideas from theory stimulated trainees to raise questions that signaled the first step of Dewey's (1933) process of reflection and informed steps two and three by supporting more precise definition of an issue and suggesting a range of possible solutions (P106: 0120SS - 106:3). Some trainees went on to explore the implications of these solutions and draw broader conclusions about teaching and learning, completing Dewey's (1933) reflective process by testing theory through its application to practice (P190: 0223CS - 190:1) or using theory to analyse specific aspects of pedagogy they had used or observed (P138: 0205EW - 138:12). However, where engagement with theory was not reified (Fuller and Unwin, 2003) in tutors' comments, trainees' reflections lacked precision and depth (P64: 0112CH - 64:3; P99: 0120HM - 99:9).

At times the broader view provided by theory, or more prolonged experience in a variety of school contexts, provoked consideration of pedagogical implications that began a process of reflection, hence changing the order of Dewey's (1933) five steps (P196: 0223VG - 196:21) and leading to conclusions that raised further questions for investigation. Drawing on evidence from both theory and practice in this process of reflection afforded trainees understanding of "reasonable, appropriate and legitimate" (Otteson, 2007:38) pedagogical features and strategies. University sessions also contributed to trainees' conceptual understanding of teaching and learning, by introducing ideas and approaches that enabled them to understand and challenge what they had learned through practice

(Sim, 2006) through a reflective process of deconstruction and reconceptualisation (Sloat et al, 2014) (P101: 0120KB - 101:5). Analysis of the data also indicated that these sessions resulted in the “cultivation of a variety of alternative suggestions” (Dewey, 1933:75) through discussion with peers, supporting both reflection and dialogic learning (Wegerif, 2011) (P120: 0123RC - 120:5; P108: 0123CC - 108:7; P121: 0123SS - 121:4). However when the theoretical input did not occur, either through tutors’ comments or coinciding university sessions, this presented a barrier to integrating off the job learning into practice resulting in a restrictive learning experience (Hodkinson and Hodkinson, 2005) and limited critical reflection (P137: 0205CS - 137:13).

It was noticeable that, during consideration of school context, there was no evidence that trainees’ progressed beyond reflection to core reflection or transformation. There was some evidence that this was connected to disempowerment of trainees due to relationships with mentors and other school staff (P40: 0108JF - 40:11; P201: 0233JT - 201:19). This may indicate an unwillingness to articulate a critique of the CoP in which they were working and learning, a potential disadvantage of occupying a peripheral position which was largely unexplored by Lave and Wenger (1991).

Core reflection occurred during trainees’ engagement with theory, pedagogy and national policy and their consideration of the impact of university sessions. Opportunities to critique distortions (Mezirow, 1990) that constrained understanding of practice resulted from critical incidents (Brookfield, 1990) involving the reading of theory (P181: 0219CS - 181:4), despite Lave and Wenger’s (1991) notion of the separation of didactic discourse from the practice itself. There was further evidence of epistemic distortion (Mezirow, 1990) when trainees questioned assumptions about teaching and learning underlying specific pedagogical approaches (P196: 0223VG - 196:21). Core reflection involved collation and comparison of experiences across schools and year groups, providing confidence and recognition that educational practices and assumptions were “neither static nor universal in their application” (Sloat et al, 2014:9). University taught sessions, and peer discussion within these, caused trainees to question, develop and clarify their identities as teachers (Korthagen and Vasalos, 2005) (P111: 0123GJ - 111:3; P107: 0120WF - 107:1). They considered the core

qualities required to be a teacher, including the ability to reflect in action, take risks, connect with children and act ethically, demonstrating that core reflection developed through the consideration of multiple perspectives (Wegerif, 2011) and could take them beyond the competencies required by government ITE policy (Korthagen and Vasalos, 2005). Core reflection on national policy involved recognition of sociocultural distortions (Mezirow, 1990) in which trainees analysed the impact and efficacy of school inspection (P174: 0216JC - 174:1) and assessment (P204: 0233VG - 204:6). They examined their presuppositions about the social and power relations (Mezirow, 1990) involved in these policies and were willing to critique their assumptions openly. However, their reflections were limited anecdotal examples of the impact of policy on their own practice, lacking the depth of experience and conceptual knowledge needed to fully explore or understand its implications or engage in critique or debate (Orchard and Winch, 2015).

There was evidence that reflection and core reflection led to reformation of trainees' understanding of teaching and learning that constituted perspective transformation (Mezirow, 1990). Where this was informed by theory and tested in practice over time, trainees articulated the ways in which their assumptions were challenged and transformed and began to build "a conceptual map of the educational field" (Orchard and Winch, 2015:14) (P190: 0223CS - 190:1). Alongside theory, university taught sessions also enabled trainees to encounter multiple perspectives and engage in "sustained discussion and the sharing of ideas" (Orchard and Winch, 2015:27) that enabled them to critique the principles underlying the identity and mission of teaching (Korthagen and Vasalos, 2005). This resulted in the articulation of perspective transformation regarding the emancipatory role of a teacher, in providing learning experiences that enable children to become confident, curious lifelong learners (P96: 0120EM - 96:6), that transcended the demands of national policy regarding school performance (P174: 0216JC - 174:1) and assessment (P199: 0233EW - 199:7). The "disorienting dilemma", caused by a school inspection or moderation of assessment, enabled trainees to identify the constraints of their presuppositions about the role of national policies and reformulate their perceptions into a more "integrative perspective" that informed decisions about their future practice (Mezirow, 1990:14).

RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?

Analysis of the data illuminated the ways in which interactions with the tutor in online weekly reviews influenced trainees' critical reflection (RQ2). Tutors' comments promoted reflection and core reflection through engagement with and critique of theory, pedagogic concepts, ideas from university sessions and national policy.

Tutors' comments encouraged trainees to progress from identifying and defining a "felt difficulty" (Dewey, 1933:72) from practice to promoting the exploration of possible solutions, often informed by theory (P159: 0210LH - 159:13) and ideas from university sessions (P145: 0205ZB - 145:5). The promotion of deeper reflection through the comparison of theory and practice (P179: 0216KD - 179:18) facilitated reasoning about the implications of pedagogical approaches and strategies, leading trainees into step four of Dewey's (1933) reflective process and towards the final step in which conclusions are drawn and tested. This was evident in comments that encouraged trainees to articulate patterns observed over longer periods of time (P137: 0205CS - 137:31) that could provide "corroboration of an idea and formation of a concluding belief" (Dewey, 1933:77). Comments that encouraged trainees to 'begin to develop models' (P161: 0210VG - 161:18) contributed to the development of conceptual knowledge that affect "pedagogic choices" and professional judgements (Orchard and Winch, 2015:17). Conversely, tutors' comments that did not reify engagement with theory or did not respond directly to trainees' reflections, could lead to a lack of precision and depth in trainees' reflections on practice (P64: 0112CH - 64:3; P65: 0112EH - 65:9; P99: 0120HM - 99:9).

Tutor's comments supported core reflection by recommending specific theory that enhanced trainees' exploration of professional identity (Korthagen and Vasalos, 2005). This encouraged trainees to take a wider view of the role of the teacher and promoted the critique of sociocultural distortions by raising inherent issues of social and power relations (Mezirow, 1990) (P148: 0208JC - 148:11). Tutors also encouraged trainees to extend their view of teaching and learning by looking beyond single critical incidents to broader pedagogical concepts, such as the role

of adults when children learn through play (P157: 0210JT - 157:15). This promoted examination of the underlying values and assumptions relating to the core qualities and mission of a teacher (Korthagen and Vasalos, 2005). Tutors' comments also encouraged a more complex form of core reflection in which incidents from practice were used to critique ideas from theory (P184: 0219JT - 184:2) and vice versa (P145: 0205ZB - 145:5). Where comments responded precisely to trainees' reflections, they promoted questioning of underlying assumptions directly, through comparison with alternative perspectives, and provoked the critique of distortions that limited trainees' established understanding of learning and teaching (Mezirow, 1990). It could be argued that this led trainees towards articulating the ways in which their understanding had been reassessed and promoted perspective transformation (Mezirow, 1990).

RQ3 What are the affordances and constraints of collaborative online documents in relations to trainees' critical reflections?

Analysis of the data illuminated the ways in which the affordances of collaborative online documents contributed to trainees' critical reflection (RQ3). This was evident in the role played by tutors' comments in considering and comparing alternative perspectives.

The collaborative online document enabled tutors to post timely, targeted comments and questions that extended trainees' critical reflection, particularly through comparison of theory and practice and consideration of alternative perspectives (P159: 0210LH - 159:13) that questioned the distortions that constrained trainees' stated or implicit understanding (Mezirow, 1990). This facilitated an ongoing reflective dialogue between tutors and trainees throughout school placements and university-based phases of the PGCE that enabled trainees to share and test emerging ideas about practice and pedagogy and "develop a view of teaching from multiple perspectives" (Pridham et al, 2013:61). The permeable boundary between the trainee/tutor/mentor CoP and the university tutor group enabled the tutor to call attention to connections between theory and practice, indicating parallels with Clarke's (2009:525-527) POD model in which a CoP is "Technologically enabled rather than technologically constrained... Learning and Learner-centered rather than teaching and teacher-centered... [and]

Permeable rather than isolated”. Tutors were also able to use these online tools to encourage dialogic by highlighting continuing controversy in educational theory and encouraging engagement with multiple perspectives from which meaning could emerge (Wegerif, 2013) (P157: 0210JT - 157:15). Thus collaborative online documents afforded an authenticity to learning (Burden and Kearney, 2017) by facilitating tutors’ support for critical reflection through the provision of opportunities to compare and contrast theory with trainees’ “relevant real-life practices and processes” (Burden and Kearney, 2017:112).

How this chapter contributes to theory

Extension of the expansive-restrictive continuum

A breadth of learning experiences (Fuller and Unwin, 2003) provided by opportunities to compare and contrast theory and practice (P106: 0120SS - 106:3) and cross boundaries between school and university (P101: 0120KB - 101:5), was supported and encouraged by tutors (P179: 0216KD - 179:18) and facilitated expansive learning experiences within the learning environment of the collaborative online documents. Indeed, comparison of theory and practice in order to extend trainees’ view of pedagogy and practice (P179: 0216KD - 179:18) safeguarded against restrictive learning experiences that are driven by government or school agendas and priorities (Hodkinson and Hodkinson, 2005). ITE could fall into this trap, with the current influence of Teachers’ Standards and competencies (BERA and RSA, 2014). Therefore the role of the university tutor and the range of trainees’ engagement with theory that they encourage should be included in an expansive-restrictive continuum for ITE.

To make connections across broad learning experiences, “opportunities to integrate off the job learning into everyday practice” (Hodkinson and Hodkinson, 2005:124) were provided through the use of theory and ideas from university sessions to inform practice (P181: 0219CS - 181:4; P190: 0223CS - 190:1; P138: 0205EW - 138:12), although this needed to be structured appropriately in order to be effective (P137: 0205CS - 137:13). This expansive practice could be encouraged by tutors’ interactions (P159: 0210LH - 159:13), confirming the significance of the role of the tutor in ITE (Brouwer and Korthagen, 2005). However, inclusion of this role in providing reification of engagement with theory

and the resulting depth of critical reflection, and the need for this to be precisely responsive to trainees' reflections within collaborative online documents, would extend and refine Fuller and Unwin's (2003) expansive-restrictive continuum.

There was evidence that trainees extended and developed their professional identities through participation in the CoPs of multiple schools (P196: 0223VG - 196:21) and the academic CoP provided by the university (Hodkinson and Hodkinson, 2005), articulating the resulting learning in their online documents (P111: 0123GJ - 111:3). Within an LPP model (Lave and Wenger, 1991), this constituted periodic movement between fuller participation in classroom practice and the periphery "where they can deconstruct, reconceptualise, or reaffirm their choices, decisions, and actions" (Sloat et al, 2014:8) (P101: 0120KB - 101:5). Online documents provided a space in which trainees articulated their vision of a career trajectory beyond ITE (Fuller and Unwin, 2003) through engagement with broader concepts such as the nature of reflection and how it related to practice (P111: 0123GJ - 111:3) and the development of confidence in objective assessment (P204: 0233VG - 204:6). This contributed to the development of professional identity and the identification of core qualities underlying this (Korthagen and Vasalos, 2005) (P107: 0120WF - 107:1). The need for a medium in which to express and share the learning resulting from the crossing of boundaries between CoPs, should be included in an expansive-restrictive continuum for ITE and furthermore, the medium itself should be defined as crossing these boundaries.

This chapter has documented the findings arising from thematic analysis of the data, comprising the weekly reviews, in relation to the organising theme of 'Taking a wider view'. Discussion in relation to theory presented in Chapter 2 resulted in the identification of five aspects of critical reflection that were evident through analysis of the data: 'Engaging with theory', 'Engaging with pedagogy', 'Impact of university sessions', 'Engaging with policy' and 'Considering school context'. These are grounded in and supported by illustrative examples from the data. The next chapter, 'Articulating learning and teaching', is the third of four findings and discussion chapters in which the organising and basic themes that the researcher constructed during data analysis are defined and explored.

Chapter 6 Findings and discussion - Articulating learning and teaching

Chapter introduction

The organising theme (Attride-Stirling, 2001) 'Articulating learning and teaching' encompasses two aspects of trainees' critical reflection that were evident in the analysis of the data: 'Considering children's learning' and 'Philosophy and belief'. These form the basic themes (Attride-Stirling, 2001) explored in this chapter, definitions of which are included at the start of each section. The process of 'Articulating learning and teaching' results from awareness and understanding of learning and teaching developed through:

- evaluation of children's learning from observation or the trainees' own practice;
- the development of beliefs grounded in theory, participation and professional discussion.

Having focused on the trainees' own development and the broader view of education, these basic themes are indicative of trainees paying attention to the impact of practice and environment on children's learning. This is brought together with knowledge of theory and professional discussion with mentors, to develop clear beliefs about the nature of learning and teaching. This echoes increased expectations in terms of trainees' ability to take responsibility for teaching and decision-making in the classroom, as they progress through the PGCE programme.

This is the third of four findings and discussion chapters, in which trainees' critical reflections inform the development and articulation of fundamental beliefs about learning and teaching. 'Articulating learning and teaching' draws attention to the role played by articulation in the process of critical reflection. This builds on 'Questioning yourself' and 'Taking a wider view', as the processes of critical reflection highlighted in these earlier chapters inform the processes of evaluation and development explored here.

The chapter also explores the ways in which tutors' comments contributed to trainees' critical reflections in their support for the evaluation of children's learning and the development of grounded beliefs about learning and teaching. It also provides a summary of the nature of trainees' critical reflections, the ways in which tutors' comments support this and the affordances and constraints of collaborative online documents in relation to critical reflection. The chapter concludes by identifying ways in which the expansive-restrictive continuum (Fuller and Unwin, 2003) could be extended and tailored for ITE.

Considering children's learning

The basic theme 'Considering children's learning' captures an aspect of critical reflection in which trainees consider the nature of children's learning and the impact of teaching upon it. It includes consideration of children's learning in relation to an observation or the trainee's own teaching of individuals, groups or a whole class. This builds on examination of their own learning and practice (Chapter 4 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 5 Taking a wider view), but there is a change in focus from the trainee him/herself to the impact of his/her practice and the learning environment on children's learning.

Consideration of children's learning provided opportunities for trainees to follow the first four of Dewey's (1933) steps in reflection. This raised awareness of potential barriers to learning (steps one and two) and possible solutions offered by teaching strategies (step three), strengthening understanding of the relationships between learning and teaching (step four) (Dewey, 1933). Children's learning provided critical incidents (Brookfield, 1990) that enabled trainees to articulate and critique their underlying assumptions (Mezirow, 1990) about the nature of learning, with some indications that this form of core reflection developed as they progressed from the periphery to fuller participation in classroom practice (Lave and Wenger, 1991).

The actions of observing, involvement in and reflecting on children's learning enabled trainees to critique epistemic distortions, prompting perspective transformations (Mezirow, 1990) in trainees' understanding of learning and

teaching and their professional identities (Korthagen and Vasalos, 2005). This appeared to be strengthened by professional discussion with mentors and engagement with theory, reinforcing the centrality of the learning opportunities afforded by placement schools, the ways in which trainees elect to engage with these and the guidance provided throughout this process (Billett, 2001a). Here, the PGCE constituted a “structured workplace learning arrangement” (Billett, 2001a:210) and analysis of the data demonstrated the salience of trainees’ critical reflection to professional learning in this context. There was variation in trainees’ engagement with opportunities, afforded by school placements, to develop understanding of children’s learning. This highlighted the role played by trainees’ individual dispositions (Billett, 2001a) and suggested that the feedback from and interaction with tutors and mentors could be an influential factor in establishing an expansive learning environment (Fuller and Unwin, 2003).

Trainees are encouraged to evaluate children’s learning as soon as they start to teach at the beginning of their first school placement. The university’s lesson plan format (Appendix 3) includes an evaluation section that asks trainees to identify what went well and what could be improved. It is also expected that trainees carry out at least one observation per day, particularly in the early stages of the placement (Appendix 15,16).

Reflection on children’s learning built awareness of factors that could inhibit learning, potential solutions and possible implications. This enabled trainees to make connections between their teaching and children’s learning.

P155: 0210EW - 155:1 ...during Tuesday's maths session... I noticed a clear factor that can inhibit the quality of children's learning experience and this was the fact that the children had wet play... I could clearly see how not having a run around had affected some of the children's attention span and motivation to learn during maths... the children did settle down after a while and I think that this was helped by using videos to help introduce the mathematical concept. This got me thinking how this effect could be reduced if the children do have wet play and perhaps we could have started the maths session doing an indoor move activity. Hopefully then this would allow the children to get rid of some of their energy and then they would be able to focus on maths more.

EW reflected on the ways in which a wet playtime impacted on the children's learning and behaviour, following the first four steps of Dewey's (1933) process of reflection. However she did not, as a result of learning through participation alone (Lave and Wenger, 1991), advance to drawing a general conclusion or any exploration of the underlying assumptions and concepts. This demonstrated the need for opportunities for trainees to learn through "discussion and interaction with colleagues working in a variety of school contexts" (Orchard and Winch, 2015:32) and "theoretical frameworks comprising conceptual knowledge and understanding" alongside "classroom experience [that] plays a critical role in the professional formation of teachers" (Orchard and Winch, 2015:19). There was no evidence, in this and many other examples, that there was opportunity for discussion of the issues raised with the mentor immediately following EW's teaching or written in the weekly review. This could be a restrictive influence on the trainee's learning in that it could provide only a narrow view of learning and teaching and not support making connections between on-the-job learning and off-the-job reflection (Fuller and Unwin, 2003).

This increased awareness of children's learning, but lack of deeper critical reflection, also occurred when trainees carried out close observations of individual children (for example P77: 0112WF - 77:6; P188: 0219VG - 188:9). While they too began Dewey's (1933) reflective process, they did not exploit critical incidents (Brookfield, 1990) that could have been used to critique the epistemic distortion that influenced their assumptions and understanding of learning behaviour.

Having the opportunity to observe and work with individual children signalled that both WF and VG were making a "gradual transition to full participation" and that there was "recognition of, and support for, [their] status as learners" and there were frequent contributions from tutors and mentors providing "dedicated support", all indicators of expansive learning experiences (Fuller and Unwin, 2003:411). However, despite the affordance of these learning opportunities, the trainees elected to engage in them only partially (Billett, 2001a), resulting in relatively shallow reflection and little articulation of conceptual understanding, suggesting that their "values, knowledge personal history, ways of knowing, engagement in

other social practices” (Billett, 2001a:212) presented barriers to their learning from workplace practice.

Analysis of the data revealed core reflection in the form of the articulation of assumptions about children’s learning and the analysis and critique of these, drawing on evidence from practice. There was evidence that critical reflection on children’s learning developed over time. This may have been related to trainees’ movement from the periphery to fuller participation in the CoP of the placement classroom (Lave and Wenger, 1991)(Appendix 17), building understanding through experience and enabling them to recognise and explore the underlying assumptions (Mezirow, 1990).

P135: 0133SS - 135:10 Thursday’s lesson involved some drama freeze-framing to generate speech leading to individual tasks of using speech marks. I hadn’t seen the children perform drama before, so I was a little nervous about how the freeze-framing would go. However, the children really gave it a go and produced some great speech sentences which we then used to model using speech marks. One of my profile children, who can usually be quite nervous speaking in front of others, was one of the ‘frozen’ actors and it was amazing to see him come to life and deliver an amazing line! I could tell the input really engaged the whole class, and the individual work produced by all children was great. This is definitely an input method I will consider using more in future, as I enjoyed teaching this lesson as much as the children seemed to enjoy taking part in it!

SS’s consideration of the children’s responses during a drama activity, their resulting writing and her own enthusiasm for and immersion in the learning signalled a good depth of participation in the CoP of the classroom (Lave and Wenger, 1991). She was engaged in the domain and practice of the CoP (Wenger, 1998) and this was aligned with the development of her professional identity, indicating that the classroom was providing expansive learning opportunities (Fuller and Unwin, 2003) and that she was positively disposed to take advantage of these (Billett, 2001a). The process of core reflection (Mezirow, 1990) was clearly articulated in her expression of nervousness about using drama as a teaching strategy (presupposition) and the positive experience and outcome of using it (critique of her presupposition), drawing on evidence of children’s learning to support this process. The children’s unexpectedly positive response enabled her to critique the “epistemic distortion” (Mezirow, 1990:15) that drama would prove too

challenging and present a barrier to learning. This led to the transformation of her view of the potential contribution of drama to children's learning, expressed in her consequent enthusiasm and understanding of its positive impact (Mezirow, 1990).

While she was afforded a similar learning opportunity to WF (P77: 0112WF - 77:6) and VG (P188: 0219VG - 188:9) in the previous section, to observe children's learning in the classroom, SS demonstrated a willingness to analyse the evidence and critique her assumptions, using this as a critical incident (Brookfield, 1990). This suggested that differences in trainees' individual dispositions influenced the ways in which they responded to opportunities to learn from classroom practice (Hodkinson et al, 2004). It also indicated that similar learning opportunities could be more or less expansive for individuals depending on their dispositions and that learning activities should be responsive to this variation in order to "encourage and facilitate learning through work, not directly impose it" (Hodkinson et al, 2004:22).

Observation of, involvement in and reflection on children's learning provided opportunities to question epistemic distortions, triggering perspective transformations (Mezirow, 1990) relating to the nature of learning and teaching (P159: 0210LH - 159:4) and the trainee's professional identity (Korthagen and Vasalos, 2005) (P175: 0216JT - 175:8). Trainees articulated how the actions they took in practice, often informed by discussion with the mentor, impacted on children's learning and explicitly stated the reformulated understanding that resulted. In doing so, they demonstrated perspective transformation through critical awareness of how they perceived and understood children's learning and their role in it and the development of "a more inclusive, discriminating, permeable, and integrative perspective" that informed their practice (Mezirow, 1990:14).

There was evidence that critical reflection on children's learning, alongside discussion with the mentor, academic input during a taught session and engagement with relevant theory, culminated in trainees developing "superior perspectives" that enabled them "to be more open to other perspectives, and to better integrate [their] experiences" (Mezirow, 1990:14). A "disorienting dilemma", caused by a change in learning environment, challenged CS's "old ways of knowing" and understanding of children's learning (Mezirow, 1990:14).

P198: 0233CS - 198:3 I was able to accompany a group on a trip this week to a local art gallery. I was unsure of how the children were going to engage with the exhibition at first and was eager to learn about the teacher's learning intentions for the trip. I found at first the children were eager to explore the space. The teacher had talked to them that morning about where we were going and explained to me how she had encouraged them to understand that we were going to see some artwork and that there was a person behind the art who had created it...When reflecting on this the following day it struck me that the children were very respectful of the place and through the teacher's careful conversation with the group she had supported them in applying their own experiences to what we were about to see.

In seeking and comparing different perspectives, CS demonstrated an open disposition to learning and the placement setting was "highly invitational for learning" (Billett, 2001a:213), affording opportunities to participate in multiple CoPs, planned time for reflection, recognition of CS's status as a learner and dedicated support (Fuller and Unwin, 2003).

P198: 0233CS - 198:8 The teacher led a training session the next day on creativity. We were encouraged to think about what this means and the theory behind encouraging creativity in the early years. We looked carefully at the characteristics of effective learning and I began applying this to what I had observed the previous day. After a while the children began to look more carefully at the art around them. They used their imaginations to take their experiences to higher places. One child stated he felt like he was 'inside a television'. We discussed this further within the training, the idea of possibility thinking and using language: 'What if' rather than 'What colour is it?' Or 'What does it do?'

In combination, this created an expansive learning environment that included "spaces for new teachers to reflect on and to question their decisions, and for practitioners to engage with novice teachers in thoughtful, informed dialogue about those choices" (Sloat et al, 2014:8). This enabled CS to engage in the advanced stages of "reflective judgement" including the comparison of "evidence and opinion across contexts" and the making of "epistemically justifiable claims" (Kitchener and King, 1990:165) about the importance and role of creativity in learning.

P198: 0233CS - 198:26 A quote by Bernadette Duffy made me think further into creativity and learning. Creativity is... 'connecting the previously unconnected in ways that are new and meaningful to the individual concerned'. This is something I am witnessing on a daily basis. Children

creatively acting and thinking to connect ideas together and create new collaborations. When reflecting on my practice I believe creativity is the key to that higher level thinking. Encouraging children to believe in their own ideas, and use it to further heighten their learning experience.

She combined critical reflection on her mentor's explanation of the purpose of the children's visit to the gallery, the concepts introduced during the training session, evidence of children's learning during the visit and ideas from relevant theory, resulting in the transformation of her understanding of the role of creativity in learning and implications for her future practice. It could be argued that this critical incident (Brookfield, 1990) provided an opportunity to return to the periphery of practice (Lave and Wenger, 1991), enabling CS to reconstruct and reconceptualise (Sloat et al, 2014) her understanding of creativity in learning.

Philosophy and belief

The basic theme 'Philosophy and belief' encapsulates an aspect of critical reflection in which trainees explore and articulate their understanding of the nature and purpose of learning and teaching. It includes beliefs arising from observation, the trainee's own practice and the process of learning through classroom participation and feedback from a mentor. This builds on examination of their own learning, practice and assumptions (Chapter 4 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 5 Taking a wider view), bringing together learning from practice and theory to inform the articulation of specific principles and beliefs underlying a developing philosophy of education.

Exploring and articulating their developing beliefs about learning and teaching enhanced trainees' critical reflections by raising awareness of a challenge or problem arising from their practice, considering possible solutions, alternative strategies and implications before drawing conclusions based on evidence and analysis of learning and teaching (Dewey, 1933). Articulation of these critical incidents raised discrepancies (Brookfield, 1990) between trainees' presuppositions (Mezirow, 1990) about learning and teaching and the realities of classroom experiences, providing opportunities for core reflection. Core reflection was further enhanced by examination and critique of the core qualities underlying

trainees' beliefs and how these informed and influenced their developing sense of professional identity and mission (Korthagen and Vasalos, 2005). The development and articulation of trainees' beliefs about learning and teaching arose from core reflection on classroom experiences, theory and learning relationships with mentors. This enabled perspective transformation to take place, evident in trainees' reformed beliefs and restructured assumptions about the nature of learning and teaching (Mezirow, 1990), and this informed the development of their actions in the classroom.

Trainees demonstrated awareness of a specific issue and explored it through a process of reflection. In doing so, they began to form a belief about learning and teaching, although this sometimes lacked clarity and depth. For example, ZB's questions 'What is the point of a display?' and 'Should we choose the 'neatest' pieces of work for aesthetic reasons?' (P189: 0219ZB - 189:26) indicated that she had experienced and identified "a felt difficulty" with "sufficient definiteness as to set the mind at once speculating upon its probable solution" (Dewey, 1933:72). However her suggested solutions, that 'we should focus on achievement not attainment' and 'who has achieved the most' (P189: 0219ZB - 189:26), added little definition to the problem and did not consider alternative perspectives, indicating "uncontrolled thinking" rather than disciplined reflection (Dewey, 1933:74). The tutor's comment explicitly suggested alternative perspectives for further exploration, the mentor's comment indicated supportive, ongoing discussion of practice and the collaborative online document afforded a means of articulation. Therefore ZB's "more or less random" (Dewey, 1933:74) conclusions could be attributed to a hasty, unreflective disposition at the time of writing the review rather than a restrictive learning environment (Fuller and Unwin, 2003), confirming that "the affordances of the workplace supported learning... alone cannot guarantee rich learning outcomes when individuals decide not to engage" (Billett, 2001a:213).

Deeper reflection was achieved through analysis and comparison of the impact of different teaching strategies on children's learning, including evaluation of trainees' own teaching, observation of other teachers, different groups of children and over sequences of lessons, enabling a more thorough corroboration of belief (Dewey,

1933). For example, JT's lengthy reflection on specific strategies for teaching early subtraction commenced with the identification of a difficulty (Dewey, 1933):

P201: 0233JT - 201:5 The difficult thing with this objective is that counting back is a skill that requires a lot of other skills to get to (very secure understanding of ordinal number, keeping track of how many steps back have been taken).

In contrast to ZB, she went on to complete the remaining four steps of Dewey's (1933) process of reflection by defining the problem in more detail, considering possible alternative solutions and their implications and arriving at a concluding belief about the efficacy of the teaching strategy based on implementation and observation. JT's awareness of and reflections on the issue and possible solutions were indicative of a disposition that rendered her open to finding meaning and value in the learning opportunities afforded by the teaching practices and experiences of the classroom (Billett, 2001b). This enabled her to take advantage of the expansive learning opportunities provided by a breadth of learning experiences, gradual transition to full participation (evident in the provision of opportunities to observe even at a late stage of the PGCE) and the provision of advice and support from other teachers (Fuller and Unwin, 2003).

Trainees' core reflections on their underlying assumptions about learning and teaching and the core qualities underlying their professional identities resulted in the articulation of philosophical beliefs about the nature of learning. Critical incidents (Brookfield, 1990) arose from practice and observation, here enabling EW to articulate a critique of her implicit previous assumption that children would collaborate if a teacher grouped them together:

P155: 0210EW - 155:12 ...it was interesting to see how some groups needed more help than others... in organising their teams... This experience made me realise that... we should not just assume that children will naturally sort group dynamics as this is something that needs developing.

EW found that her assumption was "discrepant with [her] experience of reality" (Brookfield, 1990:177), which influenced her decisions about future practice. This constituted a "premise reflection" (Mezirow, 1990:12) in which EW's presupposition, that the children would learn collaboratively because the teacher had grouped them together, was challenged. This process of core reflection

resulted in the articulation of a new belief about the nature of learning and teaching.

A challenging discrepancy between the attitudes of JF and his mentor resulted in an explicit critique of the assumptions and core qualities underlying his experiences of workplace learning and contributed to articulation of the process of forming his professional identity.

P40: 0108JF - 40:15 I believe that criticism is essential from peers and fellow teachers if you are to develop as a teacher, however, this criticism must be constructive in my opinion, otherwise, like has happened, that person's confidence and future teaching practice may be affected in a negative way. I am starting to realise that perhaps me and my training mentor have different values and beliefs within the classroom and I must remember that that does not mean I am wrong in the positive way that I want to teach the children... I have to learn to take criticism less personally as well, because it is this criticism that will make me a better teacher. Without it I would just stay on the same level.

This critical incident involved a “sociocultural distortion” and recognising this caused a shift in JF’s understanding of the power and social relationship between trainee and mentor (Mezirow, 1990:15). Although challenging, the issue of power between the newcomer and old-timer stimulated core reflection and thus did not create a barrier to learning in the workplace, as Lave and Wenger (1991) claimed. Indeed JF’s explicit identification of the tensions inherent in his relationship with his mentor and the potential impact of this on his learning demonstrated his ability “to take a step backward and to become aware of the fact that [he] has a choice whether or not to allow these limiting factors to determine [his] behaviour” (Korthagen and Vasalos, 2005:55). Although he tended towards identification with the limiting factor here, core reflection enabled JF to articulate the perspective transformation needed to support his own learning.

Despite JF’s fairly direct criticism of his mentor’s teaching and mentoring styles, the mentor’s comment on this review noted that he was ‘very willing to take on board constructive criticism’ and had ‘listened well to the advice given’ (P40: 0108JF - 40:29). This disparity between evaluations of JF’s learning indicated that the recognition of his learner status and the provision of dedicated support were not sufficient to guarantee expansive learning experiences (Fuller and Unwin,

2003). The “degree of relatedness” between the workplace practices and the individual’s disposition (Billett, 2001a:212) and “‘congruence’... between individual perceptions of and engagement with their workplace” (Fox, Deaney and Wilson, 2010:216) were also crucial to ensure the alignment of personal and organisational goals to provide an expansive learning experience (Fuller and Unwin, 2003).

The insightful articulation of JF’s belief about the core qualities required to develop his professional identity (P40: 0108JF - 40:15) was inspired by a challenging tension between trainee and mentor. In contrast, in a later review from the same placement, JF’s reflections lacked depth, confirming the non-linear nature of critical reflection:

P85: 0116JF - 85:13 I love teaching PE as well, I really enjoy seeing the children all run around and smile. They all seem to like participating in PE, it’s much easier to engage them in this activity than perhaps something like maths! I felt that I was in control of the PE lesson much more than the last time I did it... I feel I had a much stronger hold on the lesson which is good because in a big hall it is important that you maintain control for safety if nothing else.

Here JF’s assumption, that his enjoyment and confidence had a positive impact on the children’s learning and behaviour, remained implicit and was not critiqued. The positive experience of practice did not stimulate core reflection as the more challenging questioning of a sociocultural distortion (Mezirow, 1990) had done previously. Although he chose to articulate the successful PE lesson as a “critical incident” (Brookfield, 1990), it provided an opportunity to explore the impact of the core qualities of enthusiasm and confidence and the mentor’s comment was similarly supportive of his professional development, nevertheless JF did not elect to engage with the learning opportunity in the same depth (Billett, 2001b). He was unable to fully articulate a clear conclusion about the “ideal situation”, in which children were inspired to learn through his enthusiasm and confidence, or recognise the “limiting factors” that prevented him from transferring this success in PE to other areas of the curriculum (Korthagen and Vasalos, 2005:54). Therefore he did not take advantage of the opportunity the incident afforded him to engage in core reflection on his identity and mission as a teacher, confirming that “participation in work activities does not lead to the unquestioned learning of what

is afforded by the workplace. Individuals are active agents in what and how they learn from these encounters” (Billet, 2001a:211).

Core reflection and critique of underlying assumptions led to articulation of perspective transformation (Mezirow, 1990) in trainees’ beliefs about and understanding of learning and teaching. This in turn resulted in trainees taking action by adapting their practice, informed by newly articulated educational philosophy and principles.

Here, VG drew on critical reflection on her own learning, ideas from theory introduced during the PGCE and experience from practice to inform examination of the assumptions underlying her beliefs about learning.

P170: 0212VG - 170:3 I really enjoyed the idea of making work in maths an investigation and giving them the opportunities to find out things for themselves...I love exploring maths like this, it makes it less formal and rigid and is in keeping with the growth mindset. The children need to be less afraid of mistakes and I have started to highlight mistakes as showing good thinking and reasoning skills. I think some of my own issues in maths surrounded the pressure of always having to get to the correct answer through the taught method, so I would like the children to develop their own reasoning in maths and this will help them to apply it to other problems.

VG recognised that several of her “meaning schemes” (Mezirow, 1990:2), regarding supportive feedback, investigative, independent learning and fear of making mistakes, had been transformed by her experiences of participation in learning and teaching and engagement with relevant theory. This led to a revision of her higher order beliefs about learning and teaching involving reformation of the “structure of assumptions within which new experience [was] assimilated and transformed” (Mezirow, 1990:2). VG became aware of how her previous assumptions had constrained her own perceptions of learning and how “reformulating these assumptions” (Mezirow, 1990:14) enabled her to take action by adapting her practice to provide more inclusive, positive learning experiences for the children she was teaching.

The translation from reformulation of assumptions to action in classroom practice appears to have been facilitated by VG’s learning about growth mindset, in university sessions and readings, that enabled her to analyse her experiences and

adapt her practice as a result. This confirmed the importance of “opportunities to integrate off the job learning into everyday practice” to the provision of expansive learning opportunities for trainees (Hodkinson and Hodkinson, 2005:124) and the role played in ITE by engagement with research and theory in critical reflection by informing analysis of practice and pedagogy (Winch, Oancea and Orchard, 2015). Understanding “the theory behind an approach” enabled VG to “evaluate its worth in relation to the alternatives” (Cordingley, 2015:245), facilitating her perspective transformation and the resulting action in the adaptation of her practice.

There was also evidence of perspective transformation that informed trainees’ beliefs about the professional identity of a teacher (Korthagen and Vasalos, 2005), arising from critical reflection on practice and supported by constructive criticism from the mentor.

P194: 0223LH - 194:4 I was able to carry out this session twice, first with orange group A and second with green group B which enabled me to adapt and change things for the second session. In the first session I ended up leading the session more than I had planned and children [didn't] have as much opportunity to speak to their partner. For green group B, I was aware of this, so I ensured that children had the opportunity to share with a partner and then share with the whole group. My reflections and evaluations of the sessions have made me realise how important it is for children to be leading their learning. This week the sessions I am planning are more about the children taking control of their learning and for me to be resourcing activities and there to support language.

Stimulated by her evaluation of children’s learning during her own practice, LH reflected critically on a sociocultural distortion (Mezirow, 1990:16) that teachers, rather than children, should lead learning experiences. This resulted in a perspective transformation in which LH reassessed and reformed her identity as a teacher, from a leader to a facilitator of learning, enabling her to reach the deeper levels of critical reflection by identifying the “ideal situation” and taking action in her practice (Korthagen and Vasalos, 2005:54).

There was evidence in the mentor’s comment that LH’s perspective transformation, and resulting action, took place in an expansive learning environment in which her status as a learner was valued and recognised, she received dedicated, focused support and was supported in a “gradual transition to

full participation” in classroom practice (Fuller and Unwin, 2003:411). The mentor’s comments balanced celebration of achievements with questions and suggestions about how these could be used to support further development of practice (P194: 0223LH - 194:25; P194: 0223LH - 194:27). Comments also explicitly praised LH’s progress from peripheral participation to full participation, as she took increasing responsibility for whole class teaching (P194: 0223LH - 194:29) (Lave and Wenger, 1991). LH’s articulation of the process of perspective transformation, alongside the mentor’s comments, indicated that this transition was appropriately paced and therefore more likely to result in “rounded and full participation” (Fuller and Unwin, 2003:417).

Tutor interactions supporting articulating learning and teaching

The basic theme ‘Tutor interactions supporting articulating learning and teaching’ captures the ways in which tutors’ comments encourage trainees to recognise and express their understanding of children’s learning and fundamental beliefs about learning and teaching. ‘Supporting’ includes recognition of critical reflection, constructive criticism, questioning and guidance. This section arises from the previous sections of this chapter, as the comments considered respond to trainees’ consideration of children’s learning and their own philosophy and beliefs. It begins to build understanding of the contribution made to critical reflection by tutors’ comments regarding trainees’ understanding of learning and teaching.

Tutor interactions supporting considering children’s learning

As trainees became aware of children’s learning as a factor informing reflections on their own teaching, tutors encouraged them to engage in Dewey’s (1933) process of reflection to inform and deepen their analysis. Asking questions such as ‘Who wasn’t? Why do you think that was?’ (P143: 0205LO - 143:1) and ‘Why might this be?’ (P144: 0205VG - 144:1) encouraged trainees to be precise and rigorous in their analysis of children’s learning behaviour in response to their teaching. LO’s tutor guided her to take step one in Dewey’s reflective process by identifying a “perplexity or problem” (Dewey, 1933:72) arising from children’s learning rather than her own practice. Whereas her follow up question, and the similar question

posed by VG's tutor, served to encourage the trainees to articulate further definition of the problem that had arisen, thus completing step two (Dewey, 1933). This use of questioning suggested a view that "the essence of critical thinking is suspended judgment; and the essence of this suspense is inquiry to determine the nature of the problem before proceeding to attempts at its solution" and that the tutors promoted critical reflection to encourage the trainees to avoid jumping to conclusions based on "mere inference" (Dewey, 1933:74).

Where tutors' comments were precisely targeted, inline with the text and attached to a specific point made by the trainee, there was evidence that, although not a requirement, some trainees responded by adding definition to their reflections (P157: 0210JT - 157:1; P176: 0216LH - 176:4; P192: 0223JC - 192:6). These interactions, in which children's learning was considered, utilised the asynchronous, virtual features afforded by collaborative online documents to facilitate collaboration between tutor and trainee in the negotiation of meaning and making of connections between learning and teaching (Burden and Kearney, 2017).

When trainees had followed Dewey's (1933) third step of reflection by identifying a possible solution to a problem arising from children's learning, tutors supported progress towards step four: reasoning about the implications of the solution. Questions such as 'What skills were you promoting by asking such questions?' (P143: 0205LO - 143:2) and 'What about the learning that came out of this?' (P197: 0223ZB - 197:6) prompted trainees to explore the impact of their teaching on children's learning. This then promoted critical reflection in which "acceptance of the suggestion in its first form is prevented by looking into it more thoroughly" and encouraged the trainees to consider the "full consequences", adding rigour to the process that "develops the idea into a form in which it is more apposite to the problem" or informed the decision to reject a solution (Dewey, 1993:76). Additional questions such as 'What impact did this have? How did it support learning?' (P150: 0208LH - 150:3) and 'What impact did this have on children's engagement and motivation levels, and their learning?' (P154: 0210CS - 154:9) encouraged trainees to complete the final step of Dewey's (1933) process of reflection by articulating a conclusion about the efficacy of the solution based on an evaluation of the impact of practice on children's learning. Carefully targeted questions that

facilitated progress through Dewey's (1933) five step process of reflection constituted "dedicated support" typical of an expansive learning environment (Fuller and Unwin, 2003:411), however, in contrast to the work-based support evident in Fuller and Unwin's (2003) research, the tutor is part of the university and the role is in addition to the mentor, who is part of the workplace environment of the placement school.

Core reflection was supported through tutors' identification and reinforcement of trainees' core qualities and developing professional identity (Korthagen and Vasalos, 2005). Comments such as 'You demonstrate attunement to children's emergent lines of enquiry' (P181: 0219CS - 181:9) and 'It is good to read that you are adjusting your practice in response to feedback' (P195: 0223LO - 195:7) drew attention to core qualities of empathy, sensitivity, receptivity and flexibility that, despite not appearing explicitly in the Teachers' Standards (DfE, 2011), are directly relevant to ITE and require nurturing (Korthagen and Vasalos, 2005). Whereas comments such as 'taking more responsibility for transitions will build your confidence and 'voice' in the classroom and give you a greater sense of authority' (P88: 0116LB - 88:32), 'You are carefully adapting your approach to meet the needs of learners' (P180: 0216VG - 180:10) and 'Good to make connections between subject knowledge and impact on learning' (P192: 0223JC - 192:7) served to both emphasise the ways in which the trainees' professional identities are developing and identify progress towards specific elements of the Teachers' Standards (DfE, 2011): exercising appropriate authority, adapting teaching to meet pupils' needs and having secure subject knowledge that helps to engage children in learning and address misunderstandings.

Tutors' comments also promoted core reflection by encouraging trainees to identify and critique the underlying presuppositions that influenced interpretation of children's learning (Mezirow, 1990). For example, ZB's tutor explicitly warned her about the danger of jumping to a conclusion about a child's challenging behaviour being caused by distractions: 'Be careful of making assumptions. Have you talked to the child one to one? Sometimes this can give you insight' (P162: 0210ZB - 162:7). While EW's tutor encouraged her to consider alternative barriers to a child completing a maths activity successfully rather than relying on the assumption it was due to his lack of focus: 'What other factors could be at play here? Consider

the pitch and the challenge of the activity' (P147: 0208EW - 147:19). Tutors' comments also encouraged trainees to look beyond their personal assumptions to question broader epistemic distortions that could constrain understanding through the "uncritical acceptance of another's values" (Mezirow, 1990:14). LO's tutor prompted her to critique an assumed correlation between children's busyness and their learning by encouraging further analysis of evidence of learning (P169: 0212LO - 169:8). While tutors also urged trainees to question more broadly accepted epistemic distortions such as the need to divide learning into separate subjects rather than recognising connections between them (P155: 0210EW - 155:5) and a view of learning that limits children's learning by labelling them as 'low ability' rather than focusing on their current understanding and appropriate next steps in learning (P188: 0219VG - 188:10).

Tutor interactions supporting developing philosophy and belief

As trainees began to develop their beliefs about learning and teaching, tutors' comments encouraged them to articulate conclusions informed by critical reflection on classroom practice, constituting step five of Dewey's (1933) process of reflection. Questions such as 'What about display as a visual aid or as a working wall to show progress in learning?' (P189: 0219ZB - 189:29) and 'What about links with elicitation to ensure that you are clear with children's prior understanding?' (P173: 0216EW - 173:8) encouraged trainees to consider alternative perspectives alongside "experimental corroboration" (Dewey, 1933:77) from practice to address perplexities, in these cases about the purpose of classroom displays and the importance of adapting teaching in response to children's learning needs. In this respect, tutors' questions scaffolded the trainees' progression from the identification of "ill structured problems" (Kitchener and King, 1990:164) towards core reflection involving reflective judgment in the form of comparison of evidence and views from different contexts, including ideas presented in university sessions and readings.

Core reflection was supported by tutors' comments that encouraged trainees to explore their beliefs about the role of a teacher and informed the development of their own professional identities (Korthagen and Vasalos, 2005). This could be explicit, as in LO's tutor's question 'How did this impact on behaviour? How did

active engagement such as this support you in your role as teacher?’ (P160: 0210LO - 160:8), that invited LO to consider her “self-concept” of herself as a teacher (Korthagen and Vasalos, 2005:53) and reflect on how this influenced her relationships with the children and the impact on their learning. Tutors’ comments also promoted the identification and critique of the assumptions underlying trainees’ beliefs about learning and teaching (Mezirow, 1990). EW’s tutor’s comment “‘Delivered’ is an interesting word in teaching...it implies that you have pre-determined the outcomes of the session and will ‘present’ knowledge to children. Is this in line with your thinking?’ (P155: 0210EW - 155:4) challenged her to consider the presuppositions implied by her choice of vocabulary and that this underlying assumption may have had as much impact on the children’s motivation and concentration as the wet play time that EW believed to be the cause. Whereas VG’s tutor responded to her articulation of beliefs about a range of factors that can inhibit or enable learning by recommending that she engaged with research that would enable her to extend her understanding and inform her future pedagogical decisions (P144: 0205VG - 144:2) (Korthagen, Loughran and Russell, 2006). Similarly, LO’s tutor posed questions and suggested theory that directly challenged the assumptions underlying her stated beliefs about children’s behaviour:

P143: 0205LO - 143:4 What do you mean by this? Are you ‘controlling’ children’s behaviour by giving clear expectations or supporting them by providing boundaries? What assumptions are you making about your role here? Have a look at Adams (2009) Behaviour for Learning in the Primary School to broaden your perspectives.

This promoted a philosophical view of a professional teacher who has “the capacity to inquire sensitively and systematically into the nature of learning and the effects of teaching” thereby empowering “teachers with greater understanding of complex situations rather than to control them with simplistic formulas” (Darling-Hammond, 2000:170).

There was evidence that tutors’ comments encouraged trainees to recognise and critique epistemic distortions that constrained their beliefs about learning and teaching, thereby avoiding “fixed images and assumptions” (Wegerif, 2011:185) and promoting perspective transformation (Mezirow, 1990). For example, JT’s tutor’s comment ‘Develop your points though, e.g. has this experience challenged

your thinking?’ (P157: 0210JT - 157:9), provoked JT to expand on her belief that learning involves active participation rather than being told or shown something. Thus, the comment stimulated critique of this epistemic distortion that had previously limited her understanding of learning and the role of the teacher by encouraging JT to articulate how her understanding has been transformed and “justify [her] new perspective through discourse” (Mezirow, 2000:20). Similarly, CS’s tutor responded to her thorough exploration of the role of creativity in learning, which arose from reflections on both theory and practice. Her question ‘Only within the context of art?’ (P198: 0233CS - 198:1) challenged a possible epistemic distortion that could have limited CS’s perspective transformation (Mezirow, 1990) to learning in arts subjects, rather than developing a broader philosophy that applied to all learning. This process of precisely targeted comments from the university tutor that facilitated perspective transformation indicated that the weekly review provided an expansive learning environment by confirming “explicit institutional recognition of, and support for, [trainees’] status as learners”. It also enabled the provision of dedicated support that prioritised individuals’ learning goals (Fuller and Unwin, 2003) in terms of developing and articulating beliefs that provided “reasonable warrant for decisions” (Winch, Oancea and Orchard, 2015:210).

Chapter summary

How this chapter addresses the research questions

RQ1 What is the nature of critical reflection in trainee teachers’ collaborative online weekly reviews?

Analysis of the data illuminated the nature of critical reflection in trainees’ online weekly reviews (RQ1). There was evidence of reflection, core reflection and transformation in trainees’ consideration of children’s learning and exploration of their own philosophy and beliefs.

There was evidence that, while considering children’s learning, trainees identified and defined barriers to learning that constituted “(i) a felt difficulty” and “(ii) its location and definition” (Dewey, 1933:72) (P188: 0219VG - 188:9). Some trainees

went on to suggest teaching strategies that could mitigate against factors that inhibited children's learning and explore possible implications of their implementation (P155: 0210EW - 155:1 and P77: 0112WF - 77:6), thus engaging in steps three and four of Dewey's (1933) reflective process. However, without engagement with alternative perspectives from theory, mentors and other teachers in a variety of schools (Orchard and Winch, 2015), trainees did not progress to Dewey's (1933) fifth and final step by articulating even tentative conclusions about learning and teaching. This was, however, evident in the exploration and articulation of their developing beliefs about learning and teaching, in which they drew conclusions based on evidence and analysis from practice (P201: 0233JT - 201:5).

With regard to core reflection, there was evidence that, while considering children's learning, trainees identified critical incidents that stimulated critique of their underlying assumptions (Brookfield, 1990). This was facilitated by trainees' positive dispositions towards recognising both benefits and pitfalls of teaching strategies (Billett, 2001a; Hodgkinson et al, 2004) (P201: 0233JT - 201:5) and willingness to identify and critique their own presuppositions about learning (Mezirow, 1990) (P135: 0133SS - 135:10). Trainees articulated beliefs about learning and teaching arising from analysis of discrepancies between their presuppositions (Mezirow, 1990) and the realities of classroom experiences (Brookfield, 1990) (P155: 0219EW - 155:12).

Core reflection also involved the recognition and critique of the core qualities underlying trainees' beliefs and examination of the ways in which this informed the development of professional identity and mission (Korthagen and Vasalos, 2005) (P40: 0108JF - 40:15). This highlighted a limitation in notions of individual dispositions and their impact on and interdependence with workplace learning proposed by Billett (2008), Hodgkinson and Hodgkinson (2004) and Evans et al (2006), as these authors did not recognise the contribution that the critique of these dispositions, or core qualities, could make to critical reflection (Korthagen and Vasalos, 2005).

With regard to perspective transformation, observation of, involvement in and reflection on children's learning stimulated trainees to recognise and critique

epistemic distortions (Mezirow, 1990) that constrained their understanding of learning and teaching (P159: 0210LH - 159:4; P175: 0216JT - 175:8). This, sometimes in combination with professional discussion, academic input and engagement with theory, resulted in the transformation of their perspectives on pedagogy, learning and their own professional identities (Korthagen and Vasalos, 2005) (P198: 0233CS - 198:3; P175: 0216JT - 175:8). Explicit statements of reformed beliefs and understanding of this kind provided evidence that trainees had developed “more inclusive, discriminating permeable and integrative perspective[s]” (Mezirow, 1990:14) that informed their decisions about practice (P170: 0212VG - 170:3; P194: 0223LH - 194:4).

RQ2 How do interactions with the tutor contribute to trainees’ critical reflections in collaborative online weekly reviews?

Analysis of the data illuminated the ways in which interactions with the tutor in online weekly reviews influenced trainees’ critical reflection (RQ2). Tutors’ comments promoted reflection and core reflection through engagement with and critique of children’s learning and trainees’ own philosophy and beliefs.

Tutors’ comments and questions encouraged trainees to identify a “felt difficulty” arising from children’s learning (P143: 0205LO - 143:1) and to be systematic and rigorous in defining the problem fully (Dewey, 1933:72). There were explicit warnings against omitting Dewey’s (1933) first two steps in reflection and jumping straight to the identification of a solution (P144: 0205VG - 144:1), and some evidence that trainees responded by adding definition of the perceived problem (P157: 0210JT - 157:1; P176: 0216LH - 176:4 ; P192: 0223JC - 192:6). Thus tutors’ comments helped trainees avoid “uncontrolled thinking” based on “mere inference” and promoted “suspended judgment” achieved through “inquiry to determine the nature of the problem before proceeding to attempts at its solution” (Dewey, 1933:74).

To support completion of Dewey’s (1933) process of reflection, tutors encouraged trainees to reason about the implications of the impact of their practice on children’s learning (P143: 0205LO - 143:2; P197: 0223ZB - 197:6) in order to trace out the full consequences of a conjecture. This included the exploration of alternative perspectives from practice (P189: 0219ZB - 189:29) and theory (P173:

0216EW - 173:8) alongside “experimental corroboration” (Dewey, 1933:77) from trainees’ classroom practice that resulted in trainees’ articulation of conclusions and beliefs about the nature of learning and teaching.

Tutors’ comments contributed to trainees’ core reflections by supporting the identification of core qualities, such as sensitivity (P181: 0219CS - 181:9) and flexibility (P195: 0223LO - 195:7) in relation to children’s learning, that are essential to ITE (Korthagen and Vasalos, 2005). They also promoted trainees’ recognition and articulation of their developing professional identities by emphasising the impact of confidence (P88: 0116LB - 88:32) and secure subject knowledge (P192: 0223JC - 192:7) on their practice and asking questions that encouraged trainees to articulate their “self-concept” as a teacher (Korthagen and Vasalos, 2005:53) (P160: 0210LO - 160:8). Tutors encouraged a deeper level of core reflection by asking questions that stimulated identification and critique of the assumptions underlying their beliefs about learning and teaching (P155: 0210EW - 155:4). This was extended by promotion of engagement with literature that would contribute alternative perspectives (P144: 0205VG - 144:2) and therefore “greater understanding of complex situations rather than [accepting] simplistic formulas” (Darling-Hammond, 2000:170).

Tutors’ comments encouraged trainees to recognise and critique existing epistemic distortions that constrained their interpretation and understanding of learning and teaching (Mezirow, 1990). Explicit questions challenged trainees to articulate the ways in which their beliefs had changed as a result of critical reflection on experiences from practice and “justify [their] new perspective through discourse” (Mezirow, 2000:20). This included assumed correlations, such as between a child’s lack of attention and the activities of others (P147: 0208EW - 147:19) or between interactive teaching strategies and children’s learning (P157: 0210JT - 157:9). It also included the questioning of wider assumptions about the nature of learning and teaching, such as curriculum subject divisions (P155: 0210EW - 155:5) and grouping of children according to levels of achievement (P188: 0219VG - 188:10).

RQ3 What are the affordances and constraints of collaborative online documents in relations to trainees' critical reflections?

Analysis of the data illuminated the ways in which the affordances of collaborative online documents contributed to trainees' critical reflection (RQ3). This was evident in the role played by interactions between trainee, tutor and mentor in critical reflections on children's learning and beliefs about the nature of learning and teaching.

The collaborative online document facilitated ongoing interactions between tutor and trainee throughout university and school-based phases of the PGCE that supported development of trainees' understanding of and philosophical beliefs about children's learning. This afforded tutors opportunities to support critical reflection during periods when trainees were focused on learning through practice by promoting the use of theory to analyse the impact of their practice on children's learning (P143: 0205LO - 143:1; P144: 0205VG - 144:2) and develop broader, conceptual beliefs about the nature of learning (P198: 0233CS - 198:1). Thus, the use of collaborative online documents contributed to tutors' ability to fulfil their responsibility "to make it clear how abstract learning and teaching concepts are connected and related to day-to-day practice" through ongoing dialogue rather than being limited to pre- and post-placement interactions (Pridham et al, 2013:60). Hence, the collaborative online document afforded trainees opportunities to "connect philosophical frames to practice" (Sloat et al, 2014:8). Through this process tutors were able to support use of theory that enabled reflection by "providing rival conjectures as to the best course to pursue" (Dewey, 1933:75) and encouraging trainees to "evaluate its worth in relation to the alternatives" (Cordingley, 2015:245) (P143: 0205LO - 143:11). The collaborative online documents enabled tutors' to leave timely comments that responded precisely to trainees' reviews, promoting core reflection through the provision of theory that supported the identification and critique of presuppositions that constrained trainees' understanding (Mezirow, 1990) (P143: 0205LO - 143:4).

Analysis of the data revealed that the collaborative online document afforded a "new space of meaning" (Wegerif, 2011:180), open to the trainee, tutor and mentor, that enabled them to engage with each others' perspectives within a

“reflective discourse” (Mezirow, 2000:10). This suggested that collaborative online documents could afford “dynamic dialogue” (Burden and Kearney, 2017:113) indicative of learning through “conversational aspects” of virtual collaboration (Burden and Kearney, 2017:121). This online interaction facilitated trainees’ responses to tutors’ comments by expanding on the definition of “a felt difficulty” and “possible solution” (Dewey, 1933:72) (P176: 0216LH - 176:4), developing the implications of pedagogic strategies (P157: 0210JT - 157:1) and articulating a tentative conclusion, based on “experimental corroboration” from practice, about the nature of learning (Dewey, 1933:77) (P176: 0216LH - 176:4).

However, despite affording opportunities for articulation and interaction that could support critical reflection, the collaborative online documents were not utilised in all cases to counteract barriers caused by trainees’ dispositions (P189: 0219ZB - 189:2; P77: 0112WF - 77:6; P188: 0219VG - 188:9) or lack of professional discussion with the mentor (P155: 0210EW - 155:1). The underuse of this facility could have been due to the pressures of time and workload on trainees and mentors, so having access to the collaborative online documents in school could be disadvantageous in that they were not able to replicate “the environment of a university [that] is more conducive to the kind of theoretical learning needed by new teachers, which often involves sustained discussion and the sharing of ideas away from the immediate pressures of the workplace” (Orchard and Winch, 2015:27).

How this chapter contributes to theory

Extension of the expansive-restrictive continuum

Analysis of the data revealed that, in an extension to Fuller and Unwin’s (2003:411) “expansive-restrictive continuum”, not only did trainees’ learning benefit from support from “a named individual [who] acts as dedicated support” or mentor (Fuller and Unwin, 2003:411) while they were in school but that the university tutor contributed additional support for critical reflection (Korthagen and Vasalos, 2005). This was achieved through the provision of timely, precise responses to trainees’ reflections in their weekly reviews, including comments and questions that scaffolded the next steps in critical reflection on children’s learning (P143: 0205LO - 143:1), particularly engagement with theory that challenged trainees’ stated

beliefs about and extended their understanding of learning and teaching (P144: 0205VG - 144:2). Support and interaction was ongoing throughout the PGCE programme, not just before and after placements (Pridham et al, 2013), facilitated by the use of collaborative online documents providing a digital habitat (Wenger et al, 2009) conducive to critical reflection.

Additionally, the collaborative online document connected the trainee, tutor and mentor and contributed to a sense of mutual engagement in the common purpose: that of enabling the trainee to become a teacher. It therefore constituted a CoP, in which they lived the “knowledge, not just acquiring it in the abstract”, and operated within a digital habitat (Wenger et al, 2009:7). This enabled the trainee to cross boundaries between the CoPs of school and university, thereby extending his/her professional identity by “moving out of [his/her] own familiar patch to learn by engaging in a different environment” (Hodkinson and Hodkinson, 2005:123). Neither Fuller and Unwin (2003) nor Hodkinson and Hodkinson (2005) include the crossing of the specific boundary between workplace (school) and university in the expansive-restrictive continuum or the facilitative potential of collaborative online documents. However, analysis of the data indicated that collaborative online documents afforded a “new space of meaning” (Wenger, 2011:180) in which the trainee, tutor and mentor could engage with each others’ perspectives within a “reflective discourse” (Mezirow, 2000:10) (P157: 0210JT - 157:1; P176: 0216LH - 176:4).

As a learning environment, the collaborative online document enabled not only the integration of “off the job learning into everyday practice”, in the form of the use of theory to analyse and better understand practice (P143: 0205LO - 143:1; P144: 0205VG - 144:2) but also the integration of learning from practice into critical engagement with theory, using experience from practice to inform understanding or critique of theory (P140: 0205JT - 140:18; P179: 0216KD - 179:18), thus adding definition to the need for “a wider range of learning opportunities” specified as a feature of an expansive environment for teacher education (Hodkinson and Hodkinson, 2005:124). Hence, engagement with theory should be included in an expansive-restrictive continuum for ITE, in order that trainees begin “to be discriminating and not take popular and influential educational theories at face value” (Orchard and Winch, 2015:22). This also affirms the need for critical

reflection, including comparison and exploration of ideas and experiences from theory and practice, to be included in a continuum for ITE in order for trainees to develop “the best teaching practice [that] combines elements of technical know-how with knowledge of research and theory, including a conceptual map of the educational field” (Orchard and Winch, 2015:14) (P170: 0212VG - 170:3; P198: 0233CS - 198:26).

This chapter has documented the findings arising from thematic analysis of the data, comprising the weekly reviews, in relation to the organising theme of ‘Articulating learning and teaching’. Discussion in relation to theory presented in Chapter 2 resulted in the identification of two aspects of critical reflection that were evident through analysis of the data: ‘Considering children’s learning’ and ‘Philosophy and belief’. These are grounded in and supported by illustrative examples from the data. The next chapter, ‘Taking responsibility’, is the last of four findings and discussion chapters in which the organising and basic themes that the researcher constructed during data analysis are defined and explored.

Chapter 7 Findings and discussion - Taking responsibility

Chapter introduction

The organising theme (Attride-Stirling, 2001) 'Taking responsibility' comprises two aspects of trainees' critical reflection that were evident in analysis of the data: 'Developing future practice' and 'Taking responsibility for professional development'. These form the basic themes (Attride-Stirling, 2001) explored in this chapter, definitions of which are included at the start of each section. The process of 'Taking responsibility' includes:

- expression of an intention for or planned change to future practice in the classroom or trainees' own learning;
- proactive management of trainees' own professional development in terms of classroom practice or academic progress.

The basic themes indicate that trainees plan or take action, relating to their classroom practice and professional development. This reflects the ways in which the PGCE programme prepares trainees to be proactive in managing the continual development of their practice through professional development in the NQT year and a future teaching career. This goes beyond "merely [preparing] teachers to survive their first year of teaching" to enabling them to "make good sense of the environment in which they are working and to feel in control of their work" and "provide the basic preparation for more advanced areas of professional practice, including curriculum design, higher order teaching techniques, and the development of assessment processes" (Orchard and Winch, 2015:31).

This is the final of four findings and discussion chapters, in which trainees' processes of critical reflection culminate in professional practice, which in turn leads to further cycles of critical reflection and professional development. In 'Taking responsibility' for these actions, trainees draw upon the processes of critical reflection identified in Chapter 4 Questioning yourself and Chapter 5 Taking

a wider view and actualise the awareness and understanding highlighted in Chapter 6 Articulating learning and teaching.

The chapter also explores the ways in which tutors' comments contributed to trainees' critical reflections in their support for the development of future practice and ability to take responsibility for their own professional development. It also provides a summary of the nature of trainees' critical reflections, the ways in which tutors' comments support this and the affordances and constraints of collaborative online documents in relation to critical reflection. The chapter concludes by identifying ways in which the expansive-restrictive continuum (Fuller and Unwin, 2003) could be extended and tailored for ITE.

Developing future practice

The basic theme 'Developing future practice' captures an aspect of critical reflection in which trainees express an intention or plan a change to future practice in the classroom or in his/her own learning. This could relate to teaching, learning or preparation. 'Developing' includes adapting, extending or changing existing practice or introducing new practices, usually in response to evaluation, feedback and/or the introduction of alternative approaches through taught sessions, observations or theory. This builds on Chapter 4 Questioning yourself - Questioning own practice and Chapter 5 Taking a wider view - Engaging with pedagogy but examines the actions and development that arise as a result of critical reflection on trainees' own practice and conceptual understanding of pedagogy.

'Developing future practice' provides opportunities for more advanced critical reflection as trainees consider possible solutions or courses of action, reason about the implications and seek "experimental corroboration, or verification, of the conjectural idea" (Dewey, 1933:77). It also offers trainees opportunities to identify and examine the assumptions that underlie evaluations of learning and teaching and therefore influence their understanding (Mezirow, 1990). This occurs as trainees evaluate their own teaching and the observed practice of others, critiquing and seeking improvement through the exploration of alternative perspectives from practice, advice and theory. This can also include recognition of trainees' core

qualities and ways of building on these to enable their professional development (Korthagen and Vasalos, 2005). The process of 'Developing future practice' provides opportunities for the identification and critique of epistemic, sociocultural and psychic distortions that can constrain trainees' understanding and practice (Mezirow, 1990). This can enable the reformulation of these limiting presuppositions, resulting in perspective transformations (Mezirow, 1990) that inform trainees' conclusions and decisions about future practice. The process also reveals the nature of and interplay between the affordances of learning environments and opportunities, the support and modelling provided and trainees' individual dispositions (Billett, 2001b) and the significant impact of this on the resulting learning experiences and depth of critical reflection informing the development of future practice.

Trainees' early reflections on pedagogies and practices introduced in university sessions stimulated consideration of their future practice in the classroom. There was evidence of a growing awareness of the ways in which teaching practices could impact on learning.

P1: 0104CC - 1:43 We focused on the uses of [Interactive Whiteboard] IWB in the classroom... I like the idea of being able to showcase different methods in a fun and interactive way. I must make sure that I don't rely too heavily on it however and it is just used as tool rather than a focus. I will need to make sure that the children are using it the majority of the time, rather than myself with my back turned to the class.

Here CC had been introduced to a pedagogical tool, an Interactive Whiteboard (IWB), with the potential to engage children in interactive learning (Harlow, Cowie and Heazlewood, 2010). Her reflection effectively began with Dewey's (1933) third step in the reflective process, by identifying the IWB as a possible solution to the provision of interactive teaching and learning. The use of an IWB to provide interactive teaching and learning was "tentatively entertained" (Dewey, 1933:75) and she began to consider potential positive and negative effects of its use. In doing so, she progressed to Dewey's (1993:75) fourth step of "rational elaboration" by reasoning about the implications of its use, evident in her awareness of the relationship between her teaching and children's learning. CC's reflections were indicative of an expansive learning experience in which she was able to learn about the broad range of uses of IWBs, rather than the use in an individual

classroom or school (Fuller and Unwin, 2003). The expansive learning environment provided a “depth and breadth of subject expertise”, a strength of university involvement in ITE, which also provided “space and time for exploration and critical thinking... where there is permission to ask difficult questions” (McNamara and Murray, 2013:12).

However, CC’s reflection took place during a university-based phase of the PGCE and therefore there was no immediate opportunity for “experimental corroboration” (Dewey, 1933:77) by translating her awareness into classroom practice. This lack of opportunity to integrate off the job learning into everyday practice could constitute a restrictive feature of the learning experience (Hodkinson and Hodkinson, 2005) that prevented CC from completing Dewey’s (1933) reflective process by corroborating her belief that an IWB could facilitate interactive learning. In contrast, JT’s reflections from observation of an aspect of practice enabled her to draw detailed conclusions about how to provide scientific learning opportunities in a play-based early years setting:

P140: 0205JT - 140:18 It was a great time to see evidence of science in the early years setting with the opening of the new garden area at the school... Once I started looking, I realised how much science there is going on... Howe and Davies suggest that recognising where science is in the setting will help in ‘enabling the sorts of play likely to lead towards the development of scientific learning’ (Howe, A & Davies, D. in The Excellence of Play p160). I hope to bring such knowledge to my career as an early years teacher.

JT’s conclusions arose from participation in the practice of an early years setting, with theory enabling her to recognise the significance of her observations, make sense of them and the implications of her new awareness for her future practice (Orchard and Winch, 2015). Reasoning and experiment through observation led her to a “confirmation... so strong as to induce a conclusion” (Dewey, 1933:77) that it is possible and desirable for children to learn about scientific concepts through play-based environments. This illustrated how “classroom experience plays a critical role in the professional formation of teachers” but also that “teachers need to know and understand the principles that underpin these various practices” (Orchard and Winch, 2015:19). This indicated that a more expansive learning experience was provided by the opportunity to engage simultaneously with the

CoPs of the school and university (Fuller and Unwin, 2003), in the form of recommended theory, and the opportunity to “integrate off the job learning into everyday practice” (Hodkinson and Hodkinson, 2005:124).

In contrast to both CC and JT, whose reflections demonstrated significant depth and awareness of an issue, possible solution and implications, there was also substantial evidence of reflections limited to the early stages of Dewey’s (1933) five step process. Intentions for future practice were stated but lacked definition, reasoning or consideration of alternative perspectives. For example, WF’s ‘hope to gain a further understanding of many of the theories we have learnt and practise these in the classroom’ (P15: 0104WF - 15:20) was not realised, with no use of theory in subsequent reviews to add depth to analysis of children’s learning (P77: 0112WF - 77:4) or his own teaching (P62: 0110WF - 62:8). Similarly, GW did not move far beyond the identification of a problem in her statement that ‘at the moment the children are not being sufficiently challenged in my lessons therefore the work set needs to be harder’ (P67: 0112GW - 67:3). She did not consider alternative perspectives or solutions or justify her choice of solution, despite having encountered ideas about learning and differentiation from theory and practice in previous university sessions. In these forms of reflection, the focus was the “craft knowledge” of teaching (Otteson, 2007:41) that can be learned through participation in practice and practical advice alone. In these and other reviews (P84: 0116HM - 84:19) the mentors’ comments suggested or praised a specific approach, directing the trainee towards a solution rather than reifying the process of critical reflection by encouraging conceptual understanding or the exploration of possible alternatives.

Core reflection was evident in trainees’ consideration of multiple reasons for and solutions to the challenges they encountered. This was frequently articulated in the process, scaffolded by the weekly review structure (Appendix 4), of evaluating an aspect of practice or learning, setting a related target and identifying an appropriate action in their future practice to facilitate progress towards the target.

P57: 0110KF - 57:20 When it came to teaching the lesson I found it quite tricky to keep the noise level of the children down. In order to keep this under control I need to make sure that the work they have is challenging enough but not too challenging and that I move the children away from the

area that I am teaching if they are carrying out group tasks to reduce the noise level. I also need to make sure that I check the rest of the class are on task and understand what they are doing... [Target] Become more efficient at managing the rest of the class when I am teaching smaller groups during lessons... [Action] I will make sure that I am able to set the group I am teaching a task to allow me to quickly check on the rest of the class. I will also get the children to move to a different place in the classroom if the noise level becomes too loud.

Although KF's mentor's comment encouraged her to 'follow the school policy in order to maintain control over the different groups within her lesson' (P57: 0110KF - 57:26), the process of core reflection enabled KF to implicitly critique the underlying assumption (Mezirow, 1990) that children's learning and behaviour can be separated. In doing so, KF connected learning and behaviour by drawing on concepts presented in university sessions about learning, differentiation and behaviour, and reoriented the problem-solving process (Mezirow, 1990:12) to articulate precise ways in which she could adapt her future practice to make it more effective. Despite the potentially restrictive nature of the mentor's comments in directing KF towards "strategic compliance with government or school agendas" (Hodkinson and Hodkinson, 2005:124), KF's critically reflective disposition enabled her to go beyond "superficial acceptance" of existing practice and appropriation of practice into her own repertoire (Billett, 2001a:211). She demonstrated agency in making decisions about her future practice that did not simply replicate the ideas and practices of the classroom CoP of which she was part (Billett, 2008). This contributed to a more expansive learning opportunity in which she began to "draw on a well-thought-through and coherent conceptual framework" (Orchard and Winch, 2015:14) to add breadth to her learning (Fuller and Unwin, 2005).

Core reflection was evident in trainees' exploration and critique of the assumptions underlying their interpretation and understanding of teaching and learning experiences. This was apparent in the articulation of connections between theory and practice that informed decisions about future practice.

P138: 0205EW - 138:24 During our teaching in a diverse society lecture this week, we were looking at challenging assumptions. We had the opportunity to look at a range of children's books which did just this... I read a book called 'William's doll', which focused on a young boy who wanted to play with dollies, but his dad refused to buy him one and instead made him play with trains and basketballs. When reading this, it made me think of a

conversation I overheard in school this week... one boy told another child that they could not draw pink trousers on their male alien... I could see that the the girl whose drawing this was was looking at her drawing and considering changing it because of what was said. This made me think of how a child who does like non gender stereotypical toys/clothes would feel if they heard this and although the media is very much to blame for this issue, I think that this could be discussed and challenged using the book I read in my lecture.

Through comparison, the theory and ideas encountered during a university taught session enabled EW to recognise and understand the implications of assumptions about gender stereotypes underlying a conversation between children in school. This constituted a critique of the assumptions underlying both the practice and the theory (Mezirow, 1990). Theory fed into and enriched EW's practical judgement by enabling her to "discern the salient features, frame concrete problems, and challenge and authenticate their unfolding understanding of the situation in which they find themselves" (Winch, Oancea and Orchard, 2015:210). This use of theory informed her future practice by enabling her to make "decisions about appropriate interventions, and immediate practical toolboxes for implementing them", thus offering a practical way to proceed that was warranted by research (Winch, Oancea and Orchard, 2015:210). Conversely, her observation served to emphasise the relevance and importance of the theory introduced in the university session, helping her to begin to make "informed judgments about both its quality and its relevance" (Orchard and Winch, 2015:17).

The nature of the CoPs that trainees encountered during placements also impacted upon opportunities for core reflection to inform future practice. A school environment in which there was an established culture of research and "an explicit focus on teacher learning, as a dimension of normal working practices" (Hodkinson and Hodkinson, 2005:124) provided an expansive learning environment and actively encouraged EH to investigate and critique existing practice.

P123: 0133EH - 123:2 We were also asked to come up with an idea how we can develop some aspect of teaching and apply this to a group of students before collecting, analysing and presenting the results in a PDM in two weeks time. I thought I would carry out some research into how effective the WHAT is in a child's learning. Could it be more effective if instead of giving the child the WHAT to copy from the board, we ask them to consider their own WHAT. I wonder if this would deepen their thought

process when it comes to considering what it is they have learnt as well as eliciting whether what they consider they have learnt is what we intended to teach them. I will trial this over the next week and see what the impact is on the child's work.

Rather than replicating existing practice, EH articulated the process of developing a deeper pedagogical knowledge (Beauchamp et al, 2013) about the impact of sharing learning intentions with children. Not only was EH able to shape her own professional development (Korthagen, Loughran and Russell, 2006; Zeichner and Liston, 2014) but it was also to be shared with staff at the school. Thus it provided further opportunities for her research to influence wider evaluation and development of pedagogical knowledge within the school, contributing to the prevention of stagnation of practice within the CoP (BERA and RSA, 2014).

In contrast, in a review from an earlier placement EH expressed a need to trial alternative approaches to learning behaviour but was guided by her mentor to replicate the existing practice of the classroom (P50: 0110EH - 50:7). This resulted in a restrictive learning experience that was limited to compliance with the school's agenda (Hodkinson and Hodkinson, 2005). EH did not identify or critique the assumptions underlying the nature of classroom management and the need for quiet (Mezirow, 1990). Rather, she was encouraged to seek a “‘quick fix’—a rapid solution for a practical problem—rather than shedding light on the underlying issues” (Korthagen and Vasalos, 2005:48). This resulted in a lack of specific intentions for future practice.

Perspective transformation was evident in trainees' critical reflections on their own actions in the classroom and university. These actions led to critique of the distortions that previously limited trainees' understanding and practice and resulted in the reformulation of constraining presuppositions (Mezirow, 1990). This enabled trainees to draw conclusions and informed decisions about their future practice.

P139: 0205JC - 139:26 There is one particular child in my group... he can become distressed at group and review times... During the week I tried some different approaches with him after discussing with some other members of staff which included enforcing rules with him and sticking to them, and also trying to encourage him gently to participate... I found myself... reflecting on the approaches I have used (and those of others that have worked) and I was not sure that they had, as he was still distressed. I decided to try a different approach which meant that although he did not

have my direct attention at all times in group time, he was sat next to me instead of opposite so that he could reach out if he needed to... He did seem to react better to this but it was only one day... I wonder if this strategy would work if I continue it or not, I will find out next week as he is in my group and I would like to see if this continues to have a somewhat positive impact or not. I will also discuss supporting him with my mentor if I feel this is not working either.

Here JC articulated a series of actions that constituted cycles of critical reflection in which he critiqued sociocultural and epistemic distortions that constrained his understanding (Mezirow, 1990) of how to make learning accessible to an individual child. Drawing on multiple perspectives by evaluating the impact of his own and others' practice, JC critiqued the sociocultural distortion (Mezirow, 1990) that it is a teacher's role to impose structure in order that children conform to the routine of the classroom. In trialling an alternative approach, he recognised the limiting epistemic distortion that there was a single solution (Mezirow, 1990) and sought to base his future practice on a provisional judgement based on evidence from his practice. Indeed he was explicit that his assumptions remained open to question through future evaluation and discussion with his mentor, indicating that he was developing a "disciplined educational knowledge [that] can offer 'warrants for action' and forms of explanation and conjecture, while not offering certainty" (Hordern & Tatto 2018:8). While tentatively justifying his solution, his underlying assumption that this knowledge remained uncertain demonstrated a rare maturity in reasoning and critical reflection (Kitchener and King, 1990).

Through JC's critical reflections and the resulting perspective transformation, he developed a "more inclusive, discriminating, permeable, and integrative perspective" because he was "motivated to better understand the meaning" of these experiences (Mezirow, 1990:14). This indicated that he was positively disposed to learning through critical reflection, enabling him to avoid "superficial acceptance of knowledge" in favour of appropriation through recognition and acceptance of new practice and his "desire and effortful engagement to make it part of [his] own repertoire of understandings, procedures and beliefs" (Billett, 2001a:211). This positive disposition was supported by his mentor, who praised his openness (P139: 0205JC - 139:39) and his tutor who encouraged JC in his dialogic approach to developing his future practice (P139: 0205JC - 139:5). This

was strongly indicative of an invitational (Billett, 2001a) and expansive learning environment which provided JC with status as a learner, dedicated support and not only an alignment of personal and organisational goals but an opportunity for JC's learning to contribute to the development of practice in the school (Fuller and Unwin, 2003).

While JC's comprehensive engagement with cycles of critical reflection was unusual, there was evidence of perspective transformation arising from trainees' actions during practice. LO was inspired to act on feedback from her tutor during an observation that encouraged her to consider ways of motivating the children (P160: 0210LO - 160:7). There was an implicit epistemic distortion (Mezirow, 1990), that sitting quietly and still enabled children to learn, and LO challenged this through her trial of a more active learning approach, resulting in a transformation of her understanding of teaching and learning and clear intentions for future practice. As with JC, this demonstrated an openness and ability to act on constructive criticism, indicating a positive disposition to learning through participation in a CoP (Billett, 2001b). Also in common with JC, LO received feedback from her tutor and mentor that praised her ability to listen and act on feedback and encouraged her to analyse the impact of her teaching (P160: 0210LO - 160:8; P160: 0210LO - 160:23) and become more independent in developing her ideas for making learning engaging and accessible for all children in her lessons (P160: 0210LO - 160:24). This indicated an expansive environment in which LO's status as a learner was recognised and supported by dedicated individuals who provided guidance that enabled her "gradual transition to full participation" in classroom practice (Fuller and Unwin, 2003:411). However the depth of her critical reflection was limited by her contentment with the single strategy she employed, rather than continuing the cycle of evaluation and development to broaden her understanding of factors that motivate children in their learning (Kitchener and King, 1990), despite the invitational nature of the workplace learning environment and support and the eagerness of the trainee (Billett, 2001b).

Analysis of the data revealed that the university played a role in stimulating critical reflection through the introduction of learning practices and that these inspired

intentions for future practice in schools. The use of collaborative online documents inspired NH to reassess her understanding of learning.

P105: 0120NH - 105:8 I'm having a very different academic experience now that I have fully embraced the wonders of google docs, and I find it thrilling that I was able to share synopses of useful texts with the rest of the tutor group in this way. The possibilities for working with children in this way are endless - I hope to utilise the collaborative aspect to have children work in groups but I don't see why it couldn't work as a communicative tool with parents too...

Through the use of collaborative online documents for writing weekly reviews, a course requirement of the PGCE, NH developed an understanding of their affordances that caused her to reconsider the epistemic distortion (Mezirow, 1990) that constrained her understanding of learning to one of an individual activity. This resulted in a perspective transformation that enabled her to realise ways in which a learner can use technology to have agency in his/her own learning and to learn collaboratively with peers (Burden and Kearney, 2017). This was an idea encountered “away from the immediate pressures of the workplace” that enabled NH to identify the salient features and implications for practice (Orchard and Winch, 2015:27). It was the university that made the “material resource” of Google Docs available to NH and provided “specialist advice” about how they could be used in relation to teaching and learning (Orchard and Winch, 2015:28). Thus, the university provided an expansive learning environment in which NH was able to make connections between multiple CoPs (Fuller and Unwin, 2003), of school and university, that transformed her understanding of teaching and learning in both contexts. NH’s ability to consider the tool from a new perspective and to allow this to reform her view of learning indicated an open disposition approaching dialogic, in which her ideas and understanding expanded and diverged rather than converged on a single truth (Wegerif, 2011). By embracing the invitational qualities afforded by the university (Billett, 2001a), she was able to engage in advanced critical reflection across contexts (Kitchener and King, 1990) that resulted in intentions for innovative future practice in her own learning and in school.

Taking responsibility for professional development

The basic theme 'Taking responsibility for professional development' captures the ways in which trainees take a proactive role in managing their own professional development. It includes acting on feedback, recognising progress and areas for development, target setting and action planning in relation to both classroom practice and academic study. This builds on examination of their own learning and practice (Chapter 4 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 5 Taking a wider view), but here this informs decisions and actions supporting trainees' ongoing professional development.

Taking responsibility for their professional development provided opportunities for trainees to engage in the early stages of Dewey's (1933) process of reflection by raising questions or problems (step one) and seeking further definition (step two). This was evident when trainees either sought to extend theoretical knowledge by exploring practice or used theory to analyse practice, revealing (step one) and further defining problems (step two). As trainees engaged in more sustained cycles of professional development, they engaged in deeper levels of critical reflection in terms of detail and analysis, resulting in the suggestion of solutions (step three), exploration of implications (step four) and the articulation of conclusions (step five) about teaching and learning (Dewey, 1993). This was enabled by expansive learning environments, including a dedicated and engaged mentor, that supported gradual transition (Fuller and Unwin, 2003) from the periphery of classroom practice to fuller participation (Lave and Wenger, 1991) that included the process of professional development through self-evaluation.

Adopting a methodical approach to professional development that involved evaluation, target setting and action planning, trainees began to identify the core qualities that enabled their development and led to articulation of their professional identity (Korthagen and Vasalos, 2005). As they engaged in longer term cycles of professional development and looked beyond ITE to an ongoing career in education, they were able to explore the mission of a teacher on a "transpersonal level": the purpose and significance in relation to others (Korthagen and Vasalos, 2005:53), thereby accessing the deepest levels of critical reflection. A methodical

approach to professional development also provided opportunities for trainees to articulate critical incidents, both in practice in school and through encounters with theory in university. These caused trainees to identify and question presuppositions underlying their understanding of teaching and learning (Mezirow, 1990) and were enhanced by mentors' support for and modelling of this aspect of core reflection, particularly when there was a culture of critical reflection and/or research in placement schools.

University sessions and participation in classroom practice provided critical incidents (Brookfield, 1990) that inspired trainees to take responsibility for their professional development through undertaking independent research and evaluating the impact of their teaching in order to enhance and extend their understanding. This facilitated the identification and critique of distortions that constrained their understanding and contributed to perspective transformation regarding teaching and learning (Mezirow, 1990).

Analysis of the data revealed that, transition from the initial university-based phase of the programme into the first school placement stimulated recognition of areas for development in trainees' learning and practice. Consequently they embarked on steps one and two of Dewey's (1933:72) process of reflection by identifying and defining a challenge or "felt difficulty", also demonstrating an awareness of their own professional development needs.

P8: 0104KB - 8:10 I feel like my subject knowledge is increasing week by week with the different tasks and lectures during the week.... I am looking forward to going into school next week and being able to start to be aware of the different things we have learnt in the classrooms and building on my teaching standards while in school over the next few months... [Target] Develop and demonstrate a clear understanding of systematic synthetic phonics... [Action] Observe the class when taking these phonics sessions to help get a secure understanding of it so I build on it and be able to join in as well as working towards my Phonics Tasks for English.

In following the 'Target/Action' structure of the weekly review template, KB demonstrated awareness of her own learning and appropriate next steps in her professional development in relation to knowledge of the curriculum and associated pedagogy. She recognised ways in which she could build on what she had learned in university, by taking advantage of learning opportunities in school

and how this would feed into development of both her own early classroom practice and academic tasks. Conversely, there was also evidence that trainees applied theory that they encountered in university, for example theories relating to learning and spelling, to enhance understanding of learning and teaching in practice (P9: 0104KF - 9:3; P46: 0108SS - 46:13). Both approaches constituted tentative engagement in the third and fourth of Dewey's (1933) steps of reflection by suggesting a solution, the observation of others' teaching, and the implications, a growing ability to contribute in the classroom and complete academic tasks.

These examples indicated that, at this early stage of the PGCE, trainees regarded both university and school-based learning as "accepted, legitimate activity" (Fuller et al, 2005:66) and considered theoretical perspectives alongside practical learning experiences in order to enrich their professional development (Cordingley, 2013). During university sessions critical engagement with both theory and examples from practice was emphasised, reflecting the view that "the best teaching practice combines elements of technical know-how with knowledge of research and theory, including a conceptual map of the educational field" (Orchard and Winch, 2015:14). It may be that transition periods, encompassing university and school-based phases of the PGCE, afford these expansive learning opportunities as trainees take part in multiple CoPs (university and school), encounter a broad range of learning experiences (formal and informal) and have recognised status as learners in both CoPs (Fuller and Unwin, 2003).

As the trainees' school placements progressed, awareness of a cycle of professional development became evident in evaluations of their own practice, which informed targets and actions over longer periods of time. There was evidence of more confident engagement in Dewey's (1933) process of reflection in relation to the development and understanding of their own practice.

P74: 0112NH - 74:4 [Previous target] Know when and how to differentiate appropriately, using approaches which enable pupils to be taught effectively. [Evaluation]... I planned to target my support more towards the lower-ability table while the children were working, and was able to do this. I did find that I neglected the higher-ability children to some extent initially, but made sure to spend some time with them once I was happy that the LA children were on task... [Target] Planning to appropriately differentiate and annotate plans to address individual pupils' needs... [Action]... I have

decided to differentiate broadly, with differing texts for different groups of children as well as different questions, and to have targeted support for particular children, and will address this in my planning. Thus I will aim to cover the distinct needs of our higher ability children and those children who need closer support, motivation and reassurance.

NH's evaluation of her teaching resulted in deeper critical reflection than KB (above) in the level of detail in the definition of the problem, how to differentiate to provide support for different groups of children in the class, possible solutions, planning for provision of tailored resources, questions and support, and implications, providing appropriate levels of challenge and support for all children in the class. Thus, she fulfilled Dewey's (1933) first four steps of reflection more comprehensively and took responsibility for a more complex process of professional development. This took place within an expansive learning environment in which she was able to make a gradual transition towards full participation (Fuller and Unwin, 2003) in classroom teaching, here moving on from observing and working with groups to planning and teaching. In addition, dedicated support for NH's ability to take responsibility for her professional development was evident in her mentor's comment that she 'responded well to targets that were set from last week' (P74: 0112NH - 74:14).

Similar, and in some cases more extended, cycles of professional development resulted in trainees completing Dewey's (1933) final step of reflection by drawing conclusions about the impact of their developing practice. After two cycles of evaluating her own practice, considering feedback, target setting and identifying actions, LO began to draw conclusions about the relationship between children's engagement in learning and their behaviour (P143: 0205LO - 143:14), thus completing Dewey's (1933) reflective process. However, at an early stage of the PGCE, her ability to take control of her professional development was reliant on feedback from her mentor and tutor, both of whom encouraged critical reflection through questions and comments focusing on LO's reasoning and feelings and why and how the children responded (Korthagen and Vasalos, 2005). Despite the expansive nature of the support from her mentor and tutor (Fuller and Unwin, 2003) that scaffolded critical reflection, there was no evidence that LO was able to engage in core reflection at this stage by exploring or critiquing her core qualities

as a teacher (Korthagen and Vasalos, 2005) or considering the assumptions underlying her practice or evaluation (Mezirow, 1990).

Core reflection was evident in trainees' identification of their presuppositions about teaching and learning and questioning of these (Mezirow, 1990) in the light of experience from classroom practice. The articulation of this process revealed that trainees were able to take responsibility for their professional development by setting and acting on targets arising from their practice and evaluating their own teaching and progress, again, following the structure of the university's weekly review document to produce a "critical incident" (Brookfield, 1990:179).

P72: 0112LB - 72:1 [Target] Set goals that challenge pupils of all abilities, backgrounds and dispositions... [Evaluation]... I planned with the ability of the class in mind, considering their prior knowledge and potential misconceptions. However, I am aware that I still need to come up with strategies to differentiate for higher and lower abilities within the class, and as such this will be an ongoing target over the next few weeks of my placement, and will be reflected in my planning.

Here LB's assumption that children learn at a consistent rate was brought into question by her experience of teaching a Literacy lesson, which revealed the need for differentiated teaching in order to meet the range of learning needs. Thus she engaged in core reflection by recognising her own assumption, analysing it by comparing it to the reality of classroom experience and beginning to revise her assumption in order to develop more inclusive practice (Brookfield, 1990). This enabled her to take responsibility for her professional development over the longer term by using this critical incident to inform an ongoing target. Both LB's critical reflection and her mentor's comment (P72: 0112LB - 72:14) were indicative of an expansive learning environment through her "gradual transition to full participation" (Fuller and Unwin, 2003:411), in this case her increasing teaching load with time and space for evaluation and reflection. The exchange also suggested that there was recognition of LB's status as a learner and that this was supported by tailored, dedicated feedback, providing further evidence of the expansive nature of the learning opportunities afforded by participation in the CoP (Fuller and Unwin, 2003).

There was evidence that trainees' core reflections were promoted by mentors' comments that reified and encouraged critical reflection (P87: 0116 - 87:18; P144: 0205VG - 144:27; P170: 0212VG 0 170:17). By explicitly praising critical reflection and evaluation and recommending specific questions and approaches, mentors contributed to expansive learning opportunities by providing reification of the process of learning to be a teacher (Fuller and Unwin, 2003). In doing so, they provided a model of critical reflection that supported the trainee in taking responsibility for his/her own professional development and emphasised critical reflection as an intrinsic part of the professional identity of a teacher (Korthagen and Vasalos, 2005). There was evidence that when critical reflection was not reified through mentors' comments, this was a restrictive factor (Fuller and Unwin, 2003) and trainees' reflections lacked criticality and professional development was limited to the replication of existing practice (P150: 0208LH - 150:5).

Analysis of the data revealed that the theory and ideas encountered in university taught sessions stimulated critical reflection on the premises governing trainees' perceptions of teaching and learning (Mezirow, 1990). It was evident that trainees actively engaged with the content of sessions in order to build their understanding of teaching and learning and enhance their professional development.

P104: 0120LM - 104:11 Before going into teaching, I... felt that children should never be grouped by ability... I believe that children should be used more as teachers in the classroom, so if they are sat next to someone who is struggling, they can then explain it to them. I feel that this portrays a higher level of learning. Anyone can understand a topic, but teaching it to someone else is much harder... [Target] Research educators views on self-differentiation... [Action] Use library... Use online resources (ebooks).

In articulating the ways in which a university mathematics session influenced his existing beliefs about pedagogical approaches to differentiation, LM demonstrated a willingness to re-examine his previous assumptions in order to support and clarify what was essentially a "real, ill-structured problem" (Kitchener and King, 1990:164) or "common sense or intuitive" judgement (Orchard and Winch, 2015:14). In seeking "a more reliable basis for judgment" supported by theory and evidence from research (Orchard and Winch, 2015:14), LM independently evaluated and compared evidence from across different contexts. Thus he took

responsibility for his professional development and progressed from stage four to six of Kitchener and King's (1990) reflective judgment model.

Critical reflection involving the evaluation and comparison of evidence from practice and theory to find solutions and develop understanding was typical of "advanced graduate students" (Kitchener and King, 1990:165). JT articulated this process of professional development explicitly:

P149: 0208JT - 149:11 [Target] Build understanding of child development theories and how this impacts teaching... [Action] Engage in BEYTC training session; pre & follow-up tasks, and reflect on how this knowledge impacts my experience in the school - compare it with knowledge developed last term, and if relevant, use to aid in my assignment.

JT sought a range of alternative perspectives from theory and practice to inform her professional development. She used this to critique her existing understanding through comparison and to inform pedagogical decisions, here regarding child development and in a later review (P201: 0233JT - 201:17) about the role of questioning in scaffolding children's learning. These alternative perspectives provided a "theoretical compass to guide and inform professional decision-making" (Sloat et al, 2014:2) and the weekly review afforded an effective means for trainees to "connect philosophical frames to practice" (Sloat et al, 2014:8). This depth of critical reflection was enabled by an expansive learning environment in which trainees could not only participate but make connections across multiple CoPs in schools and university (Fuller and Unwin, 2003) and integrate learning across the CoPs, not only in one direction from university to school (Hodkinson and Hodkinson, 2005).

Placement schools also contributed expansive learning opportunities for trainees to extend their critical reflection further by engaging in research into their own practice, increasing their awareness and ability to direct their own professional development (Korthagen, Loughran and Russell, 2006).

P200: 0233JC - 200:10 My other target was to plan a lesson based on research - I have decided to plan a lesson that is based around Lego therapy theory... I am interested to see how well this works for the child I have been working on an IEP for and other children - I will find out next week.

JC demonstrated his willingness to engage in core reflection by critiquing his assumption (Mezirow, 1990) that Lego therapy could support children's social interactions through evaluation of the impact of putting the theory into practice. In addition to enriching his core reflection, if JC's research showed that Lego therapy was effective, it would contribute to his technical knowledge by providing a warrant for future action, decisions and practice (Winch, Oancea and Orchard, 2015). JC's mentor's comment indicated further expansive factors by encouraging the use of research to inform practice and praising JC's clearly articulated rationale, while also questioning the level of prescription in the approach and its adaptability to other children and use by other teachers. While the dedicated support was clearly evident (Fuller and Unwin, 2003), JC's mentor also demonstrated "an explicit focus on teacher learning, as a dimension of normal working practices" (Hodkinson and Hodkinson, 2005:124). This enabled JC to take responsibility for his own professional development and enabled him to contribute to the development of new practices within the placement school, therefore exceeding the alignment of personal and organisation learning goals (Fuller and Unwin, 2003).

Analysis of the data revealed that university taught sessions introduced new knowledge and inspired trainees to take responsibility for their professional development by carrying out additional independent, more sustained research. There was evidence that this action prompted the revelation and critique of distortions that influenced trainees' presuppositions about teaching and learning, resulting in perspective transformation that enabled them to "better understand the meaning of their experience" (Mezirow, 1990:14).

P94: 0120CH - 94:3 Additionally I have also made good progress in developing secure knowledge of computing, to foster and maintain pupils' interest in the subject, and address misunderstandings (S3a). My further research has taught me the value creativity and problem solving in this area. I have also begun to learn to code, using the Khan Academy. Although this target has been met I will continue to develop this new skill.

P109: 0123CH - 109:3 I am progressing well in my knowledge in this area [programming]. I have begun to learn logo and research has shown me how I might use it with pupils.

Having elected to engage positively with the university session (Billett, 2001a) and having been inspired to extend her learning beyond the scope of the session using

recommended materials, CH developed her knowledge of computing education and questioned an implicit epistemic distortion (Mezirow, 1990) about the nature of learning in this area: that it lacked opportunities for children to develop or use creative and problem solving skills. This transformation broadened her range of experience and opened a new perspective on learning (Mezirow, 1990), motivating her to extend her professional development still further by expanding her knowledge of learning tools and considering how to integrate them into her practice. The university session provided both “subject knowledge enhancement” and time, space, materials and opportunity that stimulated critical reflection (Orchard and Winch, 2015:28). Thus it contributed expansive learning opportunities to participate in learning CoPs outside of the school environment (namely the university tutor group and online communities), provided a breadth of learning experiences and “planned time off-the-job... for reflection” (Fuller and Unwin, 2003:411).

Analysis of the data indicated that participation in classroom practice also inspired the critique of epistemic distortions about the nature of learning and the impact of teaching (Mezirow, 1990) and that trainees set targets and actions for their professional development as a result of this critical reflection.

P144: 0205VG - 144:19 I think I am really beginning to understand that there are a whole range of things that can affect how a child approaches learning. That sometimes it does depend on what the teacher is like, whether they are encouraging, whether they praise results or effort. There are also a lot of very physical things to consider, for example where children are sitting and whether they get easily distracted by others around them. I have discovered that some children need a little more encouragement to get them started and struggle to get into their writing. Today I made sure to speak to him a little bit more before expecting him to write his ideas down, he seems to need to verbalise this ideas and get excited about what he knows. Differentiation is an effective way of overcoming potential barriers like nervousness or panic towards work but can also be used to focus children's thinking so that they do not spend too much time on setting their work out and can actually answer the question... [Target] Is able to guide pupils to reflect on the progress they have made and their emerging needs... [Action] I am already giving praise for effort and thinking and am now going to build on this to include include guidance on how they could improve and build on their learning.

Here, VG's reflections on factors that inhibit or enable children's learning suggested a perspective transformation (Mezirow, 1990) from a view of learning as a relatively simple process to one in which it is complex and significantly impacted by the teacher's choices about the environment and pedagogy. VG's disposition enabled her to exploit opportunities to create her own learning experiences, demonstrating commitment to her own learning (Hodkinson et al, 2004). Despite the Teachers' Standards (DfE, 2011) embodying a view of ITE as the "acquisition of predetermined skills, knowledge and working practices" (Hodkinson et al, 2004:22), VG took advantage of a more expansive learning opportunity to align her own professional development goals with the government agenda (Hodkinson and Hodkinson, 2005). This was reinforced by her mentor's comment in which she praised VG's reflections for being detailed and supported by reading and research (P144: 0205VG - 144:27), indicating that her placement classroom provided "rich learning outcomes through... its readiness to afford opportunities and support for learning" (Billett, 2001:210), including valuing critical reflection. "The way workplaces afford opportunities for learning and how individuals elect to engage in activities and with the support and guidance provided by the workplace" (Billett, 2001a:209) proved to be influential in facilitating trainees' ability to take responsibility for their professional development, including engagement with critical reflection on practice, theory and policy that resulted in perspective transformation in relation to their understanding of teaching and learning (P157: 0210JT - 157:11; P194: 0223LH - 194:7; P194: 0223LH - 194:30).

Tutor interactions supporting taking responsibility

The basic theme 'Tutor interactions supporting taking responsibility' captures the ways in which tutors' comments encourage trainees to articulate decisions about future classroom practice and take responsibility for their own professional development. 'Supporting' includes recognition of critical reflection, constructive criticism, questioning and guidance. This section arises from the previous sections of this chapter, as the comments considered respond to trainees' intentions for future practice and their own professional development. It begins to build understanding of the contribution made to critical reflection by tutors' comments

regarding trainees' ability to take responsibility for their own future practice and professional development.

Tutor interactions supporting developing future practice

As trainees' reflections informed intentions for and decisions about their future classroom practice, tutors' comments encouraged them to engage in thorough reasoning including seeking alternative perspectives and corroboration from relevant theory (Dewey, 1933). For example, LH's tutor provided a link to an ebook to support her search for solutions to the problem of supporting children as they returned to the class from a nurture group (P168: 0212LH - 168:5), thereby facilitating step three of Dewey's (1933) process of reflection. Whereas in other reviews LH's tutor directed her to literature that would challenge her assumptions (Mezirow, 1990) about the teaching of reading, based on her observations in school (P142: 0205LH - 142:21) and clarify and extend her understanding of how to provide meaningful experiences of writing for children (P194: 0223LH - 194:14), thereby encouraging increased rigour in LH's reflections and guiding her towards core reflection. The collaborative online documents afforded a dialogue that provided timely, targeted support for critical reflection whether the trainee was in school or at university (Pridham et al, 2013). The online environment also contributed to expansive learning opportunities by facilitating access to a breadth of learning experiences beyond those available in the placement classroom, effectively enabling the tutor to scaffold the trainee's participation in the CoPs of school and university simultaneously (Fuller and Unwin, 2003).

Tutors' comments encouraged core reflection by reinforcing trainees' identification of core qualities and suggesting how these could be used to inform the development of future practice (Korthagen and Vasalos, 2005).

P139: 0205JC - 139:9 You have made sensitive observations and are tuning into children's needs here, JC. Your reflections are very worthy of discussion with your mentor in order to further plan to support the individual you describe here.

Here JC's tutor focused on the ideal situation rather than any limiting factors to promote the "actualisation of core qualities" and further experimentation to develop effective practice (Korthagen and Vasalos, 2005:57). In doing so, she also

encouraged JC to “engage fully and freely in discourse to validate [his] beliefs” (Mezirow, 2000:25). This indicated that the tutor valued a dialogic approach to critical reflection by encouraging JC to seek and explore alternative perspectives (Wegerif, 2011), thereby discouraging him from settling for a single “recipe for ‘what works’” (Winch, Oancea and Orchard, 2015:210) or becoming reliant on “cookie-cutter routines for teaching” (Darling-Hammond, 2000:170). Rather, it was concurrent with a view of the professional teacher as one who continues to reflect critically on “the nature of learning and the effects of teaching” (Darling-Hammond, 2000:170).

Tutor interactions supporting taking responsibility for professional development

Tutors’ comments encouraged trainees to take responsibility for their own professional development by engaging in critical reflection, emphasising the importance of adopting a systematic, rigorous approach to “acquiring the attitude of suspended conclusion, and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur. To maintain the state of doubt and to carry on systematic and protracted inquiry” (Dewey, 1933:13). The importance of setting a clear target for professional development was affirmed by tutors, reinforcing the importance of the first two steps of Dewey’s (1933) process of reflection: identifying a problem or challenge and providing further definition and context, thus avoiding “uncontrolled thinking” that result in “more or less random” suggested solutions (Dewey, 1933:74). JT’s tutor warned against leaping to a solution without first defining the issue to be addressed: ‘Be careful of writing actions rather than targets’ (P140: 0205JT - 140:7). Whereas, in response to a similar lack of clarity, CS’s tutor recommended that she take advantage of the expansive learning opportunity afforded by the presence of her mentor to provide “dedicated support” (Fuller and Unwin, 2003:411): ‘This is fairly random. I suggest a focused discussion with JD to give you some starting points’ (P154: 0210CS - 154:23).

The third step in Dewey’s reflective process, the “occurrence of a suggested explanation or possible solution” (Dewey, 1933:75), was facilitated by the identification of actions to support targets in the weekly review template (Appendix

4). This was reinforced by tutors' comments, such as 'How will you address this, JC?' (P156: 0210JC - 156:15) and 'Again, rather than describing what you have been advised, reflect on how you will take action' (P169: 0212LO - 169:4), that promoted trainees taking responsibility for this and thus their own professional development. Encouragement to seek "a variety of alternative suggestions" (Dewey, 1933:75) emphasised the importance of only tentatively accepting possible solutions through comments such as 'Any more actions you might take?' (P166: 0212JT - 166:17).

Tutors' comments encouraged trainees to engage with theory to support their professional development and inform conclusions and decision making about teaching and learning, constituting Dewey's final steps in reflection: "rational elaboration" of implications (Dewey, 1933:75) and "experimental corroboration" leading to a concluding belief (Dewey, 1933:77). However, rather than directing trainees to specific literature, tutors promoted independence in trainees' location of appropriate theory (P203: 0233LO - 203:1), thereby enabling them to take responsibility for using theory to inform their practice and support their own professional development. Comments such as 'Consider the relationship between your reading for Assignment 2 and your experience of AfL in the classroom. How does the theory relate to practice?' (P179: 0216KD - 179:18) supported a broader view of professional development that connected the CoPs of placement schools and university and highlighted the value of engagement with the academic element of ITE qualification (Fuller and Unwin, 2003). Implicit in this comment was the recognition of an expansive environment for professional development that afforded trainees opportunities to make connections between their academic tasks and developing practice and "extend professional identity through boundary crossing" beyond the school CoP (Hodkinson and Hodkinson, 2005:124).

Tutors encouraged trainees to take responsibility for their professional development through core reflection. For example, JF's tutor supported his recognition and use of the core quality of receptivity to enable professional development.

P40: 0108JF - 40:23 ... you are using criticism in a constructive way to develop practice

P55: 0110JF - 55:31 Your mentor makes a really useful point in that you must learn from positive feedback alongside constructive criticism, as this is the way you will develop your practice

In doing so, the tutor enabled JF to “to focus on the ideal situation as well as the limiting factors” and demonstrated that she possessed “among the most important skills of a supervisor wanting to promote core reflection... the ability to recognize and promote the development of core qualities” (Korthagen and Vasalos, 2005:59). By highlighting the importance of this process to professional development, the tutor’s comment afforded JF an expansive learning opportunity by reifying this aspect of the learning process (Fuller and Unwin, 2003). By emphasising core qualities that lie within the trainee, rather than “basic competencies” that “are acquired from the outside” (Korthagen and Vasalos, 2005:56), the tutor guided JF towards a more self-reliant approach to personal and professional development that went beyond government priorities (Hodkinson and Hodkinson, 2005) embodied in the Teachers’ Standards (DfE, 2011).

LO’s tutor posed questions focusing on emotions and explained how this could stimulate core reflection, through the identification of underlying assumptions (Mezirow, 1990), that would enable her to take responsibility for her own professional development.

P143: 0205LO - 143:3 It would be useful for you to reflect on the poignant moments you experienced in the two sessions. For instance, how did you feel? On reflection were there moments where you felt confident, uncomfortable etc and what triggered them?... Considering your learning more deeply will enable you to move from describing events to understanding your own assumptions which in turn will support your development.

By giving “affective aspects... balanced attention in reflection processes”, LO’s tutor encouraged her to “activate the process of core reflection” and thereby “make contact with the core qualities which are of importance at that particular moment” (Korthagen and Vasalos, 2005:68). This prioritisation of affective aspects of learning in ITE focused on LO’s personal development, rather than purely meeting the Teachers’ Standards (DfE, 2011), and consequently it promoted an expansive learning experience (Fuller and Unwin, 2003).

Chapter summary

How this chapter addresses the research questions

RQ1 What is the nature of critical reflection in trainee teachers' collaborative online weekly reviews?

Analysis of the data illuminated the nature of critical reflection in trainees' online weekly reviews (RQ1). There was evidence of reflection, core reflection and transformation in trainees' exploration of intentions for future practice and their own professional development.

Reflection occurred during trainees' exploration of intentions for their future practice and professional development. While university sessions stimulated reflection that informed intentions for future classroom practice, this tended to be limited to steps one to four of Dewey's (1933:77) reflective process, lacking the opportunity to seek "experimental corroboration, or verification, of the conjectural idea" by putting ideas into action in the classroom (P1: 0104CC - 1:43), highlighting a potentially restrictive feature of experiences in which school and university-based learning are not integrated (Hodkinson and Hodkinson, 2005). Although in contrast, once school placements began, theory enabled trainees to recognise significant features and principles of teaching and learning in their reflections on practice (Orchard and Winch, 2015), promoted by simultaneous participation in the CoPs of school and university (Fuller and Unwin, 2003) (P140: 0205JT - 140:18). However there was evidence that, unless mentors encouraged trainees to pursue critical reflection by exploring alternative perspectives, there was a tendency for reflection to be limited to the identification and definition of a problem (Dewey, 1933) (P62: 0110WF - 62:8; P67: 0112GW - 67:3; P77: 0112WF - 77:4). By unquestioningly following the practical advice of mentors, the focus was confined to "craft knowledge" of teaching (Otteson, 2007:41) rather than contributing to the "conceptual knowledge and understanding [that] have a foundational role to play in preparing teachers for teaching" (Orchard and Winch, 2015:19) (P84: 0116HM - 84:19; P87: 0116KF - 87:13).

In taking responsibility for their own professional development, trainees completed Dewey's (1933) reflective process (P143: 0205LO - 143:14), including deeper analysis involving the extension of understanding of theory through exploration in practice (P8: 0104KB - 8:10) and the use of theory to illuminate or define aspects of practice (P9: 0104KF - 9:3; P46: 0108SS - 46:13). A key factor facilitating this process was a dedicated mentor who encouraged trainees to take responsibility for their professional development and supported their "gradual transition to full participation" in classroom practice (Fuller and Unwin, 2003:411) (P74: 0112NH - 74:4).

Core reflection occurred during trainees' exploration of intentions for future practice and professional development. While it was evident that some trainees explored "alternative methods of action" (Korthagen et al, 2001:7), this was not always supported by mentors, who could be a restrictive influence on learning by recommending compliance with school policy as the only course of action (Hodkinson and Hodkinson, 2005) (P50: 0110EH - 50:7; P57: 0110KF - 57:26). Core reflection then relied upon the trainee's individual disposition to enable rejection of "superficial acceptance of knowledge" or the appropriation of practice into their own repertoire (Billett, 2001a:211) (P57: 0110KF - 57:20) in favour of drawing on "a well-thought-through and coherent conceptual framework" to inform decisions about classroom practice (Orchard and Winch, 2015:14). Conversely, schools with an established culture of ongoing teacher learning provided an expansive environment that actively encouraged the critique of existing practice (P123: 0133EH - 123:2; P200: 0233JC - 200:10; P200: 0233JC - 200:4).

Transformation occurred during trainees' exploration of intentions for future practice and professional development. Experiences from participation in a classroom CoP prompted trainees to question psychic, sociocultural and epistemic distortions and the resulting perspective transformations (Mezirow, 1990) influenced their future practice (P139: 0205JC - 139:26; P144: 0205VG - 144:19). However, this could be limited by the acceptance of a single solution or strategy (P160:0210LO - 160:7) rather than multiple cycles of critical reflection that could result in a "reasonable warrant for decisions" (Winch, Oancea and Orchard, 2015:210) (P139: 0205JC - 139:26). The willingness to accept that understanding

remains uncertain and open to question demonstrated mature reasoning and deeper critical reflection (Kitchener and King, 1990).

University sessions were also instrumental in stimulating the critique of epistemic distortions through the presentation, exploration and discussion of alternative perspectives on learning and pedagogy, leading trainees to “better understand the meaning of their experience[s]” (Mezirow, 1990:14) (P105: 0120NH - 105:8). This triggered critical incidents (Brookfield, 1990) that enabled them to take action in their own professional development through research and evaluation of practice (P94: 0120CH - 94:3; P109: 0123CH - 109:3), confirming the role played by universities in the development of both subject and conceptual knowledge underpinning teaching and learning (Orchard and Winch, 2015).

RQ2 How do interactions with the tutor contribute to trainees’ critical reflections in collaborative online weekly reviews?

Analysis of the data illuminated the ways in which interactions with the tutor in online weekly reviews influenced trainees’ critical reflection (RQ2). Tutors’ comments promoted reflection and core reflection through engagement with and critique of trainees’ intentions for future practice and their own professional development.

Tutors emphasised the importance of clearly identifying and defining a “perplexity or problem” (Dewey, 1933:72) by reminding trainees that targets and actions for professional development must be precise (P154: 0210CS - 154:23) and distinct (P140: 0205JT - 140:7). Dewey’s (1933) third step in reflection, the suggestion of a solution, was supported through tutors’ questions requesting additional detail about actions to support trainees’ targets for their professional development (P156: 0210JC - 156:15; P169: 212LO - 169:4). Trainees were encouraged to take responsibility for seeking “a variety of alternative suggestions” (Dewey, 1933:75), through discussion with mentors (P154: 0210CS - 154:23), engagement with theory (P168: 0212LH - 168:5) and independent research to support professional development (P203: 0233LO - 203:1). Tutors highlighted the contribution that engagement with theory could make to trainees’ professional development, by promoting its use to support Dewey’s final steps of reflection: “rational elaboration” (Dewey, 1933:75) and “experimental corroboration” (Dewey, 1933:77). Tutors’

comments encouraged trainees to compare theory with experience of practice (P179: 0216KD - 179:18), thereby prompting them to enrich their professional development and “extend professional identity through boundary crossing” (Hodkinson and Hodkinson, 2005:124) between academic and practice-based CoPs.

Tutors supported core reflection through the suggestion of theory that would challenge trainees’ stated assumptions (Mezirow, 1990) about learning and teaching and inform their future practice (P142: 0205LH - 142:21). They also contributed to trainees’ core reflection by supporting the identification of core qualities, such as sensitivity and responsiveness (P139: 0205JC - 139:9), thus encouraging trainees to focus on the “ideal situation” (Korthagen and Vasalos, 2005:54) in which they are able to develop effective practice. Discussion with the mentor was encouraged (P139: 0205JC - 139:9) as a key source of constructive criticism (P55: 0110JF - 55:31) and a means to engage in “reflective discourse” (Mezirow, 2000:10). Thereby, tutors encouraged a dialogic approach to professional development by emphasising the importance of exploring alternative perspectives (Wegerif, 2011) rather than adopting fixed ideas about what works (Winch, Oancea and Orchard, 2015).

RQ3 What are the affordances and constraints of collaborative online documents in relations to trainees’ critical reflections?

Analysis of the data illuminated the ways in which the affordances of collaborative online documents contributed to trainees’ critical reflection (RQ3). This was evident in the role played by interactions between trainee, tutor and mentor in critical reflections on their intentions for future practice and their own professional development.

The collaborative online document facilitated ongoing interactions between tutor and trainee throughout university and school-based phases of the PGCE. This afforded tutors opportunities to support critical reflection during periods when trainees were learning through practice in school, by illuminating and promoting trainees’ own learning processes (P139: 0205JC - 139:8; P179: 0216KD - 179:18). The collaborative online document also provided a vehicle for mentors’ encouragement and reification of critical reflection, thereby affording critical

reflection authenticity as an element of teachers' "real-life practices and processes" (Burden and Kearney, 2017:112). There was evidence that mentors praised critical self-evaluation, as a core quality (Korthagen and Vasalos, 2005), and the identification of areas for improvement in trainees' practice (P87: 0116KF - 87:17), thereby encouraging Dewey's (1933) reflective process and supporting the development and improvement of future practice. Core reflection was reinforced by the emphasis of trainees' abilities to listen and act on feedback (P160: 0210LO - 160:23), thereby using alternative views to inform their professional development. These interactions between trainee, tutor and mentor demonstrated that collaborative online documents provided a digital habitat in which the members shared the common purpose (Wenger et al, 2009) of developing understanding of learning and teaching through critical reflection. By affording reflective dialogue between the CoP of trainee, tutor and mentor, collaborative online documents provided "scaffolds for the more complex professional learning that is needed in ITE" and made the boundaries between learning in university and school more permeable (Clarke, 2009:524).

In addition, VG's mentor encouraged her to engage with theory in order to extend her understanding of teaching and learning and inform her practice (P144: 0205VG - 144:32) and provided a series of questions that scaffolded exploration of a critical incident that could be used to probe her "assumptive worlds" (Brookfield, 1990:179) (P170: 0212VG - 170:17). Not only did this have the potential to challenge "the validity of [VG's] presuppositions" (Mezirow, 1990:12) about the nature of learning, it also confirmed that this level of critical reflection is an intrinsic part of the professional identity of a teacher (Korthagen and Vasalos, 2005) and, as such, plays a role in professional development.

Analysis of the data revealed that the collaborative online document afforded a "new space of meaning" (Wegerif, 2011:180), open to the trainee, tutor and mentor that facilitated a "reflective discourse" (Mezirow, 2000:10). As well as commenting on trainees' reflections, tutors also engaged with mentors' ideas by leaving comments and questions that celebrated trainees' progress (P139: 0205JC - 139:6), encouraged critical dialogue (P144: 0205VG - 144:32), promoted further cycles of reflection (P163: 0212CS - 163:17), informed comparison of practice and theory (P171: 0212ZB - 171:25) and supported engagement in collaborative

research and reflection on practice (P174: 0216JC - 174:21). This provided an expansive learning environment in which there was a breadth of perspectives and learning experiences (Fuller and Unwin, 2003) that enriched trainees' opportunities for critical reflection to support their professional development.

How this chapter contributes to theory

Extension of the expansive-restrictive continuum

While it was clear that the mentor could fulfil the role of “named individual [who] acts as dedicated support” to a trainee, analysis of the data also revealed the positive impact of the mentor’s reification of critical reflection through modelling rigorous analysis (Dewey cited in Rodgers, 2002:845) (P170: 0212VG - 170:17), openness to the critique of presuppositions (Mezirow, 1990) (P200: 0233JC - 200:4), encouragement through praise for innovation (P139: 0205JC - 139:39) and the development of new ideas (P160: 0210LO - 160:24) (Fuller and Unwin, 2003). This provided model approaches to the development of future practice and means by which trainees could take responsibility for their professional development, thus avoiding the restrictive influence of mentors directing trainees towards a single solution (P87: 0116KF - 87:15) or prioritising “strategic compliance with government or school agendas” (Hodkinson and Hodkinson, 2005:124) (P57: 0110KF - 57:26). Thus, the reification of critical reflection added precision and clarification to an “expansive-restrictive continuum” (Fuller and Unwin, 2003:411) for ITE.

An expansive-restrictive continuum for ITE should also include engagement with theory that enriches the “practical skill” and “professional decision-making” of trainees (Orchard and Winch, 2015:16) and guards against ITE being reduced to the reproduction and replication of existing practice (McNamara and Murray, 2013). Hence, it supports trainees taking responsibility for developing their future practice and professional development. This was evident in trainees’ use of theory to inform decisions about their practice (P9: 0104KF - 9:3, P46: 0108SS - 46:14; P149: 0208JT - 149:11), adding an extra dimension to the notion of integrating “off the job learning into everyday practice” (Hodkinson and Hodkinson, 2005:124). Trainees also used theory to analyse and understand experiences from practice (P138: 0205EW - 138:24; P140: 0205JT - 140:18), enabling them to “discern the

salient features, frame concrete problems, and challenge and authenticate their unfolding understanding of the situation” (Winch, Oancea and Orchard, 2015:210) and consequently critique both the theory and practice.

Although Fuller and Unwin (2003:411) include “access to [a] range of qualifications” and “planned time off-the-job including for college attendance” in their expansive-restrictive continuum, they do not specify engagement in a Level 7 (Masters level) university programme. Analysis of the data here revealed that trainees’ participation in university sessions contributed to the building of knowledge of theory that informed understanding of practice and illuminated the ways in which practice could be used to critique claims made in theory. This was most evident at times of transition between university- and school-based phases of the PGCE (P8: 0104KB - 8:8; P9: 0104KF - 9:3; P46: 0108SS - 46:14), when trainees made connections between theory and practice in discussions and activities (P138: 0205EW - 138:24), and in preparing for assignments (P149: 0208JT - 149:11). Although the expansive-restrictive continuum “transcend[s] the newcomer to old-timer trajectory conceptualised by Lave and Wenger (1991)... through its specification of formal qualification outcomes” (Fuller and Unwin, 2003:409), ITE extends this further through the requirement to meet Level 7 assessment criteria (Appendix 6) that include critical reflection in the form of critique of both theory and practice.

Where trainees had opportunities to engage in genuine research into their own practice through multiple cycles of critical reflection (P139: 0205JC - 139:26), this went beyond the alignment of individual and organisational goals as a feature of an expansive learning environment (Fuller and Unwin, 2003). It also transcended “an explicit focus on teacher learning, as a dimension of normal working practice” (Hodkinson and Hodkinson, 2005:124) by enabling trainees to contribute to the development of practice and professional development of experienced staff in their placement schools (P123: 0133EH - 123:2; P200: 0233JC - 200:4), which was valued by mentors (P200: 0233JC - 200:10).

This chapter has documented the findings arising from thematic analysis of the data, comprising the weekly reviews, in relation to the organising theme of ‘Taking responsibility’. Discussion in relation to theory presented in Chapter 2 resulted in

the identification of two aspects of critical reflection that were evident through analysis of the data: 'Developing future practice' and 'Taking responsibility for professional development'. These are grounded in and supported by illustrative examples from the data. The final chapter of this thesis will draw together the findings from Chapters 4, 5, 6 and 7 to present conclusions that address the RQs and the contribution to theory. It will also discuss the implications for practice, the limitations of the research and opportunities for further research.

Chapter 8 Conclusions

This chapter summarises the research journey, outlining the purpose and approach of the study before drawing out the key findings and conclusions arising from analysis of the data. The findings in relation to the research questions are detailed below, followed by an explanation of the contribution to knowledge made by this thesis. Implications for practice are suggested and the limitations of the study are considered, leading to the proposal of areas for further research.

Summary of the thesis

This research sought a rich understanding of the nature of critical reflection in trainee teachers' weekly reviews of their learning and development during a PGCE programme. The weekly reviews were written in collaborative online documents that were also accessed by each trainee's tutor and mentor, who were able to add comments. The study also investigated the contribution that could be made to trainees' critical reflections by interactions with tutors within the documents and by the affordances and constraints of the collaborative online documents.

The principal research question was:

- RQ1 What is the nature of critical reflection in trainee teachers' collaborative online weekly reviews?

Understanding was developed through two supplementary questions that sought to provide a more rounded picture of the ways in which critical reflection could be supported:

- RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?
- RQ3 What are the affordances and constraints of collaborative online documents in relations to trainees' critical reflections?

Research approach

The research took a constructionist position that led to a qualitative, interpretative approach employing thematic analysis, seeking “warrantable knowledge” (Henwood and Pidgeon, 1993:16) about the nature of critical reflection. The use of a considerable data set, comprising trainees’ weekly reviews, resulted in an authentic, rich understanding of critical reflection in which the context was relevant and influential to the data source and researcher’s interpretations (Madill et al, 2000). Thematic analysis (Braun and Clarke, 2006) was used to systematically construct codes and themes from the data, with all interpretations and resulting findings being securely grounded in the data. Analysis also drew on the literature of critical reflection, ITE and workplace learning, with the findings making a contribution to these areas of theory and making connections between them.

Findings

This section outlines the ways in which analysis of the data addressed the research questions, illuminating the nature of critical reflection in collaborative online documents and the contributions made by tutors’ comments and the affordances of the online tools used. It goes on to present the contribution to knowledge made by this thesis, namely an adaptation of Fuller and Unwin’s (2003) expansive-restrictive continuum for online learning in ITE.

RQ1 What is the nature of critical reflection in trainee teachers’ collaborative online weekly reviews?

When questioning their own learning, practice and assumptions, trainees recognised factors that influenced their own learning and development both in university and school. A longer, more comprehensive process of reflection, echoing Dewey (1933) and Korthagen & Vasalos’ (2005) reflective processes, occurred during school placements. This was scaffolded by the structure provided by the university’s lesson plan and weekly review in which trainees identified and defined a problem or area for development from practice, explored possible alternative strategies and their implications before trialling them in practice. While this was supported by LPP (Lave and Wenger, 1991) in classroom practice, there

was a danger this was limited to a process of socialisation into existing practice if steps were missed out and critical reflection was replaced by the trainee's identification of a problem and the unquestioned adoption of a solution suggested by the mentor. This could be a necessary step as a precursor to completing the full reflective process (Otteson, 2007) or could result from "unequal relations of power" between trainee and mentor (Lave and Wenger, 1991:42) that prevented progression to a more comprehensive process of reflection by omitting the consideration of alternative perspectives.

Encounters with a broader range of perspectives, through theory, practice (own and observed) and taught sessions (teaching and discussion with peers), stimulated trainees to ask questions and identify problems that triggered reflection. They were also able to compare and contrast ideas and practices from these different perspectives, testing them in practice and using them to inform analysis and understanding of their own and others' practice. As a result, the "cultivation of a variety of alternative suggestions" (Dewey, 1933:75) became a feature of trainees' critical reflections as they looked beyond their own learning and practice. This could provoke a reflective process that started with an exploration of possible implications, leading to trial and conclusions that could raise further problems or issues to explore, thus changing the order of Dewey's (1933) steps and revealing the complex, non-linear nature of critical reflection.

When engagement with theory was not reified through tutors' comments or coinciding university sessions, trainees' reflections lacked precision, depth and criticality due to the absence of alternative perspectives to enable and enrich analysis and understanding. Trainees did not progress to core reflection or transformation, when considering school contexts. This may indicate an unwillingness to critique the culture and practice when a newcomer on the periphery of practice due to power and social relations with mentors and other staff. This is only briefly mentioned by Lave and Wenger (1991) and not explored in relation to the impact on learning.

Alternative perspectives presented in university sessions provoked trainees to reflect on previous understanding and practice, resulting in the articulation of intentions for their future practice, thus problematising and defining an aspect of

practice, considering alternative strategies and exploring their implications (Dewey, 1933). However the reflective process was only completed when trainees were able to pursue “experimental corroboration, or verification, of the conjectural idea” (Dewey, 1933:77) by taking advantage of their “empowering position” (Lave and Wenger, 1991:36) on the periphery of classroom practice to trial new strategies in the classroom. This highlighted the potentially restrictive influence of separating learning in university and school (Fuller and Unwin, 2003), and consequently theory and practice, in ITE.

Trainees stated previously held assumptions about learning and teaching and analysed critical incidents that caused them to question these (Brookfield, 1990). This marked a progression from reflection, involving the examination of cause and effect relationships, to core reflection through the exploration of deeper presuppositions underlying and influencing trainees’ beliefs and understanding (Mezirow, 1990). Critical incidents were triggered by the questions, interactions, tasks and theory involved in university taught sessions, confirming the necessity of the “scholarly and pedagogical expertise” and opportunities for “sustained discussion and the sharing of ideas away from the immediate pressures of the workplace” (Orchard and Winch, 2015:27) provided by the university. Ideas and pedagogical strategies encountered in theory stimulated critical incidents that illuminated previously unrecognised epistemic distortions (Mezirow, 1990) that limited trainees’ understanding and classroom practice. This highlighted the importance of integrating the discourse “about a practice” with the “discourse of practice”, rather than maintaining the distinction and hierarchy suggested by Lave and Wenger (1991:107), in order to stimulate and support critical reflection.

Equally important was the role played by observation and participation in classroom practice as a stimulus for the identification and critique of assumptions underlying trainees’ understanding of learning and teaching. Recognition of these assumptions informed trainees’ consideration and comparison of the impact of different teaching strategies and decisions on children’s learning. As trainees moved between different school placements, they drew on cumulative evidence and comparison of experiences, across schools and year groups, to examine and critique the assumptions that underpinned or constrained their understanding of pedagogy. This resulted in the exploration and articulation of discrepancies

between presuppositions and classroom experience that indicated that they were “open to questioning, reflection, and revision, and to [recognition] that conceptual and practical ideas of teaching are neither static nor universal in their application” (Sloat et al, 2014:9).

Mentors could be a restrictive influence by advocating adherence to school policy (Hodkinson and Hodkinson, 2005) rather than encouraging core reflection including the questioning of underlying assumptions and exploration of alternative perspectives. In contrast, where mentors encouraged the critique of existing practice and schools explicitly encouraged trainees to carry out research into the impact of a change in practice and present it to school staff, this enabled trainees’ critical reflection and supported them in taking responsibility for their own professional development. Indeed, without encouragement from mentors to engage in critical reflection by exploring alternative perspectives, learning in school was confined to the development of “craft knowledge” (Otteson, 2007:41) rather than “conceptual knowledge and understanding [that] have a foundational role to play in preparing teachers for teaching” (Orchard and Winch, 2015:19).

Completion of all five steps of Dewey’s (1933) reflective process could result in the reassessment of previous understanding and the development of new meaning perspectives (Mezirow, 1990). This was particularly evident when trainees articulated the ways in which experience challenged their presuppositions and the resulting reformation of their understanding of learning and teaching. Critical incidents that occurred during classroom practice induced trainees to challenge “sociocultural distortions” (Mezirow, 1990:15) that had limited their understanding of the power and social relationships between teacher and pupils. This generated a more nuanced view of the relationships between teaching and its impact on learning and learners and “more inclusive, discriminating, permeable and integrative perspective[s]” (Mezirow, 1990:14) that informed decisions about and evaluation of practice. In addition, trainees articulated growing understanding of their developing professional identities, how they perceived themselves as teachers, and the broader emancipatory mission of education (Korthagen and Vasalos, 2005).

University sessions promoted the comparison of ideas from theory with experiences from trainees' classroom practice. This enabled trainees to identify and question "epistemic distortions" (Mezirow, 1990:15) that had constrained previous assumptions and understanding of learning and teaching and, over time, this contributed to the building of a "conceptual map of the educational field" (Orchard and Winch, 2015:14). As a result, trainees were able to evaluate and critique ideas and practices across contexts and from different perspectives, indicating a divergent, dialogic approach to critical reflection "capable of dissolving fixed images and assumptions" (Wegerif, 2011:185). This demonstrated mature "reflective judgment" (Kitchener and King, 1990:159) in which knowledge was "uncertain and open to interpretation" (Kitchener and King, 1990:165).

RQ2 How do interactions with the tutor contribute to trainees' critical reflections in collaborative online weekly reviews?

Tutors' comments encouraged greater depth of analysis of trainees' practice, particularly the impact of their teaching on children's learning. This supported trainees' engagement in the first three steps of Dewey's (1933) reflective process by scaffolding greater precision and rigour in the definition of an issue arising from classroom practice and exploration of possible solutions by suggesting discussion with mentors, informative or challenging theory and referring to relevant university sessions. Tutors explicitly warned against omitting these early steps in reflection in order to avoid "uncontrolled thinking" and the suggestion of essentially random solutions (Dewey, 1933:74).

By posting comments that encouraged the comparison of theory and practice, tutors promoted reasoning about the implications of trainees' decisions about practice and by encouraging trainees to articulate patterns and draw conclusions based on their reflections, thus supporting completion of the final steps of reflection (Dewey, 1933). Where trainees engaged in deeper reflection by critiquing and researching their conclusions in other contexts, tutor encouraged them to transcend Dewey's (1933) reflective process by developing and articulating their own conceptual models of learning and teaching that could inform their future practice (Orchard and Winch, 2015). In scaffolding the reflective process, the tutor fulfilled the role of old-timer (Lave and Wenger, 1991) by

providing a model from which the trainees could “[learn] the habits of reflective practice” (Kagle, 2014:21). Conversely, where tutors comments did not exemplify engagement with theory or respond directly to trainees’ reflections, this could result in imprecise and shallow reflections on trainees’ practice.

Tutors’ comments explicitly asked trainees to identify their assumptions and the ways in which they had been challenged, thereby encouraging trainees to engage in core reflection through the recognition of presuppositions and understanding of the constraints these placed on their perceptions and understanding (Mezirow, 1990). In addition, tutors promoted the consideration of multiple perspectives from university sessions, theory and mentors’ feedback that offered trainees “new meaning perspectives” (Mezirow, 1990:13) that challenged their stated assumptions. Comments that encouraged trainees to engage in “reflective discourse” (Mezirow, 2000:10) with their mentors also emphasised the importance of adopting a dialogic approach to professional development involving consideration of divergent points of view and questioning from different perspectives (Wegerif, 2011).

Moving beyond analysis of individual critical incidents (Brookfield, 1990), tutors’ comments promoted trainees’ engagement with theory that enabled them to consider broader pedagogical concepts and principles relating to the core qualities, professional identity and mission of a teacher, essential to accessing deeper levels of core reflection (Korthagen and Vasalos, 2005). Tutors’ recommendation of specific literature or suggestion of independent research also supported trainees’ core reflection on the underlying principles of education by encouraging them to draw on evidence from their practice to critique ideas from theory and assess “the quality of the arguments and evidence advanced in support of those theories” (Orchard and Winch, 2015:22).

Having encouraged trainees to recognise and critique the presuppositions and distortions that coloured their understanding of learning and teaching, tutors’ comments challenged trainees to articulate this process and the resulting reformed assumptions and beliefs, thereby justifying their “new perspective through discourse” (Mezirow, 2000:20).

RQ3 What are the affordances and constraints of collaborative online documents in relation to critical reflection?

The collaborative online documents afforded opportunities for tutors to provide timely, precisely targeted, responsive comments that supported trainees' critical reflection throughout the PGCE. They were able to ask questions and provide access to theory that challenged the assumptions that constrained trainees' understanding (Mezirow, 1990). However, where tutors' comments lacked precision, this could result in a lack of depth in trainees' reflections.

Ongoing dialogue between trainees and tutors during placements afforded tutors opportunities to promote engagement with theory to enhance critical reflection during periods when trainees were focused on learning through participation, thus fulfilling their responsibility "to make it clear how abstract learning and teaching concepts are connected and related to day-to-day practice" (Pridham et al, 2013:60). Collaborative online documents afforded authentic learning experiences in which tutors facilitated the comparison of theory and "relevant real-life practices and processes" arising from trainees' participatory learning in school (Burden and Kearney, 2017:112). This also helped to avoid potential "deficits of innovation and intellectual rigour" that could occur without university involvement in ITE (Clarke, 2016:12) or, in this case, when direct, face-to-face university involvement was reduced during school placements.

The collaborative online documents also provided a permeable boundary between the CoPs of school and university through being accessible to mentors, thereby affording "the flexibility to make learning links throughout the education community" (Clarke, 2009:527). The collaborative online document afforded a "new space of meaning" (Wegerif, 2011:180) that enabled the trainee, tutor and mentor to engage in "reflective discourse" (Mezirow, 2000:10) that both modelled and supported critical reflection. This was provided by opportunities for asynchronous, virtual collaboration and conversations in which the meaning of trainees' critical reflections were discussed and negotiated (Burden and Kearney, 2017). However, this affordance was not utilised in all cases to mitigate shallow or absent critical reflection caused by trainees' learning dispositions or a lack of

professional discussion between trainee and mentor, possibly due to pressures of time and workload.

Collaborative online documents also afforded the exchange of experiences and ideas during online learning tasks, thus constituting a digital habitat (Wenger et al, 2009) within which trainees were able to engage in a “living shared enquiry” (Wegerif, 2013:97) that enabled them to cross boundaries between the CoPs (Wenger, 1998) of the university, their own placement school and the placement schools of their peers. This resulted in trainees’ articulation of the ways in which their perceptions and “understanding of the complex relationships between technology, content, and pedagogy” (Mishra and Koehler, 2006:1029) were challenged by alternative perspectives within learning experiences afforded by collaborative online documents.

Contribution to knowledge

Fuller and Unwin’s (2003) expansive-restrictive continuum was originally developed to evaluate learning opportunities within the Modern Apprenticeship programme (Fuller and Unwin, 2003) and was later adapted to appraise “teacher workplace learning environments” (Hodkinson and Hodkinson, 2005:124). More recently, it has been applied to ITE in order to identify enabling and constraining factors affecting trainees’ participation and development and schools’ and universities’ institutional arrangements during school placements (Pridham et al, 2013). In this research, the continuum contributed to the identification of factors that enabled or inhibited critical reflection in trainee teachers’ collaborative online weekly reviews and thus informed the findings in relation to the RQs (above). However, the process of using it in this way revealed opportunities to extend and clarify the continuum to produce a version that could be used specifically to understand the ways in which collaborative online documents could provide an expansive learning environment in ITE that “presents wide-ranging and diverse opportunities to learn, in a culture that values and supports learning” (Hodkinson and Hodkinson, 2005:123).

Figure 6 presents a number of features that were associated with expansive or restrictive learning environments in this study. The features are organised into themes of “participation, personal development and institutional arrangements”

(2003:407). The main focus of the continuum is the ways in which the collaborative online documents can be used to support trainees' critical reflection, but this is situated within the wider context of ITE. As such, every aspect included in the continuum could also be applied to face-to-face tasks, activities and learning experiences. Indeed support for critical reflection in collaborative online documents alone would not be sufficient but should also be promoted and modelled throughout the practices, learning experiences and environments of ITE. As Fuller and Unwin (2003) argue, expansive features will create a "stronger and richer learning environment" (Fuller and Unwin, 2003:411), in this case the ways in which collaborative online documents can be used to create learning experiences more conducive to trainees' critical reflection.

The research showed that trainees' critical reflection was supported by the provision of an expansive learning environment within collaborative online documents. The evidence is presented using Fuller and Unwin's interrelated themes of "participation, personal development and institutional arrangements" (2003:407), however reification of critical reflection plays a stronger role here, particularly in the features associated with the institutional arrangements of ITE.

Participation

Trainees' weekly reviews, using the affordances of collaborative online documents, were available to both university tutor and school-based mentor, they therefore provided a bridge between the CoPs of university and school to which trainees belonged. They enabled trainees to make connections between learning experiences in both CoPs, thereby extending opportunities for professional development by crossing the boundaries between CoPs and supporting the breadth of learning experiences planned into the structure of the PGCE in university and at least two placement schools (P193: 0223JT - 193:1; P110: 0123EH - 110:4; P138: 0205EW - 138:12). Moreover, collaborative online documents provided a means by which trainees could participate in these CoPs simultaneously, particularly through the provision of theory in tutors' comments that enabled trainees to make "informed, reliable judgments" (Orchard and Winch, 2015:19) about their practice (P203: 0233LO - 203:1). The collaborative online documents afforded trainees, tutors and mentors the opportunity to contribute to weekly reviews and this was an expectation of the university (Appendix 18). This promoted critical reflection as a collegial practice (Jones and Ryan, 2014) in which trainees, tutors and mentors interacted, exchanging views (P171: 0212ZB - 171:25), providing clarification (P176: 0216LH - 176:4; P192: 0223JC - 192:1) and reinforcing engagement in critical reflection (P144: 0205VG - 144:4; P148: 0208JC - 148:19). This supported a view of the trainee, tutor, mentor relationship within the digital habitat of the collaborative online document as a CoP with a common purpose (that of enabling the trainee to become a teacher) and in which they lived the "knowledge, not just acquiring it in the abstract" (Wenger et al, 2009:7).

Taking advantage of the bridge between the CoPs of placements schools and university, afforded by collaborative online documents, enabled trainees to develop their professional knowledge by building evidence from across the CoPs (P196: 0223VG - 196:21) and comparing and contrasting evidence from theory and practice (P101: 0120KB - 101:5) to inform the deconstruction, reconceptualisation or reaffirmation of their previous understanding and practice (Sloat et al, 2014). The bridging of the CoPs also meant that, as well as being supported by a mentor during school placements, the tutor could provide support for critical reflection throughout the PGCE programme (P144: 0205VG - 144:2), not only during

university phases of the PGCE and tutors' visits to them in schools (Pridham et al, 2013). This was particularly effective where tutors' comments and questions provided timely, precise responses to trainees' reflections (P143: 0205LO - 143:1). The collaborative online documents comprised a digital habitat (Wenger et al, 2009) that afforded a "new space of meaning" (Wenger, 2011:180) that facilitated a "reflective discourse" (Mezirow, 2000:10) for the CoP (P157: 0210JT - 157:1; P176: 0216LH - 176:4).

Expansive features of participation include:

- Support for simultaneous participation in multiple CoPs from school and university through the use of collaborative online documents;
- Shared access to online documents and contributions to reviews from trainee, tutor and mentor;
- Collegial relationship between trainee, tutor and mentor that supports open discussion and timely, tailored, individual support for critical reflection;
- Ongoing dialogue between tutor and trainee within collaborative online documents throughout ITE.

Personal development

The provision of collaborative online documents as the medium for weekly reviews, the requirement for the trainee to complete the review and tutor and mentor to contribute comments and the expectation of a weekly face-to-face meeting between trainee and mentor to discuss the review combined to provide time and space for critical reflection (Appendix 18). While this was not commensurate with face-to-face university sessions or tutorials, it did afford opportunities for trainees to make connections between "conceptual knowledge and understanding" of learning and teaching (Orchard and Winch, 2015:19) and the "technical know-how" of classroom practice (Winch et al, 2013:1)(P170: 0212VG - 170:1 ; P198: 0233CS - 198:26), thereby contributing to the development of "formal educational scholarship" (Shulman, 1987:10). As such it afforded a unique opportunity to engage in this aspect of critical reflection with support from the university tutor during school placements, thus taking advantage of the immediate relevance of the theory to inform practice (P148: 0208JC - 148:11; P203: 0233LO - 203:1). It also afforded the use of examples from practice

to support the understanding and critique of ideas from theory (P140: 0205JT - 140:18; P179: 0216KD - 179:18), enabling trainees “to be discriminating and not take popular and influential educational theories at face value” (Orchard and Winch, 2015:22). However, a lack of encouragement from the tutor to engage with theory to enhance critical reflection could result in restrictive learning experiences in which trainees reflections were limited to unsupported statements of cause and effect and descriptions of classroom experiences that lacked analysis (P65: 0112EH - 65:9).

The use of theory helped tutors to extend trainees’ views beyond their own experiences (P157: 0210JT - 157:15; P159: 0210LH - 159:13) and guarded against restrictive learning experiences that were limited to “compliance with government or school agendas” (Hodkinson and Hodkinson, 2005:124), such as the Teachers Standards (DfE, 2011). Engagement with broader concepts and views, afforded by the collaborative online documents, enabled trainees to envisage a teaching career beyond ITE in terms of the use of theory to understand their own learning and professional development (P111: 0123GJ - 111:3), their understanding and critique of national policy (P204: 0233VG - 204:6) and their knowledge of “themselves as teachers” (Winch, 2017b:95). Consequently trainees were able to use theory to inform decisions about their practice (P46: 0108SS - 46:14) and analyse classroom experiences (P138:0205EW - 138:24). This enabled them to “discern the salient features, frame concrete problems, and challenge and authenticate their unfolding understanding” (Winch, Oancea and Orchard, 2015:210) and enhanced trainees’ ability to take responsibility for their own professional development rather than merely “replicate existing school practices” (McNamara and Murray, 2013:12). Where trainees were encouraged to carry out research into their own practice, pursuing personal learning goals, and share their findings with school staff (P123: 0133EH - 123:2), this not only enhanced their own professional development through multiple cycles of critical reflection (P139: 0205JC - 139:26) but also contributed to the practice and policy of their placement schools (P200: 0233JC - 200:4).

Expansive features of personal development include:

- Planned time and space for critical reflection in online documents;

- Opportunities to integrate off the job learning into practice and to apply learning from practice to critique theory;
- Supported opportunities to explore trainee's own professional and personal learning goals, going beyond the adoption of school and government policies and priorities;
- Supported opportunities to develop a vision of a career trajectory beyond ITE.

Institutional arrangements

The institutional arrangements put in place by the university and schools contributed to the extent to which the collaborative online documents offered expansive learning experiences. Key to this was the ways in which they were used to reify critical reflection as a fundamental element of ITE. Reification of critical reflection was evident in opportunities for Masters level thinking, learning and writing in collaborative online documents and could be enhanced by the nature of the support provided by the tutor and mentor. This gave form to the abstract process of critical reflection through the structure and language used in the weekly reviews, including the models and support provided by the tutors' and mentors' comments and questions.

The collaborative online documents afforded trainees opportunities to record the critique of practice through comparison with theory and the critique of claims made in theory, supported by evidence from practice. This encapsulated Masters level thinking and writing that underpinned teaching and assignments on the PGCE (Appendix 6). Trainees drew on theory and practice to deepen their critical reflections by considering multiple perspectives that informed analysis and critique (P8: 0104KB - 8:8; P46: 0108SS - 46:14; P138: 0205EW - 138:24).

The extent to which tutors and mentors supported and modelled critical reflection in their contributions to the collaborative online documents influenced the expansive or restrictive nature of the learning environment. Where mentors modelled the rigorous analysis (Dewey in Rodgers, 2002) of evidence from practice (P170: 0212VG - 170:17), openness to the critique of underlying assumptions (Mezirow, 1990) (P200: 0233JC - 200:4), encouragement for innovative practice (P139: 0205JC - 139:39) and independent development of

engaging, inclusive classroom practice (P160: 0210LO - 160:24), this resulted in precision and clarity in trainees' reflections. Conversely, where mentors' comments directed trainees towards a single, unquestioned solution or adherence to school policy, this was a restrictive influence that resulted in trainees' reflections that lacked definition, reasoning or consideration of alternative perspectives, even when recent university sessions had provided theory and ideas that could have been used to support this (P15: 0104WF - 15:20; P62: 0110WF - 62:8; P77: 0112WF - 77:4; P67: 0112GW - 67:3). Similarly, expansive learning opportunities were created where tutors encouraged trainees to make connections across the CoPs of school and university by using theory to inform practice (P159: 0210LH - 159:13) and make comparisons between theory and classroom experience (P179: 0216KD - 179:18). Tutors also contributed to expansive learning experiences when trainees were in placement schools by scaffolding their next steps in critical reflection in terms of analysis rather than description of children's learning (P143: 0205LO - 143:1; P144: 0205VG - 144:1) and suggesting engagement with theory that would challenge their beliefs and enrich their understanding of learning and teaching (P144: 0205VG - 144:2). However, where tutors did not explicitly encourage the use of theory to enhance reflection and deepen learning, trainees' reflections could be limited to bland observations (P65: 0112EH - 65:9). Without the reification of engagement with theory, the tutors' comments became a restrictive influence on the trainee's learning (Fuller and Unwin, 2003) and the depth of critical reflection in particular.

Expansive features of institutional arrangements include:

- Access to supported Masters level thinking, learning and writing in online documents
- Tutor and mentor support and model critical reflection
- Tutor and mentor scaffold next steps in critical reflection within online documents

Implications for practice

The findings of this research have a number of implications for practice in relation to the use of collaborative online documents to support critical reflection within ITE.

Although this was not a comparison of collaborative online weekly reviews with the previous paper-based approach at the participating university, it was clear that collaborative online documents facilitated the active involvement of the tutor and therefore provided a connection between the trainee, tutor and mentor. In this respect, it is a recommendation of this research that ITE programmes adopt collaborative online documents for the production of weekly reviews. However, this broad recommendation needs further clarification in terms of the nature of critical reflection, how to scaffold trainees' progression, the nature of tutors' and mentors' comments and effective use of the affordances of collaborative online documents.

The findings addressing RQ1 provide a rich, deep picture of the nature of critical reflection in collaborative online documents and something of the variety within this. This could be used by ITE tutors to assist them in selecting questions and headings for a template for a weekly review, recognising evidence of individual trainees' critical reflections and scaffolding their development by suggesting and supporting appropriate next steps. For example:

- Progression from identifying a problem arising from practice to exploring potential causes, solutions and implications (Dewey, 1933);
- Progression from reflection on the solution to a problem arising from practice to core reflection that draws on theory to critique underlying assumptions that constrain understanding (Mezirow, 1990);
- Progression from core reflection to perspective transformation through the explicit statement of beliefs about learning and teaching and explanation of how these have developed and why (Mezirow, 1990).

The findings relating to RQ2 suggest that the tutor can make a significant contribution to the development of trainees' critical reflections within collaborative online documents through the addition of questions and comments that respond directly to trainees' reflections and reify and model critical reflection. Positive examples of this included comments that demonstrated or encouraged trainees to:

- analyse the reasons for an example or event they had identified as significant, either from classroom practice or their own learning;

- identify and question the assumptions underlying their interpretations and understanding of experience from practice and concepts from theory and university sessions;
- making connections with and drawing comparisons between experiences from practice and ideas from theory and conceptual knowledge that provided alternative perspectives;
- engage in open discussion of practice and theory with other professionals, in this case the tutor and mentor, to establish a collegial approach to professional learning and development (Jones and Ryan, 2014).

The findings pertaining to RQ3 indicated the value of using the collaborative online documents to maintain an ongoing professional dialogue between trainees, tutors and mentors during school placements. This was facilitated by the affordance of comments that could be precise, in terms of responding directly to trainees' reflections and being physically attached to points within the text, and timely, in that they were added to the review within days of its composition and could be read and responded to by trainee and mentor while points were relevant to learning and development. These comments could also include direct links to relevant theory, published online, that promoted critical reflection by challenging trainees' assumptions and deepening their understanding. It is a recommendation of this research that the affordance for tutors to add precise, timely comments is utilised when implementing collaborative online weekly reviews. In addition, this research suggests that tutors should take advantage of the affordances of collaborative online documents to enable trainees to share experiences and ideas from across many different placement schools with their peers, thereby broadening the range of experiences, perspectives and contexts from which they can learn. In doing so, they permeate the boundaries between the CoPs of schools and university (Clarke, 2009) and provide opportunities for "living shared enquiry" (Wegerif, 2013:97) that explicitly connects ideas from theory and practice.

Finally, it is recommended that, if an ITE programme wishes to introduce or evaluate the use of collaborative online weekly reviews, they could use the 'Continuum of expansive-restrictive learning in collaborative online environments in ITE' to inform this process. This would assist them in taking advantage of the affordances offered by the online tools to support and enhance trainees' critical

reflections. Similarly there may be opportunities for the application of the 'Continuum of expansive-restrictive learning in collaborative online environments in ITE' to other disciplines, with only slight adaptations. For example, other professional learning programmes in which critical reflection is prioritised and online learning has been used, such as pharmacy (Black and Plowright, 2010), marketing (Muncy, 2014; Larkin and Beatson, 2014), physiotherapy (Rowe et al, 2013) and medicine (George, 2012).

Limitations of the research

This study was carried out in the context of the use of Google Drive in the Primary and Early Years PGCE of one university which, while it is compliant with ITE policy in England and Ofsted requirements (Ofsted, 2015), cannot be assumed to be typical of ITE providers. The range and variety of ITE provision has been clearly demonstrated by Whiting et al (2016). Carrying out this research in a broader range of contexts, including secondary PGCE, alternative models of ITE, other universities or models of ITE in other countries, using other online tools, would have provided additional perspectives and may have resulted in different theoretical outcomes. Indeed the involvement of a team of researchers collecting and analysing data and triangulating findings in a number of locations would also have added to the transferability of the findings, by providing a range of contexts recognisable to a greater number of ITE providers. However, this was beyond the scope of this research, which focused on the production of "thick description" (Bryman, 2016:384) in order to provide an authentic account of the nature of critical reflection in collaborative online documents in ITE.

Due to pressures of work and time on the participants and researcher, it was not possible to carry out interviews or to bring the participants together for them to review the findings and conclusions. This resulted in the presence of the participants' voices only in the form of their reflections written at the time of the PGCE and did not include their interpretations or perceptions of these reflections or the process of production. Research into the perceptions and experiences of trainees, tutors and mentors of critical reflection in collaborative online documents

would enrich understanding of this further and could be used to inform guidance on practice.

Consequently, the findings of this research must remain provisional and open to the interpretation of other researchers, who may draw different conclusions about the nature of critical reflection in collaborative online documents in ITE and how this can be supported by tutors' interactions and the affordances of the online tools. These limitations also provide opportunities for further research and avenues for enquiry that would expand the boundaries of this research.

Future research opportunities

Building on the possibilities for future research arising from the limitations of this study (above), there are opportunities for expansion of the understanding of critical reflection in collaborative online documents in ITE. The first would be an evaluation of the 'Continuum of expansive-restrictive learning in collaborative online environments in ITE'. This could involve replication of this study in alternative contexts and comparison of the results and/or a pilot of the use of the continuum to evaluate the use of collaborative online documents in relation to critical reflection in ITE. This could be used to refine or expand the continuum and produce guidance on the implementation of these online tools, underpinned by both empirical and theoretical evidence.

The second new line of enquiry that could be followed would go some way to addressing the limited voice given to the participants in this research and would provide an opportunity to focus on understanding of the pedagogy of the "third space" provided by a collaborative online learning environment (Schuck et al, 2017). Schuck et al draw on the "Mobile Pedagogical Framework" (Schuck et al, 2017:127) arising from Kearney et al's (2012) study of "mobile learning from a pedagogical perspective" (Kearney et al, 2012:1). While this focuses largely on the potential impact of mobile devices, rather than online applications, on pedagogy, further research has resulted in the Mobile Learning Toolkit for Teacher Educators (Burden and Kearney, 2017), comprising a theoretical framework, survey tool and rubric for the evaluation of online apps. This toolkit could be used to provide a new perspective from which to evaluate the use of collaborative online documents to

support critical reflection in ITE, that included the voices of participants. It would also respond to Burden and Kearney's (2018:14) call for research into "content-free, creative apps...that potentially leverage aspects of collaborative, personalised and authentic m-learning" (Burden and Kearney, 2018:123). In particular, research of this nature could reveal ways in which collaborative online documents can afford personalised, authentic, collaborative learning experiences and deepen understanding of the impact of and relationships between temporal and spacial features of the learning environment they provide.

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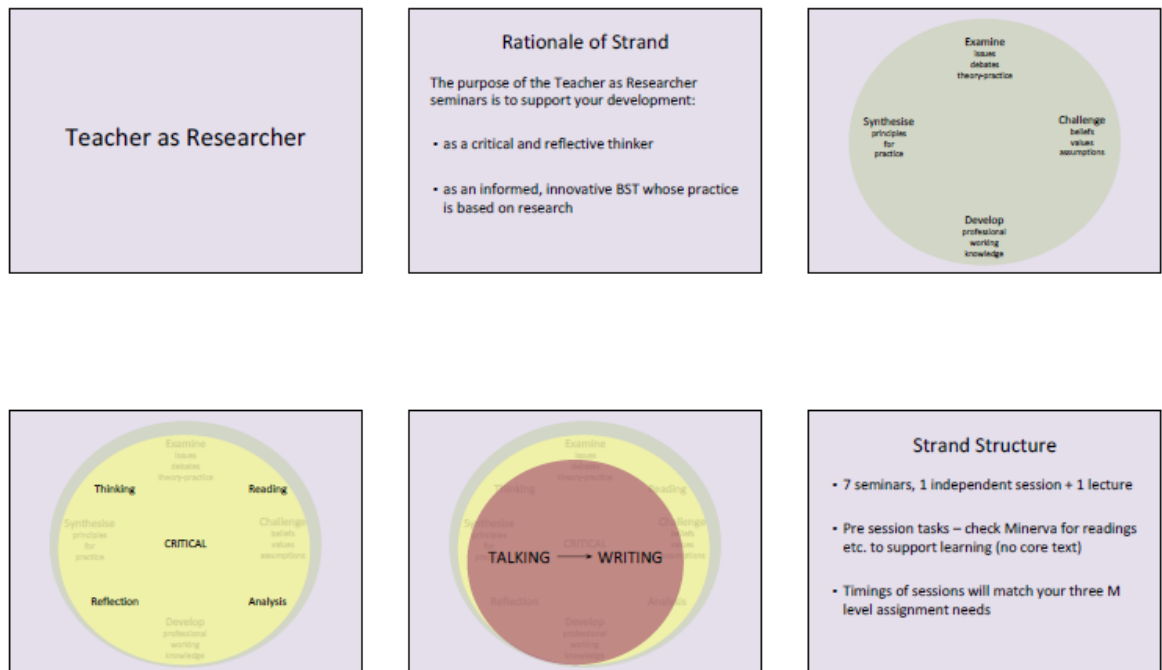
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Appendices

Appendix 1a Critical reflection in 'Teacher as Researcher seminar'

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Aims of Seminar

- To develop understanding of critical thinking
- To consider what it means to be a reflective practitioner
- To be introduced to the reflective framework of Pollard

Pre Session Task

Consider a classroom setting that you have worked in or recently visited.
How were groups of children organised:
By ability?
By age?
By self selection?
By friendships?
What might this indicate about the beliefs and values of organising learning held by the school?
How does this fit with your beliefs and values about organising learning?
Please bring your notes with you to the seminar.

Discussion

In small groups talk through the notes that you made on the ways in which children are grouped at school.

What might your observations indicate about the beliefs and values around organising learning held by the school?

How do your experiences fit with your beliefs and values about organising learning?

Are your beliefs about ability grouping experience or research based?

Reading, Research and Opinion

Search the library database and read an article

Relate the information presented to your beliefs and values as identified earlier

How close is the match between research and what you have observed / experienced?

What explanations can you offer for any differences?

In light of your reading what would your recommendations be?

How reliable is this information? Can you critique any of the findings?

In pairs share your views and identify any challenges to your previously held assumptions.

A critical, analytical thinker

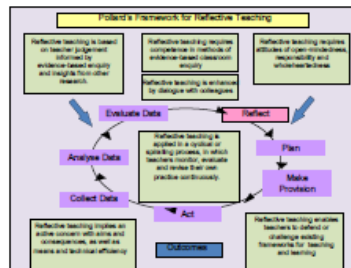
- raises vital questions and problems, formulating them clearly and precisely
- gathers and assesses relevant information, for example their own data or the research of others
- comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards
- thinks open-mindedly within alternative systems of thought, recognizing and assessing their assumptions, implications, and practical consequences
- communicates effectively with others in figuring out solutions to complex problems

What is reflection?

Never-gazing	Justifying what you do	Understanding your feelings
Learning from experience	Being honest with yourself	Talking about what you do with others
What you do at University	Learning from today's choice	Doing it after a lesson
Improving what you have done	Dwelling on mistakes	The latest bandwagon

What is critical reflection?

"A deliberate distinction is made here between reflection and critical reflection. The latter incorporates a questioning of underlying assumptions and wider social issues rather than a focus only on individual perspective," Harrison and Lee (2010).



The Importance of Reflection

Reflection enables us to:

- Be conscious of our potential for bias and discrimination.
- Make the best use of the knowledge available.
- Challenge and develop the existing professional knowledge base.
- Avoid past mistakes.
- Maximise our own opportunities for learning.

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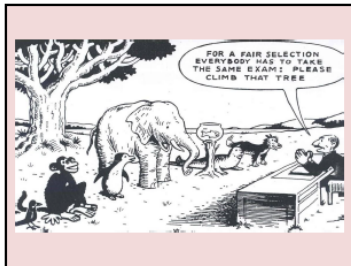
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Independent Study

Optional Reading: Critical thinking skills for education (scan on Minerva)

Appendix 1b Critical reflection in 'Assignment 2 lecture'

This material was developed by the PGCE teaching team. It is not an original output of the author of this thesis. Copyright © 2019 Bath Spa University. All rights reserved.



Assessment for Learning in English and Mathematics

A2 Lecture

In this session

Sequences of lessons
Types of assessment
Assessment for Learning (Afl)
Your Afl practice
A2 requirements
English and maths Term 3 tasks

Planning Sequences

These can be sequences of lessons (KS1-KS2) or sequences of learning events (EYFS) - the same thinking applies


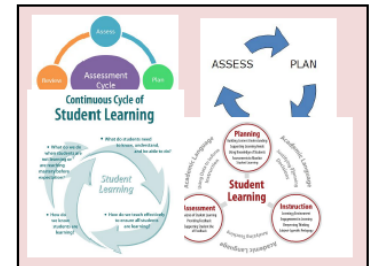
What do I want the group or class to learn?
What outcome do I want?
What learning opportunities do I need to plan (over time) to enable learners to achieve these learning goals or outcomes?

Don't be scared to change things

Just because you have a plan you do not have to follow it through to the letter

Repeat learning points to whole class, groups and individuals if needed

Your subject knowledge needs to be secure for you to do this confidently

Once you've taught – reflect!

Assess your learners as you go (lesson by lesson)

Assessment of Learning	Assessment for Learning	Assessment as Learning
<ul style="list-style-type: none"> Assessing what students have learned Assessing what students can do Assessing what students know Assessing what students feel Assessing what students think Assessing what students believe Assessing what students value Assessing what students care Assessing what students are Assessing what students become Assessing what students do Assessing what students say Assessing what students write Assessing what students draw Assessing what students create Assessing what students perform Assessing what students present Assessing what students publish Assessing what students share Assessing what students teach Assessing what students lead Assessing what students follow Assessing what students support Assessing what students help Assessing what students guide Assessing what students assist Assessing what students cooperate Assessing what students collaborate Assessing what students communicate Assessing what students connect Assessing what students contribute Assessing what students create Assessing what students care Assessing what students believe Assessing what students know Assessing what students can do Assessing what students have learned 	<ul style="list-style-type: none"> Assessing what students have learned Assessing what students can do Assessing what students know Assessing what students feel Assessing what students think Assessing what students believe Assessing what students value Assessing what students care Assessing what students are Assessing what students become Assessing what students do Assessing what students say Assessing what students write Assessing what students draw Assessing what students create Assessing what students perform Assessing what students present Assessing what students publish Assessing what students share Assessing what students teach Assessing what students lead Assessing what students follow Assessing what students support Assessing what students help Assessing what students guide Assessing what students assist Assessing what students cooperate Assessing what students collaborate Assessing what students communicate Assessing what students connect Assessing what students contribute Assessing what students create Assessing what students care Assessing what students believe Assessing what students know Assessing what students can do Assessing what students have learned 	<ul style="list-style-type: none"> Assessing what students have learned Assessing what students can do Assessing what students know Assessing what students feel Assessing what students think Assessing what students believe Assessing what students value Assessing what students care Assessing what students are Assessing what students become Assessing what students do Assessing what students say Assessing what students write Assessing what students draw Assessing what students create Assessing what students perform Assessing what students present Assessing what students publish Assessing what students share Assessing what students teach Assessing what students lead Assessing what students follow Assessing what students support Assessing what students help Assessing what students guide Assessing what students assist Assessing what students cooperate Assessing what students collaborate Assessing what students communicate Assessing what students connect Assessing what students contribute Assessing what students create Assessing what students care Assessing what students believe Assessing what students know Assessing what students can do Assessing what students have learned

Types of assessment

- Summative**
 - Provides a summary of the learning at the end of section, term, year, key stage
- Formative**
 - Helps the learner shape and inform the next stage of their learning as they are doing it
 - This is where Afl fits in - it is a formative process

Terminology



Assess (assidere - to sit beside); to make a judgment, evaluate
formative - assessment for learning - process
summative - assessment of learning - product
Record (recordari - to remember); to preserve in writing knowledge or information

Why do we assess ?

To monitor standards	EVALUATIVE	Assessment OF Learning
To make teachers, administrators & politicians accountable		
To sort and classify students	SUMMATIVE	Assessment FOR Learning
To determine what courses/facts students should be in		
To report on achievement to students themselves and parents	Diagnostic	
To support & help students learn by diagnosing difficulties	Formative	
To support and help students learn by providing feedback		

Assessment Reform Group

'Afl is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there'

<http://www.aiaa.org.uk/afl/assessment-reform-group/?v=79cb3a185463>
<http://www.aiaa.org.uk/content/uploads/2010/06/Assessment-for-learning-10-principles.pdf?v=79cb3a185463>

1. is part of effective planning
2. focuses on how children learn
3. is central to classroom practice
4. is a key professional skill
5. is sensitive and constructive
6. fosters motivation
7. promotes understanding of goals and criteria
8. helps learners know how to improve
9. develops the capacity for self assessment
10. recognises all educational achievement

AfL approaches

- Feedback (oral and written)
- Learning objectives and success criteria
- Questioning
- Self assessment
- Peer assessment

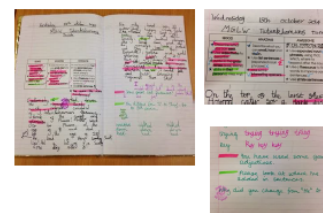
Where is the evidence for what the children can do?

- In the way learners respond to the tasks you set them.
- In the things they say and write down.
- In the things they create and the problems they overcome in the course of the learning journey you plan with them.

You need to plan opportunities which make these things **explicit, audible and highly visible**.

Watch and listen because the evidence lies in what you see and hear.

Jan Dubiel Effective Assessment in the EYF5 2014



I like Julie's work because it's got neat hand writing and she has used good words. She could have used more punctuation.

I like Paul's work because he's used powerful words like enormous and terrifying. He needed to add some commas and an exclamation mark for effect.

John used 'really, really' to show how VERY scared he was and I wanted to read on. If he'd put 'stop' in capital letters and used an exclamation mark it would have made me jump.

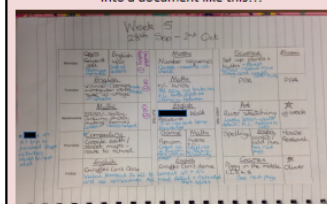
I like Because
It could be like would be better if

Evaluation and reflection (learning, progress, surprises, barriers, strengths, areas for development)

What went well?	Even better if...
Impact of teaching on learning and response/progress of children	Impact of teaching on learning and response/progress of children
Teaching and classroom management (including behaviour)	Teaching and classroom management (including behaviour)

Key learning for next teaching session

Once you've collected your evidence, it might feed into a document like this...



Assignment 2

Consider *assessment for learning* (AfL) in depth and critically analyse your use of AfL in your teaching of an aspect of **either** mathematics or English (2500 words).

Requirements

1. Evidence a clear, deep understanding of the theory of assessment for learning
2. Evidence that you have applied that theory to your practice
Or
State what you would have done if the practice that existed in the classroom made it impossible for you to apply the theory satisfactorily.
3. Demonstrate that you can write at Level 7 (M level)

For A2 you need to...

Read widely so that you are thinking about and using AfL theory and approaches with intention

Demonstrate your use of AfL stating how and when you implemented it.

Refer to:

- planned opportunities for assessment
- the specific approaches you used - limit this to an in-depth discussion of 1 or 2 approaches
- link to theories of how children learn
- micro adjustments during lessons and macro adjustments between lessons
- annotated plans

Analyse the outcomes and use your appendices to exemplify your discussion

Plan your sequences for maths and English N.B. Planning process includes Explore and Prep. for Planning

Decide which sequence you are going to choose for this essay - maths or English

Ensure your plans are annotated drawing attention to assessment opportunities and how assessment outcomes inform next steps (see earlier slide)

Each plan should conclude with a lesson evaluation which analyses children's learning and your teaching

Select three pieces of children's work that demonstrate aspects that you want to discuss in your essay.

Annotation should show:

- date
- context of the activity
- learning expectations
- learning attitude - how the child approached the activity and whether or not they were supported
- commentary on what the child can do and the progress made
- suggestions for next steps of learning and teaching (Additional Information for Terms 1-3 p22)

Appendices

Appendix 1

- 'explore the English' or 'preparation for planning for maths' for the sequence / block of learning

Appendix 2

- Annotated individual lesson plans / learning event plans - your sequence of at least three connected events

Appendix 3

- Three pieces of annotated children's work from the sequence (3 pieces in total)

Writing at level 7

Look in pairs at the extract from an A2 essay.

- Can you identify a line of argument?
- Is there critical analysis?
- Is there evidence of the writer's knowledge and understanding?
- Is that understanding supported by evidence of sufficient reading?
- Is it supported by evidence from the writer's teaching?

Development of an argument

However, it is important to note that the necessity to share learning objectives... children are signposted along a prescribed route... 'rich cognitive agenda'... Adhami (2003) and Cremin (2009) therefore advocate... After recognising that my initial wording of learning objectives had been problematic, I experimented... The children's enthusiastic response to this proved that they found it a refreshing responsibility... (appendix 3d) From a socio-cultural perspective, this dynamic epitomised the dialogic value of AfL... Nevertheless, I found it difficult not to intervene... Which prompted me to query whether ...

Weaving in the verbs

- The DfES (2006) notes that effective questioning is an essential part of AfL. Briggs (2003) builds on this and advocates... I considered these points when planning my key questions and ...
- The evidence gathered during the implementation of peer assessment leads me to believe that... which is contrary to that suggested by...
- Pardoe (2006) recommends.... Using this technique I was able to ... I found that this didn't have the desired outcome because ...
- A critical moment for me was implementing the strategy of... proposed by

You might reflect on...

- the purpose of the assessment – when is it targeted at the development of individual learners and when is it carried out to meet demands for accountability?
- your philosophical position – the way that you engage with and value assessment
- the process – the procedures that are undertaken to gain an assessment of learning/assessment for learning and the action that results from an analysis of that assessment
- the perspective of the learner – do the children recognise the benefits to their development?

A critical stance...

The essential idea of AfL is well regarded in education so how can you question it?

- Use examples from your own practice to question and analyse
- Look at the issue from different angles
- Weave the opinions of authorities on this subject into your writing
- Look in depth at an approach

Assignment 2

Consider *assessment for learning* (AfL) in depth and critically analyse your use of AfL in your teaching of an aspect of **either** mathematics or English (2500 words).

Criteria

Level	Generic Criteria	What it means for this assignment (A2)
6.1	Can reflect on and describe an element of their own professional experience showing awareness of different perspectives.	Reflect on your use of AfL. Move beyond simple description and consider the implications of your use of AfL on the children's learning. Consider wider/alternative views.
6.2	Can recognise and describe features of an educational issue of relevance to their own professional practice and development.	Focus your discussion on one or two areas within AfL, allowing you to examine these areas in depth. Be clear about why you have chosen to focus on that issue/those issues. Be explicit about how your understanding of AfL will influence your future practice.

Criteria

6.3	Can use appropriate literature to identify and discuss the main features of a professional issue.	Be clear that you have a good understanding of official guidance and other authoritative opinion on the role of AfL in good practice.
6.4	Knows the major contents of the area of study and shows evidence in writing or action that the relationship of these concepts to workplace practice is understood.	Illustrate how AfL has been used within the planning cycle to inform the choice of teaching and learning strategies in response to identified need. Offer evidence and explanation.

Criteria

6.5	Can write a coherent and concise report presenting a problem or argument based on the outcomes of (valid) written enquiry.	Ensure that the assignment is well written and referenced. Structure the text clearly with ideas linked cohesively throughout. Be sure that your analysis leads to conclusions about how you will develop your use of AfL in the future. Include all the required appendices and organise them clearly and accessibly.
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Criteria

7.1	Can critically analyse and reflect on professional practice using an identified framework and/or general theory.	Demonstrate your ability to analyse your use of AfL critically. Relate the analysis to theories of AfL to support your understanding of your practice.
7.2	Can use published research and other literature in a critical way to evaluate findings of an original enquiry or other professional activity.	Support and develop your critical stance on AfL with reference to appropriate literature demonstrating awareness of potential problems and new insights.

Reminders...

Refer to criteria
Use Harvard referencing - library guide is excellent
Use resources on Minerva - assessment handbook, TasR sessions, A2 folder
Submit all appendices (anonymise)
Submission date: 19th Feb 2016

Appendix 1c Critical reflection in ‘Assignment 3 lecture’

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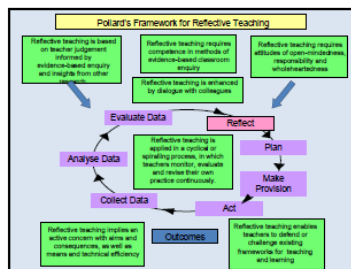
<p>Preparation</p> <p>This reading from Warwick gives a summary of the models of reflection. You may find it useful to read this. It introduces Pollard's framework for reflection which draws on the work of Dewey and Schön. http://dera.ioe.ac.uk/13026/1/3573.pdf</p> <p>Bring 3 weekly reviews/ excerpts from reflective log/ evaluations from different points in the course.</p>	<p>Teacher as Researcher Lecture</p> <p>Preparing for Reflective Commentary</p>	<p>Aims of Lecture</p> <ul style="list-style-type: none"> • To establish expectations for the Reflective Commentary (A3) • To be reminded of the reflective frameworks of Dewey, Schön and Pollard • To be introduced to two further reflective frameworks (Gibbs and Kolb)
<p>Reflection: Informal & Formal</p> <p>Informal Reflection</p> <ul style="list-style-type: none"> • Involves self-questioning • Develops our awareness of our own assumptions <p>Formal Reflection</p> <ul style="list-style-type: none"> • Draws on research & theory • Provides guidance & frameworks for practice. 	<p>Why engage in reflective practice?</p> <p>Leeson (2004) suggests that if practitioners engage in reflective practice it gives a chance to resolve past conflicts and to develop new skills, knowledge and understanding in the workplace and to begin to question why we do the things we do.</p>	<p>The Importance of Reflection</p> <p>Reflection enables us to:</p> <ul style="list-style-type: none"> • Be conscious of our potential for bias & discrimination. • Make the best use of the knowledge available. • Challenge & develop the existing professional knowledge base. • Avoid past mistakes. • Maximise our own opportunities for learning.
<p>What is critical reflection?</p> <p><i>"A deliberate distinction is made here between reflection and critical reflection. The latter incorporates a questioning of underlying assumptions and wider social issues rather than a focus only on individual perspective," Harrison and Lee (2010).</i></p>	<p>A critical, analytical thinker</p> <ul style="list-style-type: none"> • raises vital questions and problems, formulating them clearly and precisely • gathers and assesses relevant information, for example their own data or the research of others • comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards • thinks open-mindedly within alternative systems of thought, recognizing and assessing their assumptions, implications, and practical consequences • communicates effectively with others in figuring out solutions to complex problems 	<p>Language of critical reflection</p> <p>Reflective commentary Critical analysis Transformational thinking Reflective frameworks Critical incidents Pivotal / key moments</p>
<p>Reflective frameworks (recap)</p>	<p>Dewey's (1938) 5 Stage Model</p> <ol style="list-style-type: none"> 1. We identify a problem that is perplexing & 'felt' 2. We observe & refine the identified problem to create a fuller understanding 3. We develop a hypothesis or an understanding about the problem, its origins & possible solutions 4. We subject the hypothesis to scrutiny & reasoning 5. We test the hypothesis or understanding in practice <p><small>Dewey, J. (1938) <i>Logic: The Theory of Inquiry</i>. Troy, MN: Kinehart & Winston. Cited in Miettinen (2000).</small></p>	<p>Schön's (1983) 'Reflection on Action'</p> <p>Reflection on action is reflection after the event. It is a deliberate, conscious activity principally designed to improve future action.</p> <p>This type of reflection amplifies strengths as well as challenging and reconstructing individual and collective teacher action.</p> <p><small>Schön, D. (1983) <i>The Reflective Practitioner</i>. London: Temple Smith. Summarised in Graye, T (2010) <i>Teaching and Learning through Reflective Practice – an ebook</i>, available from Bath Spa's library</small></p>

Schön's (1983) 'Reflection in Action'

- looking to our experiences, connecting with our feelings, and attending to our theories in use.
- building new understandings to inform our actions in the situation that is unfolding.

The teacher experiences surprise, puzzlement, or confusion in a situation. s/he reflects on the phenomenon and on the prior understandings which have been implicit in her/his behaviour. An experiment follows that serves to generate both a new understanding of the phenomenon and a change in the situation.

This model celebrates the intuitive & artistic approaches that can be brought to uncertain situations.



Further reflective frameworks

You may wish to explore other frameworks

Kolb's (1984) Learning Cycle

1. Concrete Experience: The event
2. Reflective observation: Consider what has happened from a variety of perspectives e.g. own feelings, the group's, an individual student's view
3. Abstract conceptualisation: Re-package & process your reflections into a theoretical understanding (use theory to analyse the event)
4. Active Experimentation: Armed with this new understanding, you do it again, differently this time.

Kolb, D. (1984) *Experiential Learning*. New Jersey: Prentice Hall

Gibbs Reflective Cycle



Gibbs, G. (1988) *Learning by Doing: A guide to teaching and learning methods*. Further Education Unit, Oxford Polytechnic, Oxford.

Linking frameworks to practice

- Look at your weekly reviews/reflective log/lesson evaluations
- Can you identify where you have been critically reflective?
 - Have you questioned your assumptions?
 - Have you come to a new conclusion?
- Which reflective frameworks could you argue are evident in your reflective process?

Assignment expectations

You will be expected to have:

- identified and reflected on transformational thinking which has had a direct impact on your development as a reflective practitioner
- made explicit your developing awareness of the way in which you engage in the reflective process, how your ability to reflect has developed
- compared reflective frameworks and considered how this has had an impact on your classroom practice
- considered how your ability to reflect has led you to challenge or question your opinions about teaching and learning
- identified future development priorities and interests

Guidance on the Reflective Commentary

5,000 words in total
An essay - 3,500 words

Here you select and analyse significant experiences during your course that exemplify your transformative thinking and development. Focusing your critical analysis on such experiences will give your commentary structure and coherence as you explore and demonstrate your growing ability to reflect.

You should use an identified framework for reflection as a way of explaining and illustrating some of your reflective behaviours and as a vehicle for questioning and developing your own reflective skills.

Appendices with reflections 1,500 words

You should use your appendices to illustrate and illuminate the discussion.

This section will include key pieces of evidence (about 6) that have supported your reflection. The inclusion of a piece of supporting evidence on its own does not tell the reader how it influenced your thoughts, so each piece of evidence should have supporting reflective analysis attached to it. The word count for this analysis is at least 1,500 words

Things that could go in your appendices are:

- Excerpts from your reflective log and/or weekly reviews
- Notes from key conversations with your mentor/tutors/fellow BSTs etc
- Notes from key readings
- University documentation – lesson observation forms, weekly review forms
- Lesson plans and evaluations
- Annotated examples of profile child regarding pupil progress

Layout examples

Separate the evidence/extract from the commentary
E.g. Annotated lesson plan (not in wordcount)
with commentary (in wordcount)



Relationship between essay and appendices

The essay will be the place where you 'tell the story' of your developing ability to reflect, using the key moments as a way of organising your thoughts and critically reflecting upon them.

Compare identified frameworks for reflection as a way of analysing some of your reflective behaviours and as a vehicle for questioning and developing your own reflective skills.

Use your appendices to illustrate and illuminate the analysis.

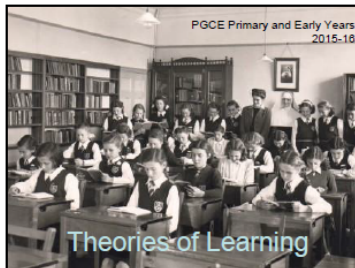
There will be excerpts of examples from essays on Minerva.

Submission date:

Monday 18th April 2016

Appendix 2a Theory and practice in 'Assignment 1 lecture'

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Overview

- Explore major theories of learning
- Apply theories of learning when observing
- Consider elicitation in Science
- Explain how this feeds into Assignment 1

Theories of Learning


What 'lenses' are we using to make sense of our observations?

- Behaviourism
- Piagetian Constructivism
- Social Constructivism
- Socio-cultural perspectives (situated learning)



Analysing classroom learning: Music

Which theory of learning makes sense of the learning in a whole-class ukelele lesson?



<https://www.youtube.com/watch?v=longwQdLpQ>

Behaviourism

Key features

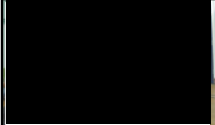
- Stimulus-response sequences
- Mind as a 'black box'
- Knowledge as a repertoire of behaviours, or behavioural capacities
- Positive and negative reinforcement
- Repetition – 'skill and drill'

In class

- Behaviour modification through praise eg stickers for good work
- Behavioural (learning) objectives in planning
- Rote learning eg for spelling tests
- Teaching as delivery

Eg Skinner cited in Wiley Unit 2.2 'Looking at Learning' in 1st edition of PG core text


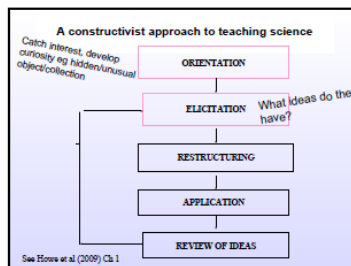
From a Piagetian perspective – learning music is:



less about acquiring performance skills and music appreciation
more about composing and improvising
all about doing and experiencing
(Swanwick 1988 p47)

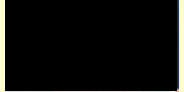
Constructivism

- Learning is through interaction with what is already known (their own mental representation) and new experiences
- Meanings can be accepted (assimilated), accommodated or rejected
- Equilibrium/stability - is important – so mental structures are resistant to change
- What is in the learner's mind matters
- Learners are active and self motivated - learning as discovery, testing out theories
- Emphasis on practical activity, enquiry, problem-solving

Analysing classroom learning – investigating materials

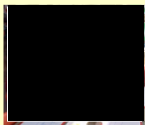
What theory(ies) of learning can you use to analyse this extract from a lesson?



<https://www.youtube.com/watch?v=mttB6F4z-860>


Social constructivism

- Learning as a collaborative process
- Zone of Proximal Development
- Teachers act as guides/facilitators/ scaffolders
- Social Creativity
- Role of emotions in learning
- Action and reflection
- Problem-solving

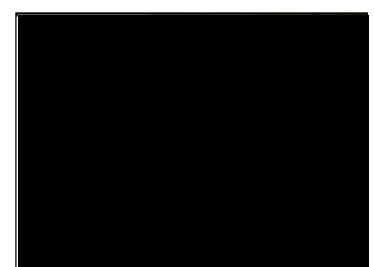


Analysing classroom learning – PE

What theory(ies) of learning can you use to analyse this extract from a lesson?



<https://www.youtube.com/watch?v=1tqg2V95o08>



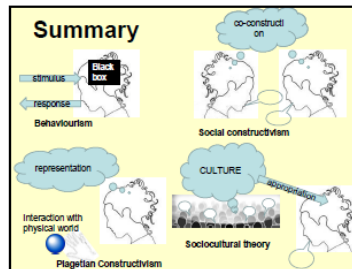
Socio-cultural perspectives

Culture of society is reflected in culture within educational settings
e.g. competitive sports/daily communal exercise yoga?

- Learning is mediated through cultural tools:
 - Language, non-verbal interaction, objects/signs/symbols, images, location, purposes of the people involved

➤ Ideas are developed between people, not just inside the minds of individuals. The individual child appropriates for themselves meanings that have been developed between people.

What views might children have of themselves in relation to dance, football.....?



Analysing classroom learning – Art & Design

What theory(ies) of learning can you use to analyse this extract from a lesson?

<https://www.youtube.com/watch?v=mtt50P4t-80>

Assignment 1 - How Children Learn

Critically analyse how children learn, with reference to elicitation and observation tasks, and relevant literature on theories of learning.
(2500 words plus or minus 10%)

School based tasks
Task 1A – Elicitation of children's ideas in Science
Task 1B – Observe 2 children learning in a context which is rich in PE / Art / Music / D&T

Submission deadline:
Noon Monday 23rd November 2015

School based task 1A: ELICITATION

Finding out what children think

Work with a group of 3-4 children in a science context
e.g. 'electric circuits', 'What is inside our bodies?' 'What our homes are made of'.

For younger children this might include: role play (e.g. hospital), observing living things, exploratory play, cooking

Focus on eliciting children's understanding of the science concepts involved

Not a *teaching* activity

Strategies for eliciting and recording children's ideas..

- Observation & Discussion
- Use of floor books
- Using collections
- Annotated drawings
- Concept cartoons
- Concept maps

Observation of children

- Beware preconceptions; be open-minded
- Note exactly what you see and hear – interpret later
- Note details – time place, who, context

Use 'person-centred' questions (Harlen)

How does sound travel? (requires a factual answer)

What do you think? (invites personal ideas)

What do you notice about the sounds that you heard?

How do you think the drum makes a sound?

What materials do you think sound can travel through?

Floorbooks

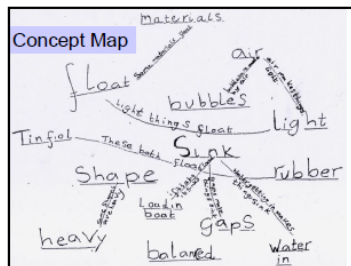
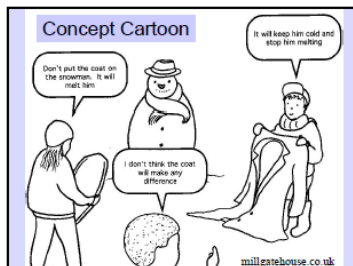
Record children's utterances - their actual words

<http://www.gem.org.uk/resources/containing-professional-development.aspx>

Using collections

Annotated drawing

Annotated drawing



You will need to know about research into children's ideas in science:

The SPACE Project reports
Science Processes and Concept Exploration

Directors: Wynne Harlen and Paul Black
http://www.nuffieldcurriculumcentre.org/gom/insite/PrimarySciencePage_243.html
 The library also has copies of most of the reports in the oversize section (572.35 SPA)

Also see core science texts for egs of these too.

Next steps

- **Reading and thinking** – Core science and prof studies text, Minerva (Asst section), SPACE Reports, library
- **School tasks** – Begin to plan an elicitation activity. Negotiate timing/children for the elicitation and observation when in school.
- **Support** – PS seminar, Science seminars for elicitation, TaR for analysis and writing.

Appendix 2b Theory and practice in ‘Assignment 3 seminar’

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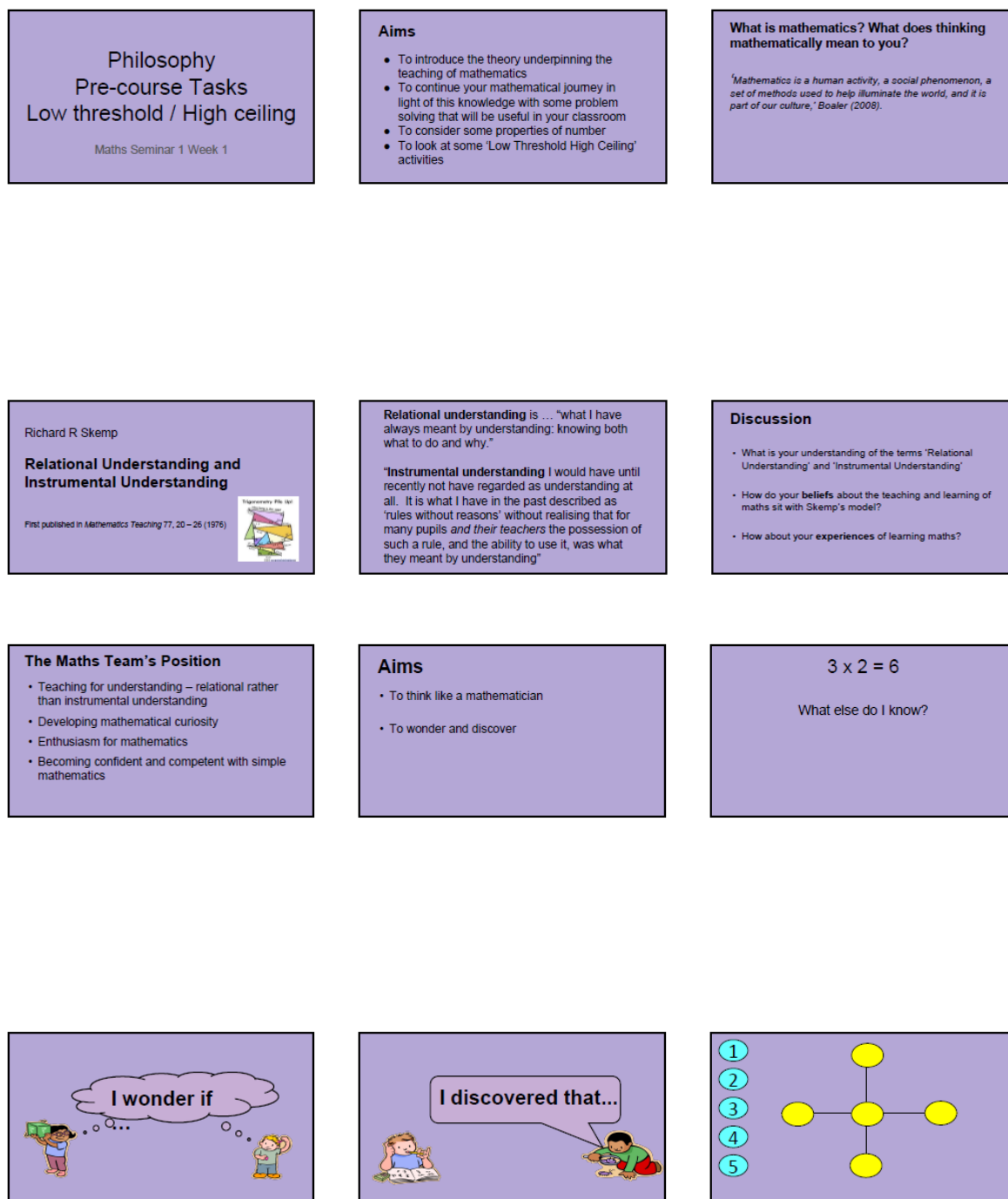
<p>Before the seminar BSTs will have been asked to:</p> <ul style="list-style-type: none"> • Write a succinct summary: What is reflection and why do you consider reflection to be important? Bring this to seminar. • Read: Caswell L & Hewitt D (2014) Writings which changed us within <i>Mathematics Teaching</i> Issue 238. January 2014 Derby: ATM (To be found through Academic Research Premier) • Go through Weekly Reviews and Reflective log and identify examples of experiences that have changed/ transformed your practice. Be prepared to share the experience 	<p>Support for the Reflective Commentary</p>	<p>Aim</p> <ul style="list-style-type: none"> • To engage in discussions and activities that will support your thinking in preparation for the Reflective Commentary assignment
<p>What is reflection and why is reflection important?</p> <ul style="list-style-type: none"> • In small groups share what you’ve written and pool your key points. 	<p>Diamond Nine activity.</p> <ul style="list-style-type: none"> • In groups of four, work collaboratively to rank these statements in a diamond configuration with the most important at the top and the least important at the bottom. • You will need to think about and explain why you hold a particular viewpoint justifying your stance with examples. 	<p>Writings which changed us <small>Caswell & Hewitt (2014)</small></p> <ul style="list-style-type: none"> • Work in small groups. • Focus on Linda’s reflections on writings that changed her. • Identify the main steps in her reflections. • Refer to Kolb’s model. How well do Linda’s reflections fit with this model? • Refer to Gibbs’ model. How well do Linda’s reflections fit with this model? • Discuss which model works better. Could you develop the model further?
<p>Transformative thinking</p> <p>Task: You have identified an aspect of teaching and learning about which your ideas have changed over the PGCE. In pairs</p> <ol style="list-style-type: none"> 1. Identify the shifts in your thinking i.e. what you thought before and after events that occasioned a change in thinking (transformative thinking) 2. Identify the events that led to the shift in your thinking which could be experience, observation, lecture input or maybe a reading. 3. Discuss the role of reflection in this process and the use of reflective frameworks 	<p>Why engage in reflective practice?</p> <p>“Professionalism implies a responsibility to the continuous development of practical knowledge through reflection and interaction. It means reviewing the nature and effectiveness of practice and continuing to increase understanding of the purposes and content of education individually and collectively”</p> <p>Mary Boustead 2010</p>	<p>What are the barriers to reflection? What would help you to reflect?</p> <p>Discuss in pairs and note on post its. Share</p>
<p>Barriers to Reflection</p> <p>Practical Barriers</p> <p>Kolb (1984) sees that to reflect effectively on your experience, you should actively set aside part of your working day to reflect & analyse.</p> <p><small>Kolb, D. (1984) <i>Experiential Learning</i>. New Jersey: Prentice Hall</small></p>	<p>Barriers to Reflection</p> <p>Psychological Barriers</p> <p>Fear of judgement, fear of criticism, being closed to feedback, defensiveness, professional arrogance.</p>	<p>Bridges to Reflection</p> <ul style="list-style-type: none"> • Non-judgemental support, e.g. mentor, manager • Feeling ‘safe’ enough – or we may use ‘expedient’ learning & do what we expect will get us through • A role model, e.g. a mentor who reflects on their own practice • Knowledge of as many methods as possible • As many opportunities as possible for engaging in reflection, e.g. pairs, groups • Time & Energy. <p><small>Isler, G. (2003) Developing the relationship between reflective practice & social work values. <i>Journal of Practice Teaching</i>, 5, 1, pp 7-22.</small></p>

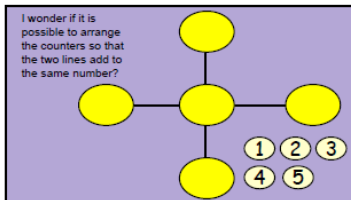
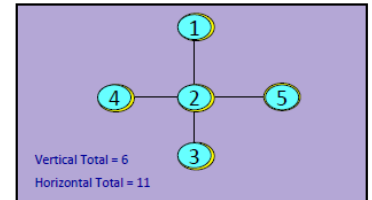
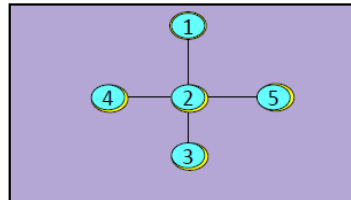
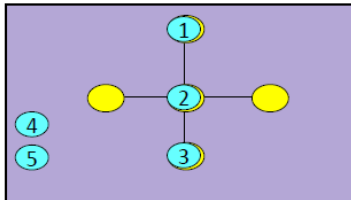
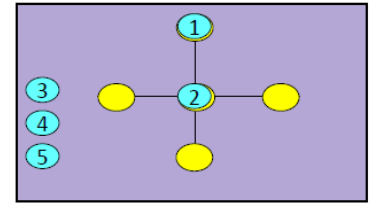
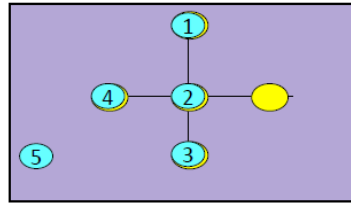
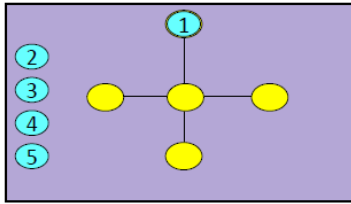
Suggested next steps

- Build on your example of transformative thinking or choose another example
- Select a reflective framework
- Analyse your example against the framework
- Are there elements of the framework that you can critique?
 - Identify where it matches well?
 - Are there elements of the framework which are less helpful?
- Choose another framework and work through a similar process.
- This will support you to begin to write your essay.

Appendix 2c Theory and practice in 'Maths seminar'

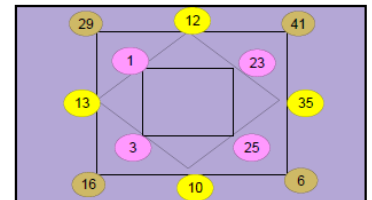
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Other useful phrases

- I predict that...
- I think...
- Maybe...
- I noticed that...
- How about we try...
- What if...
- I found out that...
- I want to think about... some more



Chains

Rules for making a chain:

1. If a number is even, divide by 2
2. If a number is odd, multiply it by 3 and add 1

6 → 3 → 10 → 5 → 16 → ...

Continue the chain – what happens?

Choose other starting points and see what happens

Now you have done some maths

- how confident are you about your knowledge and understanding?
- how did you find the subject knowledge audit?
- what conclusions can you draw about your subject knowledge needs?
- what will help you to fulfil these needs?

Pre-course tasks

Skemp - applicable today?

Rowland and Turner - different types of sk

Haylock - which chapter did you choose to write about? Why that one?

Audit - next slide

(Look at SK folder - supported by online lecture 1 - to do this week N.B. label your folder correctly before sharing)

Audit Part 1 / Action Plan

In your maths SK folder on Google drive there is a document called 'Audit Part 1 / Action Plan'

You need to complete this document and then indicate that you have done so in your checklist

In the second university training phase we will repeat the audit process so that you can monitor your development

Refer to the online lecture for an overview of the course

Concerns?

If you have concerns about your subject knowledge (reflect on your experiences of maths to date including this seminar the mental maths test at interview, the QTS test and the audit) please let your tutor know - we can direct you to materials to support the development of your subject knowledge.

Pre-course Task 5: Core test

You will need to purchase a copy of the core test book for the mathematics course. We will refer to this text throughout the course and will set exercises from it; we recommend that you buy the latest (8th) edition: Haylock, D. and Manning, R. (2014) Mathematics explained for primary teachers, 8th Ed. London: Sage. Once you have purchased your book please read Section A. Then choose one of the three chapters in this section to write 200 words (c. 10 – 15%) about in response to the issues which are raised. You may be able to make links with the other pre-course tasks and your own experiences of teaching and learning mathematics.

The core test book has a companion workbook which is also very useful and you may decide that you want to buy this too: Haylock, D. (2014) Student workbook for mathematics explained for primary teachers, 2nd Ed. London: Sage. If you decide to buy the workbook you could begin working through it at your own pace.

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Further reference source for ideas in school

NRICH site, Low Threshold and high Ceiling tasks:

<https://nrich.maths.org/3769>

Appendix 3 Annotated teaching and learning plan and evaluation

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Name	Date
-------------	-------------

Targets identified from previous lesson evaluation or weekly review
Context of learning (curriculum area / where does this fit within a sequence of learning)

Whole class / Group of XX children / Individual	Delete as appropriate
Part lesson (introduction / development / Plenary) / Whole lesson	Delete as appropriate

Curriculum references <i>Links to specific statements from the National Curriculum and/or EYFS Framework</i>	Prior knowledge and possible misconceptions <i>Review previous information from planning/evaluations. Why has this activity been chosen? Why is this the next step in the children's learning? Be aware of differences in the children's previous learning.</i>
Learning intentions (What do you want the children to learn? To be able to... e.g. Must, Should, Could) <i>NB This needs to be separated from what the children will actually do</i>	Assessment for learning (How are you going to assess learning and progress?) <i>How will you know what the children have learnt? How will you record these assessments? Who else is involved?</i>
Inclusion Strategies (personalised provision, overcoming barriers, promoting equality and diversity)	Deployment of additional adults (Introduction, development and plenary phases)
Pre-activity prep (including Explore English/ Maths, other Subject knowledge, approaches and strategies)	Resources required

Activity (Which children? Where? Resources? Timing? What will children do? What will you do?)
--

<p>Introduction (Key questions. How will you communicate the objective to the children? New vocab? <i>How are you going to motivate and inspire all the children?</i> <i>How will the lesson help them grow as a learner?</i> <i>How are you going to inform the children of the learning intentions? How will you do this? What language/ examples/ questions/ demonstration will you use?</i> <i>How are you going to set clear boundaries and behaviour expectations?</i> <i>How will you involve the children and other adults?</i></p>
<p>Development (Key questions, organisation of children, mini plenaries / continuous assessment strategies, role of teacher and additional adults) <i>Which children? Where? Resources? Timing?</i> <i>What are the children going to do?</i> <i>What are you going to do?</i> <i>How are you going to support the learners to manage their distractions and stay focussed and engaged?</i> <i>Does the learning environment provide an atmosphere which is conducive to the activity taking place?</i> <i>Are any other adults involved? Who? What?</i></p>
<p>Plenary (This should link to the objective and include key questions) <i>How will you celebrate/ consolidate/ continue the learning?</i></p>

Evaluation and reflection (Learning, progress, surprises, barriers, strengths, areas for development)

What went well?	Even better if....
<p>Impact of teaching on learning and response/progress of children <i>Where are the children now?</i> <i>What have the children learned?</i> <i>How will I share this with them? (and their parents/carers?)</i> <i>How will I record their learning?</i></p>	<p>Impact of teaching on learning and response/progress of children <i>Any surprises?</i> <i>What barriers prevented them from learning effectively and why?</i> <i>What next for them?</i></p>
<p>Teaching and classroom management (including behaviour) <i>What worked well? Why?</i></p>	<p>Teaching and classroom management (including behaviour) <i>Where do I go from here?</i> <i>Could I have done something differently to support the children's learning?</i> <i>What steps do I need to take, both short term and long term for the future?</i> <i>Where will I find out and from whom?</i></p>

Key learning for next teaching session

Appendix 4 Weekly review template

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Date:

<p>Review of progress against the Teachers' Standards <i>Consider last week's targets and summarise progress made and still to make. Go on to review progress against the Teachers' Standards including the impact of this week's training on professional practice and how it has resulted in pupil progress.</i></p>
<p>This week's targets: <i>Use the Teachers' Standards to identify a maximum of <u>three precise and achievable short term targets that will lead to pupil progress</u>. Targets and Actions to be discussed and agreed with Training Mentor during assessed school training.</i></p>
<p>New Targets:</p>
<p>Actions to achieve targets</p>
<p>Training Mentor comments (school training only) <i>Please comment on the trainee's progress this week. Training mentors should comment on areas of strength/development and the impact of the trainee's teaching on pupil progress.</i></p>

Training Mentor - Is there any cause for concern regarding the trainee's progress and/or wellbeing?	Y/N
Training Mentors please confirm that the trainee's school training file is evidencing: planning and evaluation of pupil learning, and pupil progress over time.	Y/N

Date of formal lesson observation (school training only)	
Observer	

Copies to be submitted electronically and retained in Section 2 of the PLPP
Information included in this document may be used in the trainee's reference

Appendix 5 Taught tutor session ‘Critical reflection in weekly reviews’

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<h3>Weekly Reviews</h3> <p>Writing reflectively and effectively</p>	<h3>What is the purpose of the Weekly Review?</h3> <p>The Weekly Review is designed to develop your skills of reflection and analysis and is a valuable professional development tool to support and evidence your progress towards meeting the Teachers' Standards.</p>	<h3>What is the purpose of the Weekly Review?</h3> <p>The weekly review is also designed to encourage communication and dialogue between you, your AT and your training mentors.</p> <p>Your AT will read and comment using the 'comments tool' on a bi-weekly basis - this may be more frequent, especially at the beginning of the year.</p> <p>During your school training, your training mentor will write a comment every week.</p>
<h3>When to write the weekly review</h3> <p>You will complete weekly reviews every week apart from during university holidays.</p> <p>Weekly reviews need to be completed and shared with your AT by the Monday following the week you have reviewed.</p> <p>Each review must be named sequentially e.g. Weekly Review 01, Weekly Review 02, Weekly Review 03... It is important to add the 0 for technical reasons!</p> <p>The Weekly Review Template</p>	<h3>Being reflective</h3> <p>It is important to not merely describe your week but rather to reflect in an analytical way on key pedagogical concepts, issues and insights that are integral to your on-going personal and professional learning and development.</p>	<h3>Completing the Weekly Review</h3> <p><i>Review of progress against the Teachers' Standards</i> <i>Consider last week's targets and summarise progress made and still to make. Go on to review progress against the Teachers' Standards including the impact of this week's training on professional practice and how it has resulted in pupil progress.</i></p>
<h3>Setting Targets</h3> <p>In your weekly reviews you will set targets and review previous ones. Targets need to be clear, appropriate and achievable. You will need to think carefully about how these targets relate to the Teaching Standards and cross-reference accordingly.</p> <p>(Obviously in your first weekly review you will not be able to reflect on progress made towards prior targets).</p>	<h3>Completing the Weekly Review</h3> <p>This week's targets: <i>Use the Teachers' Standards to identify a maximum of three precise and achievable short term targets that will lead to pupil progress. Targets and Actions to be discussed and agreed with Training Mentor during assessed school training.</i></p> <p>New Targets:</p> <p>Actions to achieve targets:</p>	<h3>The Weekly Review Meeting</h3> <p>During your school training you need to agree a regular time with your training mentor to discuss your weekly review. You need to complete your reflections and draft your targets prior to this meeting.</p> <p>Use this as an opportunity to have a professional dialogue, share your reflections on the children's progress, acknowledge the successes that week, discuss the challenges and seek advice and guidance.</p>

Completing the Weekly Review

Training Mentor comments (school training only)
Please comment on the trainee's progress this week. Training mentors should comment on areas of strength/development and the impact of the trainee's teaching on pupil progress

How much to write

It is not necessary to write pages and pages, as it is important to be realistic about how much time you have. As a rule of thumb, we suggest the weekly review should be between **one and two pages long**.

You will need to plan well to ensure you give yourself sufficient time each week to write a full and thoughtful account.

Appropriate Style

Weekly reviews should be written in a **professional manner, using appropriate English**, with **ethical consideration** given to the audience – remember they are a reflection of your professional practice and will be accessible to a range of people, they will also be used by ATs as a source of evidence for your reference.

Examples

Here are some examples of weekly reviews, which will give you an idea of the nature of the reflective approach you are encouraged to take:

This review was from a BST from Cohort 3, written in September:

<https://docs.google.com/document/d/15fndfnd0Tn0408rMay381NT0zP0C3w0w0y0v478Vn6/edit>

This review was from a BST from Cohort 2, written in October:

https://docs.google.com/document/d/11PPLp30kK0wCYY4080P6_S0g0n0b0C5v76v70N110hM/edit?usp=sharing

This review was from a BST from Cohort 1, written in January:

<https://docs.google.com/document/d/1F4VnArqf1qeP4u0Nv0f1N0v0p4K110hM4410w0/edit?usp=sharing>

This review was from a BST from Cohort 3, written in October:

<https://docs.google.com/document/d/1H0p0dP110M0N0a0h0r0H0w0K0070v0u0G0G0v4/edit>

Further Support

There will be more opportunities to develop your weekly reviews throughout the course.

There will be another AT session on 12th May which will focus on deepening reflection through weekly reviews.

Appendix 6 Generic assessment criteria for all PGCE assignments

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Level	Generic Assessment Criteria
6.1	Can reflect on and describe an element of their own professional experience showing awareness as of different perspectives.
6.2	Can recognise and describe features of an educational issue of relevance to their own professional practice and development.
6.3	Can use appropriate literature to identify and discuss the main features of a professional issue.
6.4	Knows the major contents of the area of study and shows evidence in writing or action that the relationship of these concepts to workplace practice is understood.
6.5	Can write a coherent and concise report presenting a position or argument based on the outcomes of reading and/or enquiry.
7.1	Can critically analyse and reflect on professional practice using an identified framework and/or general theory.
7.2	Can use published research and other literature in a critical way to evaluate findings of an original enquiry or other professional activity.

Appendix 7 Assignment 3 guidance

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The Reflective Commentary

“Reflection deepens learning. The act of reflecting is one which causes us to make sense of what we’ve learned, why we learned it, and how that particular increment of learning took place. Moreover, reflection is about linking one increment of learning to the wider perspective of learning – heading towards seeing the bigger picture.

Reflection is equally useful when our learning has been unsuccessful – in such cases indeed reflection can often give us insights into what may have gone wrong with our learning, and how on future occasion we might avoid now-known pitfalls. Most of all, however, it is increasingly recognised that reflection is an important transferable skill, and is much valued by all around us, in employment, as well as in life in general.”

Race, P. (2002) Evidencing Reflection: Putting the ‘w’ into Reflection.
[<http://escalate.ac.uk/resources/reflection>]

The Reflective Commentary is an ongoing, developmental piece of work which will be guided within Teacher as Researcher seminars and will have an outcome of a final submission of 5000 words (plus or minus 10%) You will be expected to have:

- a) identified and reflected upon transformational thinking, building on experiences or areas of interest, which have had a direct impact on your development as a reflective practitioner
- b) made explicit your developing awareness of the way in which you engage in the reflective process, how your ability to reflect has developed and how this has had an impact on your classroom practice
- c) considered how your ability to reflect has led you to challenge or question your opinions about teaching and learning.
- d) identified future development priorities and interests.

Reflective Commentary submission:

The Reflective Commentary is a vehicle through which you will track and document your understanding of the complex process of your development into a reflective teacher. You will need to illustrate this development through the selection of examples of your transformative thinking and critically analyzing against theoretical frameworks. These will be based on experiences during the PGCE course and foregrounded within Teacher as Researcher seminars. This will enable you to engage fully in the process of reflection.

Purpose

The Reflective Commentary will enable you to develop an enhanced range of reflective skills that will be beneficial as you navigate your way through the complex situations that you might encounter in your future professional practice.

Specifically, it is designed to enable you to:

- critically link theory to practice
- support your learning in action
- develop your ability to analyse and evaluate different approaches to learning and teaching and thus to develop a reflective approach in your work
- support you in the use of research and reading to explore areas of personal interest
- support and challenge you to manage your own learning
- equip you to manage complex professional situations that you might encounter in your future practice
- gain personal and professional insights
- make changes to your practice
- recognise and develop your range of experience and talents so that you become the unique teacher that only you can become.

Reading

Please see guidance within Assessment section of Minerva.

Gathering Evidence

Evidence for the Reflective Commentary will be drawn from all parts of the PGCE course, including weekly reviews lesson observation feedback and reflective log. There are specific University based tasks that support the Reflective Commentary (RC), which will be introduced and explored within Teacher as Researcher lecture and seminar.

Guidance on preparing and presenting the Reflective Commentary

5,000 words in total

An essay - 3,500 words

Here you select and analyse significant experiences during your course that exemplify your **transformative thinking and development**. Focusing your critical analysis on such experiences will give your commentary structure and coherence as you explore and demonstrate your growing ability to reflect.

You should identified frameworks for reflection as a way of explaining and illustrating some of your reflective behaviours and as a vehicle for questioning and developing your own reflective skills.

Appendices with reflections 1,500 words

You should use your appendices to **illustrate and illuminate the discussion**.

This section will include key pieces of evidence that have supported your reflection. The inclusion of a piece of supporting evidence on its own does not tell the reader how it influenced your thoughts, so each piece of evidence should have supporting reflective analysis attached to it. **The word count for this analysis is equivalent to at least 1,500 words.**

Things that **could** go in your appendices are:

- Excerpts from your reflective log and/or weekly reviews
- Notes from key conversations with your mentor/tutors/fellow trainees etc
- Notes from key readings
- University documentation – lesson observation forms, weekly review forms
- Lesson plans and evaluations
- Evidence of impact on pupil progress
- Subject knowledge folder

The final submission of your Reflective Commentary will be an essay with appendices. The essay will be the place where you ‘tell the story’ of your developing ability to reflect. You should identify frameworks for reflection as a way of analysing some of your reflective behaviours and as a vehicle for questioning and developing your own reflective skills. You should refer to the significant experiences as you tell this story in order to illustrate and illuminate the discussion.

A suggested structure is provided below, but everyone reflects in different ways and there is no requirement to follow this structure. However, you should aim to include each of the elements identified below.

Contents	Guidance
Overview/Introduction	You should identify and briefly outline the main ways in which you engaged in the process of reflection and the framework or frameworks that have helped you to develop this process.
Transformative thinking	You should be able to write in depth about how your ability to reflect has developed during the course. We suggest that you focus on and analyse in detail, experiences which have had a significant impact on your practice and/or thinking.
Wider perspectives and reflexivity	Although some descriptive details will be needed to tell your story, the reflective commentary needs to be grounded in the broader context beyond your classroom. This discussion should be supported by reading. It will also contain thoughts about what the process of reflection has taught you about yourself - as a learner and as a teacher. Your commentary will enable you to share how the person you are has had an impact on your developing reflective processes.
Review of self as a learner, leading to conclusions and priorities	In this final section, be sure to make explicit and develop evidence of how you have reflected on your practice, identified improvements, adapted your practice, acted

for future professional development	upon advice and evaluated the impact of these modifications.
Appendices	A selection of evidence (about 6 pieces) relating to your development as a reflective practitioner. They should clearly connect to and support your commentary. Each piece of evidence should itself include an analysis by you (see details above).

NB You will need to refer to literature about reflection and also about the topic you are reflecting upon

Appendix 8 Weekly review selection rationale

Yr1 data (15 trainees - total reviews=120)

Term 1 (uni) Wk 4 061014 code1

Term 2 (sch) Wk 8 031114

Term 2 (sch) Wk 10 171114

Term 2 (sch) Wk 12 011214 code1

Term 3 (sch) Wk 16 120115

Term 3 (uni) Wk 20 090215

Term 4 (uni) Wk 23 020315 code1

Term 6 (sch) Wk 33 010615

Yr2 data (10 trainees - total reviews=80)

Term 1 Wk 5 051015

Term 2 Wk 8 021115

Term 2 Wk 10 161115

Term 2 Wk 12 301115

Term 3 Wk 16 110116

Term 3 Wk 19 010216 (this is a week earlier than Yr1 due to half term dates)

Term 4 Wk 23 070316

Term 6 Wk 33 060616

Early review from Term 1 3-4 weeks into the course. Trainees are settling into the routines of the course, including using the online tools and writing weekly reviews. Any technical teething problems should have been overcome, allowing trainees to focus on the content. This review is an indication of the trainee's starting point in terms of reflection.

School-based training is dominated by observation and supporting groups, with fewer opportunities to plan and teach. Reflective skills are taught in university sessions and scaffolded by comments in weekly reviews from AT and TM.

3 reviews in Term 2. This covers a period in which they are developing teaching skills in the classroom and their learning is accelerating. This should be accompanied by increased reflection on their development, supported by comments and questions from AT and TM. They may have experiences that challenge their assumptions and previous understanding of teaching and learning. This is a period of rapid development, including preparation for the 1st assignment which requires critical reflection as a L7 criteria, therefore collecting more data during this period. Reflective skills continue to be taught in university sessions and scaffolded through AT and TM's comments on weekly reviews.

2 reviews in Term 3. Classroom teaching skills are still developing, but also consolidating. Trainees have also encountered more theory through university teaching and assignment writing. This includes criticality - using theory to analyse practice and using evidence from practice to critique theory. Beginning to draw their own conclusions about teaching and learning. Reflection is emphasised throughout the course, particularly in university sessions that enable trainees to make connections between theory and practice.

1 review Term 4. Working towards final assignment, which explores their reflective journey during the PGCE. They directly encounter theoretical frameworks about reflection. This should raise awareness of how their perceptions and core values have developed. The

course is designed so that, by this point, trainees should have developed a critically reflective approach to their own teaching and understanding of learning.

1 review Term 6. Towards the end of the PGCE, both teaching skills and vision of teaching and learning should be consolidating, whilst continuing to critique practice and theory. May have confidence to examine and change underlying assumptions that inform their practice and understanding. Trainees should have embedded a reflective approach and demonstrating this regularly and frequently in their weekly reviews.

Appendix 9 Code list

	Code
1	Articulating philosophy/belief about teaching and learning
2	Concern about quality of work
3	Concern about workload
4	Connecting theory and practice
5	Critique of national policy
6	Critique of own learning
7	Critique of own practice
8	Critique of pedagogy
9	Critique of theory
10	Exploring relationships between theories
11	Hope for future practice and experience
12	Impact of health/home life on own learning
13	Impact of training on health/wellbeing
14	Mentor feedback
15	Mentor support for connecting theory and practice
16	Mentor support for reflection on children's learning
17	Mentor support for reflection on pedagogy
18	Mentor support for reflections on own practice
19	Mentor support for reflection on own learning
20	Mentor support for responding to feedback
21	Mentor support for taking responsibility for own professional development
22	Mentor support for time management and preparation
23	Mentor support for wellbeing
24	Mentor support for working with peers
25	Planning for future practice
26	Questioning assumptions/preconceptions
27	Reading theory
28	Reflecting on own practice
29	Reflection on children's learning
30	Reflection on national policy
31	Reflection on own learning
32	Reflection on own wellbeing
33	Reflection on parental engagement
34	Reflection on pedagogy

35	Reflection on peer support
36	Reflection on school context
37	Reflection on time management
38	Reflection on university taught session
39	Research into assessment data
40	Research into online presence
41	Research into school
42	Shallow reflection
43	Taking responsibility for logistics, organisation and time management
44	Taking responsibility for own professional development
45	Tutor feedback
46	Tutor support for academic writing
47	Tutor support for analysis of event
48	Tutor support for collaborating with peers
49	Tutor support for connecting school and university-based learning
50	Tutor support for connecting theory and practice
51	Tutor support for questioning assumptions/preconceptions
52	Tutor support for reflection on children's learning
53	Tutor support for reflection on own learning
54	Tutor support for reflection on own practice
55	Tutor support for reflection on pedagogy
56	Tutor support for responding to feedback
57	Tutor support for taking responsibility for professional development
58	Tutor support for time management
59	Tutor support for wellbeing
60	University session influencing confidence
61	University taught session influencing future practice
62	University taught session influencing own learning

Appendix 10 Code definitions

	Code	Definition	Links to other codes
1	Articulating philosophy/belief about teaching and learning	Trainee states his/her view of the nature/purpose of teaching and/or learning	
2	Concern about quality of work	Trainee expresses concern about his/her ability to produce work of sufficient quality, either academic or in school	
3	Concern about workload	Trainee's concern about keeping up with the amount and/or pace of work, academic and/or in school	
4	Connecting theory and practice	Trainee compares ideas from theory with experiences in the classroom or explains how theory has informed their teaching, observations or reflections.	Relates to 9 Critique of theory and 15 Mentor support for connecting theory and practice.
5	Critique of national policy	Trainee questions the efficacy or impact of national education policy drawing on classroom experience and/or own views and values	Relates to 30 Reflection on national policy
6	Critique of own learning	Trainee evaluates/questions his/her own learning process. Shows understanding of this process and how it could be changed/improved.	Builds on 31 Reflection on own learning.
7	Critique of own practice	Trainee evaluates/questions a specific aspect of his/her own teaching practice. Shows understanding of the impact of his/her teaching (eg on children's learning and behaviour or his/her relationships with other adults) and considers alternative practices/improvements. May refer to theory/research to add depth to analysis.	Builds on 28 Reflecting on own practice.
8	Critique of pedagogy	Trainee evaluates/questions a specific pedagogy or aspect of pedagogy. This may be a theme/pattern emerging from his/her own practice (rather than a single occurrence/event) or that of an observed practitioner, including a fellow trainee. The pedagogy could also be described in literature/research/presented/modelled in a university session. May consider alternative practices and views. May refer to theory to add depth to analysis.	Builds on 34 Reflection on pedagogy.
9	Critique of theory	Trainee evaluates/questions an idea from theory. Critique should draw on evidence from experience, practice or observation and may also draw on alternative views from other authors.	Relates to 10 Exploring relationships between theories. Builds on 4 Connecting theory and practice and 27 Reading theory.
10	Exploring relationships	Trainee explores different ideas/views from theories published by 2 or more authors. This may	Included within 9 Critique of theory. Code deleted

	between theories	be directly related to practice and may be used to deepen analysis of classroom practice/experience.	120617
11	Hope for future practice and experience	Trainee expresses an idea/practice he/she intends to put into practice in the future. This may relate to his/her classroom practice or own learning. This is an intention rather than a firm plan.	Relates to 25 Planning for future practice.
12	Impact of health/home life on own learning	Trainee recognises the impact of various factors on his/her own learning processes. These could be positive or negative.	
13	Impact of training on health/wellbeing	Trainee recognises the impact of the course on his/her health and/or wellbeing. This could include work/life balance issues. These could be positive or negative.	Disregarded 120617
14	Mentor feedback	Any comments or feedback from mentor to trainee.	Includes codes 15-24. There are very few quotations where this code is applied alone. Disregard 120617.
15	Mentor support for connecting theory and practice	Feedback/comment from mentor that encourages trainee to compare ideas from theory with their classroom experiences and/or explain how theory has informed their teaching, observations or reflections.	Relates to 4 Connecting theory and practice.
16	Mentor support for reflection on children's learning	Feedback/comment from mentor that encourages trainee to reflect on how children learned and/or the progress they made. This could be in relation to an observed/taught lesson or other activities such as assessment, professional discussion or staff development.	Relates to 29 Reflection on children's learning.
17	Mentor support for reflection on pedagogy	Feedback/comment from mentor that encourages trainee to analyse aspects of pedagogy that he/she has observed/read/learned about in a university session. This could include a theme/pattern emerging from his/her own practice (rather than a single occurrence/event). This may include ideas about effectiveness, impact on children and trainee. It may also include comparison of different pedagogies and views from theory/practitioners.	Relates to 34 Reflection on pedagogy and 8 Critique of pedagogy.
18	Mentor support for reflections on own practice	Feedback/comment from mentor that encourages trainee to evaluate a specific aspect of his/her own teaching practice including the impact of practice.	Relates to 28 Reflecting on own practice and 7 Critique of own practice
19	Mentor support for reflection on own learning	Feedback/comment from mentor that encourages trainee to recognise/evaluate his/her own learning process. This could include recognising progress, achievements and necessary next steps/actions.	Relates to 31 Reflection on own learning and 6 Critique of own learning.
20	Mentor support for responding to feedback	Feedback/comment from mentor that encourages trainee to listen to and action upon feedback/constructive criticism from others. This could include the mentor, other school staff, AT, other trainees etc.	Relates to 21 Mentor support for taking responsibility for own professional development.

21	Mentor support for taking responsibility for own professional development	Feedback/comment from mentor that encourages trainee to take responsibility for his/her own professional development. This could include acting on feedback, recognising areas for development, action planning, target setting etc. This does not include logistical aspects such as completion of academic tasks, organisation of school file etc.	Relates to 20 Mentor support for responding to feedback and 44 Taking responsibility for own professional development
22	Mentor support for time management and preparation	Feedback/comment from mentor that encourages trainee to take responsibility for his/her own time management and the logistics of teaching and training. This could include planning/timetabling tasks relating to classroom practice and/or academic work.	Relates to 43 Taking responsibility for logistics, organisation and time management
23	Mentor support for wellbeing	Feedback/comment from mentor that recognises issues with trainee's health/wellbeing arising from school, university or wider life. This may include comments about impact on own learning and/or practice.	Relates to 32 Reflection on own wellbeing
24	Mentor support for working with peers	Feedback/comment from mentor that encourages trainee to draw on support from peers and/or collaborate in relation to teaching, preparation, planning, academic tasks etc.	Relates to 35 Reflection on peer support
25	Planning for future practice	Trainee makes a firm plan to make a change/take an action in his/her practice. This could relate to teaching practices and/or preparation. This goes further than just hoping to make a change or expressing a change of view.	Relates to 11 Hope for future practice and 44 Taking responsibility for own professional development
26	Questioning assumptions/pre conceptions	Trainee questions previously held assumptions about teaching and/or learning. This could be explicit or more tacit ie the assumption may be identified/stated, but doesn't have to be.	Relates to 1 Articulating philosophy/belief about teaching and learning
27	Reading theory	Trainee comments that he/she has been reading about theory. This could include readings recommended as part of the PGCE programme, by mentor, during school-based CPD and independently sourced.	Relates to 9 Critique of theory
28	Reflecting on own practice	Trainee evaluates a specific aspect of his/her own teaching practice including the impact of practice. Shows understanding of the impact of his/her teaching (eg on children's learning and behaviour or his/her relationships with other adults). This should be analytical rather than descriptive, identifying cause and effect.	Relates to 7 Critique of own practice and 18 Mentor support for reflections on own practice and 54 Tutor support for reflection on own practice
29	Reflection on children's learning	Trainee reflects on how children learned and/or the progress they made. This could be in relation to an observed/taught lesson or other activities such as assessment, professional discussion or staff development. This includes reflections on individual children's, group's and whole class learning. Ideally this is related to reflections on own	Relates to 16 Mentor support for reflection on children's learning and 28 Reflecting on own practice and 52 Tutor support for reflection on children's learning

		practice so that trainee recognises relationships between teaching and learning.	
30	Reflection on national policy	Trainee comments on national policy that he/she has seen in action and/or researched. This should be analytical rather than descriptive, including comment on the impact of the policy in practice.	Relates to 5 Critique of national policy
31	Reflection on own learning	Trainee shows understanding of his/her own learning processes. This could include recognising progress, achievements, barriers, enabling factors and necessary next steps/actions.	Relates to 6 Critique of own learning and 19 Mentor support for reflection on own learning
32	Reflection on own wellbeing	Trainee recognises issues with own health/wellbeing arising from school, university or wider life. This may include comments about impact on own learning and/or practice.	Relates to 23 Mentor support for wellbeing
33	Reflection on parental engagement	Trainee comments on interactions with parents of pupils. This could include the impact of these interactions (eg improved understanding of children, increased confidence in communicating with parents), recognition of the roles that parents can play in children's learning, ideas for future involvement of parents, the potential challenges arising, the purpose and nature of parents' evenings/meetings.	
34	Reflection on pedagogy	Trainee analyses aspects of pedagogy that he/she has observed/read/learned about in a university session. This could include a theme/pattern emerging from his/her own practice (rather than a single occurrence/event). This may include ideas about effectiveness, impact on children and trainee. It may also include comparison of different pedagogies and views from theory/practitioners.	Relates to 8 Critique of pedagogy and 17 Mentor support for reflection on pedagogy
35	Reflection on peer support	Trainee comments on the way he/she has drawn on support from peers and/or collaborated in relation to teaching, preparation, planning, academic tasks etc Identifies the advantages and challenges involved.	Relates to 24 Mentor support for working with peers
36	Reflection on school context	Trainee reflects on the context of a school (eg size, Ofsted grade, policies, approaches, events, ethos, staff structure, geographical location, nature of catchment area) and actual/potential impact of this on their and pupils' experiences.	
37	Reflection on time management	Trainee comments on the impact of his/her own time management. This could include planning/timetabling tasks relating to classroom practice and/or academic work. Impact could be positive or negative eg feeling confidence because up to date with tasks, inability to concentrate due to working late into the night, identifying priorities, teaching more leading to less time to focus on individual children etc.	Relates to 22 Mentor support for time management and preparation

38	Reflection on university taught session	Trainee identifies idea/strategy introduced in a university taught session and considers how it relates to experience/theory/previous ideas.	Includes codes 60-62? Should focus on comparison with experience/theory/previous ideas
39	Research into assessment data	Trainee comments on experience of school's/own use of assessment data.	Only 1 short quotation, no analysis- Code deleted 120617
40	Research into online presence	Trainee comments on information on school website.	Only 1 short quotation, no analysis- Code deleted 120617
41	Research into school	Trainee reflects on the context of a school (eg size, Ofsted grade, policies, approaches, events, ethos, staff structure, geographical location, nature of catchment area) and actual/potential impact of this on their and pupils' experiences.	Same as 36 Reflection on school context. Code deleted 120617.
42	Shallow reflection	Descriptive writing/listing of what has happened. Lacking detail eg 'it went well', without analysis.	Quotations either included in 31 Reflection on own learning or too bland to be useful. Code deleted 120617
43	Taking responsibility for logistics, organisation and time management	Trainee takes responsibility for his/her own time management and the logistics of teaching and training. This could include planning/timetabling tasks relating to classroom practice and/or academic work. Less analytical than 37 Reflection on time management - more focus on organisational decisions/strategies less on impact.	Relates to 22 Mentor support for time management and preparation and 37 Reflection on time management
44	Taking responsibility for own professional development	Trainee takes responsibility for his/her own professional development. This could include acting on feedback, recognising areas for development, action planning, target setting etc. This does not include logistical aspects such as completion of academic tasks, organisation of school file etc.	Relates to 21 Mentor support for taking responsibility for own professional development
45	Tutor feedback	Any comments or feedback from tutor to trainee.	Includes codes 46-59. There are very few quotations where this code is used alone. Disregarded 120617.
46	Tutor support for academic writing	Tutor giving feedback on using an appropriately academic writing style in reviews eg anonymisation, dating references etc. Also giving guidance on assignments eg sources of support for writing, pointing out connections between classroom experiences explored by trainee and assignment content, examples suitable for use in assignments, encouraging trainee to make connections between theory and examples from practice.	

47	Tutor support for analysis of event	Tutor comment/question that encourages a trainee to analyse rather than describe eg what did you learn from...? how did it make you feel? what strategies supported children's learning? how could you enable...? Are there alternative interpretations? What are the implications [for a specific group]? What was the impact on children's learning? etc	Relates to 7 Critique of own practice and 28 Reflecting on own practice
48	Tutor support for collaborating with peers	Tutor comment/question that encourages trainee to draw on support from peers and/or collaborate in relation to teaching, preparation, planning, academic tasks etc.	Relates to 24 Mentor support for working with peers and 35 Reflection on peer support
49	Tutor support for connecting school and university-based learning	Tutor comment/question that helps trainee to identify opportunities to put strategies and ideas from university sessions into practice in the classroom eg strategies for teaching phonics, working with TAs, behaviour strategies.	Relates to 4 Connecting theory and practice
50	Tutor support for connecting theory and practice	Feedback/comment from tutor that encourages trainee to compare ideas from theory with their classroom experiences and/or explain how theory has informed their teaching, observations or reflections.	Relates to 4 Connecting theory and practice
51	Tutor support for questioning assumptions/pre conceptions	Tutor comment that encourages trainee to question previously held assumptions about teaching and/or learning. This could be explicit or more tacit ie the assumption may be identified/stated, but doesn't have to be.	Relates to 1 Articulating philosophy/belief about teaching and learning
52	Tutor support for reflection on children's learning	Tutor comment/question that encourages trainee to reflect on how children learned and/or the progress they made. This could be in relation to an observed/taught lesson or other activities such as assessment, professional discussion or staff development.	Relates to 29 Reflection on children's learning.
53	Tutor support for reflection on own learning	Tutor comment/question that encourages trainee to recognise/evaluate his/her own learning process. This could include recognising progress, achievements and necessary next steps/actions.	Relates to 31 Reflection on own learning and 6 Critique of own learning.
54	Tutor support for reflection on own practice	Tutor comment/question that encourages trainee to evaluate his/her own teaching practice including the impact of practice.	Relates to 28 Reflecting on own practice and 7 Critique of own practice
55	Tutor support for reflection on pedagogy	Feedback/comment from tutor that encourages trainee to analyse aspects of pedagogy that he/she has observed/read/learned about in a university session. This could include a theme/pattern emerging from his/her own practice (rather than a single occurrence/event). This may include ideas about effectiveness, impact on children and trainee. It may also include comparison of different pedagogies and views from theory/practitioners.	Relates to 34 Reflection on pedagogy and 8 Critique of pedagogy.
56	Tutor support for responding to	Tutor comment/question mentor that encourages trainee to listen to and action upon	Relates to 57 Tutor support for taking

	feedback	feedback/constructive criticism from others. This could include the mentor, other school staff, AT, other trainees etc.	responsibility for own professional development.
57	Tutor support for taking responsibility for professional development	Tutor comment/question that encourages trainee to take responsibility for his/her own professional development. This could include acting on feedback, recognising areas for development, action planning, target setting etc. This does not include logistical aspects such as completion of academic tasks, organisation of school file etc.	Relates to 44 Taking responsibility for own professional development
58	Tutor support for time management	Tutor comment/question that encourages trainee to take responsibility for his/her own time management and the logistics of teaching and training. This could include planning/timetabling tasks relating to classroom practice and/or academic work.	Relates to 43 Taking responsibility for logistics, organisation and time management
59	Tutor support for wellbeing	Tutor comment/question that recognises issues with trainee's health/wellbeing arising from school, university or wider life. This may include comments about impact on own learning and/or practice.	Relates to 32 Reflection on own wellbeing
60	University session influencing confidence	Trainee recognising ways in which content of university taught sessions influence his/her confidence in subject knowledge/teaching practice.	Relates to 6 Critique of own learning, 31 Reflection on own learning and 38 Reflection on university taught session Check quotations focus on confidence only.
61	University taught session influencing future practice	Trainee identifies something he/she has learned in a university taught session that he/she plans to use in future classroom practice. He/she considers possible classroom applications/implications of classroom use. This could be a teaching strategy or an underlying principle.	Relates to 11 Hope for future practice and experience, 25 Planning for future practice and 38 Reflection on university taught session
62	University taught session influencing own learning	Trainee identifies something he/she has learned in a university taught session/the way it was taught/how he/she felt about the learning experience.	Relates to 6 Critique of own learning, 31 Reflection on own learning and 38 Reflection on university taught session

Appendix 11 Codes, basic themes and organising themes

Codes		Basic themes	No. of quotes	Organising themes	Global themes
4	Connecting theory and practice	Engaging with theory	115	Taking a wider view	Trainee actions and processes
9	Critique of theory				
10	Exploring relationships between theories				
27	Reading theory				
5	Critique of national policy	Engaging with policy	35		
30	Reflection on national policy				
8	Critique of pedagogy	Engaging with pedagogy	381		
34	Reflection on pedagogy				
38	Reflection on university taught session	Influence of university sessions	413		
60	University session influencing confidence				
61	University taught session influencing future practice				
62	University taught session influencing own learning				
36	Reflection on school context	Considering school context	24		
39	Research into assessment data				
40	Research into online presence				
41	Research into school				
2	Concern about quality of work	Own learning	555	Questioning yourself	Trainee actions and processes
6	Critique of own learning				
12	Impact of health/home life on own learning				
31	Reflection on own learning				

3	Concern about workload	Own practice	888		
7	Critique of own practice				
28	Reflecting on own practice				
32	Reflection on own wellbeing				
33	Reflection on parental engagement				
35	Reflection on peer support				
37	Reflection on time management				
26	Questioning assumptions/preconceptions	Assumptions	44		
1	Articulating philosophy/belief about teaching and learning	Philosophy/belief	93	Awareness, articulation and action	Trainee actions and processes
11	Hope for future practice and experience	Future practice	641		
25	Planning for future practice				
29	Reflection on children's learning	Children's learning	343		
43	Taking responsibility for logistics, organisation and time management	Logistics	108		
44	Taking responsibility for own professional development	Professional development	983		
15	Mentor support for connecting theory and practice	Theory		Feedback from MKO (mentor)	Input from MKO
17	Mentor support for reflection on pedagogy	Practice			
18	Mentor support for reflections on own practice				
22	Mentor support for time management and preparation				
24	Mentor support for working with peers				
16	Mentor support for reflection on children's learning	Children's learning			

19	Mentor support for reflection on own learning	Own learning			
20	Mentor support for responding to feedback				
21	Mentor support for taking responsibility for own professional development				
23	Mentor support for wellbeing	Wellbeing			
14	Mentor feedback				
50	Tutor support for connecting theory and practice	Theory		Feedback from MKO (tutor)	Input from MKO
48	Tutor support for collaborating with peers	Practice			
54	Tutor support for reflection on own practice				
55	Tutor support for reflection on pedagogy				
58	Tutor support for time management				
52	Tutor support for reflection on children's learning	Children's learning			
46	Tutor support for academic writing	Own learning			
47	Tutor support for analysis of event				
49	Tutor support for connecting school and university-based learning				
51	Tutor support for questioning assumptions/preconceptions				
53	Tutor support for reflection on own learning				
56	Tutor support for responding to feedback				
57	Tutor support for taking responsibility for professional development				

59	Tutor support for wellbeing	Wellbeing			
45	Tutor feedback				
13	Impact of training on health/wellbeing			Misc	
42	Shallow reflection				

Appendix 12 Theme definitions

04 Questioning yourself

Questioning own learning

‘Questioning own learning’ captures an aspect of critical reflection involving trainees’ examination of their own learning experiences and processes, either explicitly or implicitly. ‘Questioning’ includes the recognition of specific features of the learning process, such as progress, enabling factors and barriers, as well as direct evaluation of the process, including positive and negative influences. Personal dimensions also come into play, in the questioning of the participants’ academic or professional abilities and the impact of external factors (health and home life) on learning.

Questioning own practice

‘Questioning own practice’ captures the ways in which trainees reflect critically on their own teaching practices in the classroom. ‘Questioning’ includes the evaluation of specific features of his/her practice and the impact on children’s learning and behaviour, as well as the impact on the trainee’s relationships within the school. Other aspects of trainees’ practices in school are also examined, including the impact of professional interactions with parents, issues of workload and time management, the influence of peer support and the impact of practice in school on their wider lives and wellbeing.

Questioning assumptions

‘Questioning assumptions’ captures an aspect of critical reflection in which trainees identify and examine previously held assumptions about teaching and/or learning. This can lead to understanding of the influence of these assumptions on their own learning and classroom practice. ‘Questioning’ involves the re-evaluation of these assumptions in the light of new learning and this can lead to changes in understanding of pedagogy and the development of new classroom practices. This process can be explicit or more tacit; assumptions may be identified or stated and examined or re-evaluated openly, or may be implicit in trainees’ writing.

05 Taking a wider view

Engaging with theory

The subtheme ‘Engaging with theory’ captures an aspect of critical reflection in which trainees consider wider views from academic literature and research. ‘Engaging’ includes exploration and synthesis of ideas from theory, comparison of theory and experience, use of theory to inform decisions about practice and analysis of teaching and learning.

Engaging with pedagogy

The subtheme ‘Engaging with pedagogy’ captures the ways in which trainees reflect critically on teaching approaches beyond single occurrences from their own practice. This includes the identification, analysis and comparison of specific aspects of pedagogy and is informed by ‘Engaging with theory’ to clarify understanding at a conceptual level (Orchard and Winch, 2015:21). This builds on ‘Questioning own practice’, but examines pedagogy

more broadly, through practice, observation, reading or learning in a university taught session, with a focus on conceptual principles rather than specific techniques.

Impact of university sessions

The subtheme 'Impact of university sessions' epitomises the ways in which taught sessions influence trainees' critical reflections. It includes impact on trainees' own learning in terms of subject knowledge, pedagogy and practice, the ways in which these aspects of learning are related and their influence on each other. This builds on 'Engaging with theory', but examines a broader range of learning experiences that occurred during taught sessions.

Engaging with policy

The subtheme 'Engaging with national policy' captures an aspect of critical reflection in which trainees consider the nature and impact of national education policy. 'Engaging' includes analysis of the impact on teaching and learning, consideration of the efficacy and implementation of policy in a school context and rudimentary exploration of implications for trainees' future teaching careers.

Considering school context

'Considering school context' captures trainees' reflections on aspects of the wider context of their placement school, beyond, but sometimes relating to, immediate classroom experiences. This includes aspects such as the size, Ofsted rating, sociocultural and policy context of the school and the actual or potential impact on their own learning and development or that of the children.

06 Articulating learning and teaching

Considering children's learning

The subtheme 'Considering children's learning' captures an aspect of critical reflection in which trainees consider the nature of children's learning and the impact of teaching upon it. It includes consideration of children's learning in relation to an observation or from the trainee's own teaching of individuals, groups or a whole class. This builds on examination of their own learning and practice (Chapter 04 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 05 Taking a wider view), but there is a change in focus from the trainee him/herself to the impact of his/her practice and the learning environment on children's learning.

Philosophy and belief

The subtheme 'Philosophy and belief' encapsulates an aspect of critical reflection in which trainees explore and articulate their understanding of the nature and purpose of learning and teaching. It includes beliefs arising from observation, the trainee's own practice and the process of learning through classroom participation and feedback from a mentor. This builds on examination of their own learning, practice and assumptions (Chapter 04 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 05 Taking a wider view), bringing together learning from practice

and theory to inform the articulation of specific principles and beliefs underlying a developing philosophy of education.

07 Taking responsibility

Developing future practice

The subtheme 'Developing future practice' captures an aspect of critical reflection in which trainees express an intention or plan a change to future practice in the classroom or in his/her own learning. This could relate to teaching, learning or preparation. 'Developing' includes adapting, extending or changing existing practice or introducing new practices, usually in response to evaluation, feedback and/or the introduction of alternative approaches through taught sessions, observations or theory. This builds on Chapter 04 'Questioning yourself' - 'Questioning own practice' and Chapter 05 'Taking a wider view' - 'Engaging with pedagogy', but examines the actions and development that arise as a result of critical reflection on trainees' own practice and conceptual understanding of pedagogy.

Taking responsibility for professional development

The subtheme 'Taking responsibility for professional development' captures the ways in which trainees take a proactive role in managing their own professional development. It includes acting on feedback, recognising progress and areas for development, target setting and action planning in relation to both classroom practice and academic study. This builds on examination of their own learning and practice (Chapter 04 Questioning yourself) and engagement with the broader theoretical, pedagogical and policy context (Chapter 05 Taking a wider view), but here this informs decisions and actions supporting trainees' ongoing professional development.

Appendix 13 Trainee consent form

Principal researcher: Emma Asprey

Director of Studies: Dr Janet Rose

BSU Institute for Education Head of Research: Dr Kate Reynolds

Investigation into the use of online tools to promote critical reflection in trainee teachers

I would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

I am carrying out this study as part of my PhD. I am the ICT co-ordinator for primary education at [university name] and have introduced and supported the use of shared, online documents and folders on the PGCE over the last 3 years. I am looking for evidence of critical reflection within the weekly reviews shared between trainee, Academic Tutor (AT) and Training Mentor. The study will be used to inform future developments in Initial Teacher Education at [university name] and perhaps beyond, particularly in relation to online critical reflection. The data will be collected over a period of 10 months covering the PGCE course.

Why have I been invited?

I have used purposive sampling to select participants for this study. That means that I have chosen a group of participants that will provide that data that I need to carry out this investigation. In this case that means a group of PGCE students, such as yourself with a tutor who is confident to use the online tools and support the use of the tools by others.

Participants in this study will include approximately 11 trainees, 12 ATs and 25 Mentors.

Do I have to take part?

Participation in this research is voluntary, you can choose not to participate in part or all of the project and you may withdraw at any stage. If you feel any questions asked, or written material, are too personal or intrusive, you may choose not to answer them. You have the right to withdraw at any stage of the project without being penalised or disadvantaged in any way.

It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time. You do not have to give a reason.

What will happen if I take part?

You will be involved in the research during the length of the PGCE course from September 2015 to July 2016. The study will continue after this period, with an estimated completion date of September 2018.

I will meet with the trainees and ATs at the start of the PGCE in September 2015. This will be a short meeting of approximately 20 minutes to explain the research and answer questions. The majority of the research will be carried out online through the analysis of documents and online questionnaires. A short interview, of around 15 minutes, with each participant will be carried out towards the end of the PGCE course. In total, this will take 60-90 minutes of your time across the year. As the researcher, I will have access to each BTS's online Professional Learning and Practice Portfolio (PLPP). Personal information stored within the PLPP may be used as part of the research. At approximately monthly intervals during the PGCE, I will read each trainee's weekly review including the comments from AT and Mentor. I will be looking for evidence of critical reflection in the trainees' writing and support for this within ATs' and Mentors' comments. Towards the end of the course, you will be invited to complete an online questionnaire about your own views of how critical reflection was supported within the PLPP. The questionnaires will be followed by short, semi-structured, face to face interviews to explore this in more detail.

I will use constructivist grounded theory to analyse the data. This means that I will look for evidence of critical reflection, identify themes and implications for future practice. Analysis will be supported by reading of relevant theories and research.

What do I have to do?

You will share your PLPP with me, complete an online questionnaire and short, semi-structured interview.

What are the possible disadvantages and risks of taking part?

There are no likely severe disadvantages for taking part in this study. Your words/quotes/writings/surveys will be anonymised during analysis, however there is a small chance that you will be able to recognize yourself if reading the study, others may be able to as well. Sharing your thoughts and feelings may cause slight discomfort but there are no direct repercussions and any and all data collected will not directly impact your marks on the course or your future employment.

Sensitive issues may arise given that the you will be discussing practice, but I will address and accommodate any concerns that arise. You have the right of withdrawal if you become uncomfortable sharing your reflections.

What are the possible benefits of taking part?

There is no direct benefit to taking part in this research. There is no direct payment or reward. However, indirect benefits include:

- greater understanding of your own learning, the tutoring and mentoring process;
- greater understanding of critical reflection and techniques that support it;
- including participation in the research in job applications;
- contributing to a better understanding of critical reflection within online, shared documents;
- informing future development of the PGCE course at [university name] and wider ITE practices.

Will my taking part in the study be kept confidential?

Participation in this research will be anonymised and all data protected. All data and information will be stored on a password protected computer, owned by [university name] and may also be stored in my Google account which has a further level of password protection. The data and information will be stored for the duration of my PhD, approximately 4 years. After this time, they will be deleted from the computer, Google account and back up.

The data and information that I collect may be accessed by my supervision team. This may occur before and/or after the data has been anonymised. It will not be shared outside the team before anonymisation, therefore maintaining confidentiality.

Audio recordings of interviews will be stored using anonymised filenames. Confidentiality will only be restricted if the researcher discovers evidence of violence, abuse, self-inflicted harm, harm to others or criminal activity in the course of collecting and analysing the data.

What will happen to results of the research study?

A thesis will be published at the end of my PhD, which will include data from this research. This will be published and made available in the BSU library and may be published online.

During and after my PhD, I aim to present the findings of this research at academic conferences. Papers given at conferences are likely to be published in the conference proceedings. I also aim to submit papers for publication in academic journals. I may also present findings to my colleagues at [university name] with the aim of informing future developments in teaching and learning at the University. All publications created during and as a result of this research will be fully anonymised.

If you wish to receive details of any publication, please indicate below.

Emma Asprey

	Please initial here
I confirm that I have read and understand the information sheet dated 3/10/14 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	
I understand that any information given by me may be used in future reports, articles or presentations by the research team.	
I understand that my name will not appear in any reports, articles or presentations.	
I agree to take part in the above study.	
I wish to be informed about publications that result from this research.	

Name of participant	
Signature of participant	
Date	
Email address (if you wish to be informed of publications)	

Name of researcher	Emma Asprey
Signature of researcher	
Date	15/9/15

When completed, please return in the envelope provided. One copy will be given to the participant and the original to be kept in the file of the research team at Bath Spa University.

Appendix 14 Tutor consent form

Principal researcher: Emma Asprey

Director of Studies: Dr Janet Rose

BSU School of Education Head of Research: Professor Dan Davies

Investigation into the use of online tools to promote critical reflection in trainee teachers

I would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

I am carrying out this study as part of my PhD. I am the ICT co-ordinator for primary education at [university name] and have introduced and supported the use of shared, online documents and folders on the PGCE over the last 3 years. I am looking for evidence of critical reflection within the weekly reviews shared between trainee, Academic Tutor (AT) and Training Mentor. The study will be used to inform future developments in Initial Teacher Education at [university name] and perhaps beyond, particularly in relation to online critical reflection. The data will be collected over a period of 2 years covering 2 cohorts of the PGCE course.

Why have I been invited?

I have used purposive sampling to select participants for this study. That means that I have chosen a group of participants that will provide that data that I need to carry out this investigation. In this case that means PGCE tutor who is confident to use the online tools and support the use of the tools by others.

Participants in this study will include approximately 20 trainees and 2 ATs.

Do I have to take part?

Participation in this research is voluntary, you can choose not to participate in part or all of the project and you may withdraw at any stage. If you feel any questions asked, or written material, are too personal or intrusive, you may choose not to answer them. You have the right to withdraw at any stage of the project without being penalised or disadvantaged in any way.

It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time. You do not have to give a reason.

What will happen if I take part?

You will be involved in the research during your role as AT during the academic year 2014-15. The study will continue after this period, with an estimated completion date of September 2017.

I will be available to discuss the research with you, either during a meeting at BSU, by telephone or email. If you would like to meet me in person, this will be a short meeting of approximately 20 minutes to explain the research and answer questions. The majority of the research will be carried out online through the analysis of documents.

As the researcher, I will have access to each BTS's online Professional Learning and Practice Portfolio (PLPP). At approximately monthly intervals during the PGCE, I will read each trainee's weekly review including the comments from AT. I will be looking for evidence of critical reflection in the trainees' writing and support for this within the AT's comments.

I will use constructivist grounded theory to analyse the data. This means that I will look for evidence of critical reflection, identify themes and implications for future practice. Analysis will be supported by reading of relevant theories and research.

What do I have to do?

Complete the AT's comment section of the trainee's weekly review as usual.

What are the possible disadvantages and risks of taking part?

There are no likely severe disadvantages for taking part in this study. Your words/quotes/writings/surveys will be anonymised during analysis, however there is a small chance that you will be able to recognize yourself if reading the study, others may be able to as well. Sharing your thoughts and feelings may cause slight discomfort but there are no direct repercussions.

Sensitive issues may arise given that the you will be discussing practice, but I will address and accommodate any concerns that arise. You have the right of withdrawal if you become uncomfortable sharing your reflections.

What are the possible benefits of taking part?

There is no direct benefit to taking part in this research. There is no direct payment or reward. However, indirect benefits include:

- greater understanding of your own learning, the tutoring and mentoring process;
- greater understanding of critical reflection and techniques that support it;
- contributing to a better understanding of critical reflection within online, shared documents;
- informing future development of the PGCE course at [university name] and wider ITE practices.

Will my taking part in the study be kept confidential?

Participation in this research will be anonymised and all data protected. All data and information will be stored on a password protected computer, owned by BSU and may also be stored in my Google account which has a further level of

password protection. The data and information will be stored for the duration of my PhD, approximately 4 years. After this time, they will be deleted from the computer, Google account and back up.

The data and information that I collect may be accessed by my supervision team. This may occur before and/or after the data has been anonymised. It will not be shared outside the team before anonymisation, therefore maintaining confidentiality.

Confidentiality will only be restricted if the researcher discovers evidence of violence, abuse, self-inflicted harm, harm to others or criminal activity in the course of collecting and analysing the data.

What will happen to results of the research study?

A thesis will be published at the end of my PhD, which will include data from this research. This will be published and made available in the BSU library and may be published online.

During and after my PhD, I aim to present the findings of this research at academic conferences. Papers given at conferences are likely to be published in the conference proceedings. I also aim to submit papers for publication in academic journals. I may also present findings to my colleagues at [university name] with the aim of informing future developments in teaching and learning at the University.

All publications created during and as a result of this research will be fully anonymised.

If you wish to receive details of any publication, please indicate below.

Emma Asprey

	Please initial here
I confirm that I have read and understand the information sheet dated September 2014 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	
I understand that any information given by me may be used in future reports, articles or presentations by the research team.	
I understand that my name will not appear in any reports, articles or presentations.	
I agree to take part in the above study.	
I wish to be informed about publications that result from this research.	

Name of participant	
Signature of participant	
Date	
Email address (if you wish to be informed of publications)	

Name of researcher	Emma Asprey
Signature of researcher	
Date	15/4/14

**Please sign both forms and return one in the Freepost envelope provided.
One copy will be kept in the file of the research team at Bath Spa University.**

	Please initial here
I confirm that I have read and understand the information sheet dated 15/10/14 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	
I understand that any information given by me may be used in future reports, articles or presentations by the research team.	
I understand that my name will not appear in any reports, articles or presentations.	
I agree to take part in the above study.	
I wish to be informed about publications that result from this research.	

Name of participant	
Signature of participant	
Date	
Email address (if you wish to be informed of publications)	

Name of researcher	Emma Asprey
Signature of researcher	
Date	15/4/14

Please sign both forms and return one in the Freepost envelope provided. One copy will be kept in the file of the research team at Bath Spa University.

Appendix 15 Observation expectations from placement handbook

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Observations

Trainees will undertake **at least one observation per day** of children learning. Using the observation of teaching and learning form (Appendix 2), consider:

- How children engage with learning activity/experience
- Possible barriers preventing children engaging in learning and making expected progress
- Strategies used by teachers to promote and manage positive behaviour
- How children respond to adults in a variety of situations
- How the curriculum is organised and planned across a term, week, day, etc.
- The impact the learning environment has on children's learning and well-being
- How additional adults are used to promote and manage behaviour as well as supporting the individual needs of children

Appendix 16 Observation proforma

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Observing Teaching and Learning
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Day/Time:	Context:
What is the focus of this observation?	Which aspects of EYFS/NC are being addressed?

What are the learning intentions?
How are the children being assessed? What evidence for learning is there? Note any feedback on attainment to the children, and the form of recording.
What resources are being used? How are they organised?
How is the teacher differentiating to meet children's individual needs? Are there targets set for particular children or groups? How are the needs of children with EAL/SEN/D being met?
How is additional adults/support staff deployed? What were their roles?
What Health and Safety issues have been taken into account?
How are learning behaviours being supported?
You could consider the following: the provocation for learning; classroom organisation; starting the lesson; managing transitions; the use and type of questioning; adult/child interactions; range and choice of teaching strategies.
Note here any questions you would like to ask, or points for clarification, and record the outcomes of any discussion with the teacher following the lesson.
Any action points for you?

Appendix 17 Placement expectations

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Structure and Progression across Term 1

The purpose of this document is to **suggest** a structure of experiences and tasks to support trainees to make expected progress towards meeting the Teachers' Standards. It will support both trainees and Training Mentors to plan a range of experiences and training that will positively impact on trainees' understanding of children's learning, progress and attainment and on the impact their teaching will have on this. It should be used as guidance and not as an exhaustive list. Some tasks are essential to the assessed academic programme assignments and therefore must be completed.

TERM 1, 2015
Overview of expectations
<ul style="list-style-type: none">• Orientation of school/setting and class• Set up a school/setting Training File in suggested order in the Appendices• Observe teaching and learning in own class and other classes as agreed with training mentor• Begin to understanding how teachers motivate and engage children in learning• Begin to promote and manage good behaviour of individuals and groups• Begin to plan/lead the teaching of individuals and small groups.• Undertake some whole class team teaching as agreed with training mentor.• Understand how progress and learning is tracked and engage with the assessment procedures and record keeping used within the class.• Select three profile children, with different learning needs, including those who are not meeting expected progress. Develop detailed profiles for each child*• Take on a range of responsibilities, consistent with the role of a teacher within the school/setting. For example, playtime/lunchtime duties and extra-curricular activities.• Contribute to the wider life of the school/setting. <p>*Impact of Teaching on Pupil Progress</p> <p>During Term 1, trainees are expected to contribute to pupil progress and be able to recognise and promote positive learning outcomes for children. Trainees will focus on 1:1 teaching and interventions and track the progress of 3 Profile Children, developing an understanding of their learning needs.</p> <p>Through recognising and overcoming barriers to learning with individual children, trainees will be contributing to narrowing the gap in educational achievement.</p>

Structure and Progression across Term 2

TERM 2, 2015
Overview of expectations

- Take increasing responsibility for the teaching of individuals and small groups.
- Undertake increasing amounts of whole class team teaching and lead whole class teaching independently
- Take increasing responsibility for promoting and managing good behaviour in all teaching activities
- Recognise and use school strategies for tackling bullying
- Positively contribute to assessment procedures and record keeping, including summative and continuous assessment, for some children, including progress meetings where appropriate*
- Recognise the causes of low achievement within the class/school and know how to engage and motivate children's learning and progress
- Observe teaching and learning in other key stages and classes
- Take on responsibilities consistent with the role of a teacher within the school/setting, for example playtime/lunchtime duties, parent consultations and extra-curricular activities.
- Contribute to the wider life of the school/setting.

***Impact of Teaching on Pupil Progress**

During Term 2, trainees are expected to make a positive contribution to pupil progress, recognising and promoting positive learning outcomes. Trainees will focus on 1:1 interventions and track the progress of groups of children as well as **3 Profile Children**, developing an understanding of the support needed to ensure progress. Trainees should have access to assessment data for these children. Trainees will support children to overcome barriers to their learning. Through this Trainees will be contributing to narrowing the gap in educational achievement.

Structure and Progression across Term 3

TERM 3, 2016

Overview of expectations

Plan and teach across the breadth of all areas of learning

- Continue to take increasing responsibility for the planning, teaching and assessing
- Regularly plan and then teach a sequence of lessons (at least three connected learning events) for both literacy and numeracy.
- Plan and teach a sequence of lessons (at least three connected learning events) for a foundation subject and have experience of planning and teaching PE and RE.
- Promote and manage good behaviour and know how to motivate and engage children in their learning
- Use effective strategies to tackle bullying and know who to consult for further support
- Continue to use assessment procedures and record keeping, including continuous and summative assessment, for increasing numbers of children, including child progress meetings. *
- Continue to reflect on and analyse the progress made by the three profile children and know how to address their needs and overcome barriers they may have that prevents them making expected progress
- Engage in professional conversations to understand the causes of low attainment in individual or groups of children, especially those identified as FSM and PP

***Impact of Teaching on Pupil Progress**

During Term 3, trainees are expected to contribute to pupil progress, recognising and promoting positive learning outcomes. Trainees will focus on 1:1 interventions and track the progress of larger

groups of children, working towards whole class record keeping, as well as **3 Profile Children**. Trainees should have access to assessment data for these children. Through helping children overcome barriers to learning, Trainees will be contributing to narrowing the gap in educational achievement.

Structure and Progression across Term 4-6

The purpose of this document is to **suggest** a structure of experiences and tasks to support trainees to make expected progress towards meeting the Teachers' Standards. It will support both trainees and Training Mentors to plan a range of experiences and training that will positively impact on trainees' understanding of children's learning, progress and attainment and on the impact their teaching will have on this. It should be used as guidance and not as an exhaustive list.

TERM 4, 2016
Overview of expectations
<p>Trainees will continue to plan and teach across the breadth of all areas of learning. They will:</p> <ul style="list-style-type: none"> • Continue to take increasing responsibility for planning, teaching and assessing; • Regularly plan and teach one sequence of lessons per week (at least three connected learning events) for <u>either</u> literacy or numeracy (these may be alternated each week); • Plan and teach a sequence of lessons (at least three connected learning events) for two foundation subjects across this term and have experience of planning for RE; • Promote and manage good behaviour and know how to motivate and engage children in their learning; • Use effective strategies to tackle bullying and know who to consult for further support; • Continue to use assessment procedures and record keeping, including continuous and summative assessment, for increasing numbers of children, including child progress meetings*; • Continue to reflect on and analyse the progress made by the three profile children and know how to address their needs and overcome barriers they may have that prevents them making expected progress; • Engage in professional conversations to understand the causes of low attainment in individual or groups of children, especially those identified as FSM and PP. <p>*Impact of Teaching on Pupil Progress</p> <p>During Term 4, trainees are expected to contribute to pupil progress, recognising and promoting positive learning outcomes. Trainees will focus on 1:1 interventions and track the progress of larger groups of children, working towards whole class record keeping, as well as 3 Profile Children. Trainees should have access to assessment data for these children. Through helping children overcome barriers to learning, trainees will be contributing to narrowing the gap in educational achievement.</p>

Term 5, 2016
Overview of expectations
<p>The expectations are a continuation of Term 4 but in order to extend their practice trainees will now:</p>

- Teach **at least two whole class session per day**, demonstrating increasing responsibility for the development and creation of planning and **increasing the percentage of teaching time week on week**;
- Plan and teach **at least three sequences of lessons** (each sequence must be at least three connected learning events) for **both** literacy and numeracy;
- With support, take increasing responsibility for weekly planning. With Training Mentor's approval, begin to reduce the number of individual lesson plans accordingly. Continue to produce individual lesson plans when observed and for any lessons where they feel less confident.
- Plan and teach **sequences of lessons** (each sequence must be at least three connected learning events) for at least 3 foundation subjects, this must include PE (see **Professional Development Training Tasks p.14**);
- Contribute to assessment procedures and record keeping for **all** children in the class;
- Use formative assessment to gather information about children's learning, **ensuring planning consistently responds to this assessment**;
- Take on responsibilities consistent with the role of a teacher within the school, e.g. playtime/lunchtime duties and **increase their profile as a member of staff by actively contributing to the wider life of the school**.

Term 6, 2016

Overview of expectations

The expectations are a continuation of Term 5 but in order to successfully complete their practice trainees will now:

- Plan and teach across the breadth of all learning areas, demonstrating increasing subject knowledge and understanding of children's learning for **80% of the timetable**. Where appropriate, creating and using weekly plans in line with practice in the school or setting (this must be approved by the Training Mentor).

Appendix 18 Weekly review expectations

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Weekly Review Meetings	<p>Trainees and Training Mentors will:</p> <ul style="list-style-type: none">• Meet weekly to review and discuss practice and progress;• Review current targets and set future targets for the following week;• Discuss and feedback on areas of strength/development and the impact of the trainee's teaching on pupil progress;• Complete a Weekly Review of Progress form throughout Terms 1 – 3;• This will automatically be shared with Academic Tutors via the Professional Learning and Practice Portfolio (PLPP). <p>If there is an emerging cause for concern, the lead trainer (SD) or AT (Clusters) should be contacted immediately.</p>
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