An analysis of the concept reflective practice and an investigation into the development of student teachers' reflective practice within the context of action research

Paula Zwozdiak-Myers

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Abstract

In recent decades, reflective practice has become a key driver and an increasingly influential referent in the professional development of student teachers. Yet, the complex, somewhat elusive boundaries of reflective practice make this phenomenon difficult to define. The purpose of this study was to analyse and synthesise existing literature and research in order to better understand the multi-faceted nature of reflective practice. From an informed platform, a new conceptual framework was designed both to capture and investigate nine dimensions of reflective practice in which student teachers could demonstrate capacity and commitment.

Eighty year 4 student teachers, who had undertaken action research projects during their final school experience, and thirteen university lecturers, who had guided the student teachers throughout this enterprise, were participants in this study. Data were gathered through questionnaires and semi-structured interviews that incorporated a series of closed and open-ended responses. Quantitative data were analysed to calculate statistical frequencies, percentages, means and standard deviations; and, qualitative data via analytic induction methods to identify common themes and to extract narratives of experience.

Findings showed that a majority (>90%) of student teachers perceived their capacity and commitment to engage in six dimensions of reflective practice [and most (>80%) in eight] had influenced their professional development. These perceptions were not wholly congruent with those of dissertation supervisors with variance between supervisors also evident. Qualitative distinctions, in the use of three types of reflective conversation, were found between male and female student teachers and within each gender group. Several constraints in the development of student teachers' reflective practice also emerged.

Further research is recommended into: what evidence and criteria shape judgments about reflective practice; how school-based staff might effectively support student teachers' development of reflective practice; and, how the framework designed for this study might be replicated and refined to enhance reflective practice in personal professional development across disciplines.

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Chapter 1: Introduction

1.1 Rationale

As they embark upon a programme of study in initial teacher education, student teachers do so with the expectation that by the time they complete their course they will be suitably equipped with the knowledge, skills and understanding required to enter the profession as newly qualified teachers. Success in realising this transition is highly dependent upon two major factors.

First, the programme of study must provide appropriate opportunities and relevant experiences within its curriculum design and course content, which enable student teachers to acquire and develop the knowledge, skills and understanding identified within Standards necessary for the award of qualified teacher status (QTS) in England (TTA/DfES, 2003; TDA, 2007). Underpinning the programme of study, the aims and principles illuminate the rationale, epistemological stance and vision that has been adopted in designing a particular model of initial teacher education for the purpose of developing effective teachers.

Second, student teachers must actively engage with opportunities and experiences presented within the programme of study and, upon completion of the course, successfully demonstrate competence and proficiency in their achievement of each Standard. Although student teachers on one course, in very large measure, experience a common programme, how they engage and learn from each component will be very different. Student teachers are unique individuals and differ in their personal biographies and prior experiences, disposition to enquiry, cognitive and perceptive abilities, communication and interpersonal skills, emotional intelligence and sensitivity, adaptability and flexibility, personal theories, values and belief systems. Shaped by their unique blend of such qualities, characteristics and personal background experiences, they journey through the process of learning about teaching and of learning about how to become an effective teacher.

The emphasis placed on the achievement of a prescribed set of Standards suggests there might be a tried and tested recipe or formula in learning about how to become an effective teacher. It has, however, been well documented (Boud, 1999; Borko and Putnam, 1996; Britzman 1991; Calderhead, 1988; Elbaz, 1988; Hall and Smith, 2006; Knight, 2002; Loughran, 1996; Moore, 2000; Shulman, 1987; Taylor, 1997) that this is far from the case. Teaching is a highly complex activity and the dynamics operating in any given classroom environment will be influenced by a range of contextual and situational factors, the unique blend of qualities, characteristics and experiences that shape each and every pupil, in

addition to those which shape the student teachers themselves. Also, the professional landscape of teaching is in a constant state of flux as it responds to changes within the wider context of society. Student teachers working in twenty first century schools are very likely to encounter pupils who are computer literate and who expect knowledge and information to be instantly accessible at the touch of a button; alongside those from a range of cultural and ethnic backgrounds who have not as yet been immersed into western culture and for whom English is an additional language; alongside those who have been issued with an anti social behaviour order; alongside those with a range of special learning and educational needs who are supported in the classroom by adults other than teachers; alongside those recognised as gifted and talented in a range of diverse ways. Thus, no two classes will respond to the same student teacher or lesson design in exactly the same way. This phenomenon, it can be argued, is what sows the seed for the development of student teachers' creativity and professional artistry in becoming effective within the classroom.

Teaching and learning about how to become an effective teacher centre on complex, interrelated sets of thoughts and actions. They can be perceived as demanding tasks, which might be approached in a number of different ways. As student teachers' gain proficiency in the basic knowledge and skills of teaching, Loughran (1996: 3) argues 'the more an understanding of the relationship between teaching and learning may influence practice, and the more deliberately a teacher considers his or her actions the more difficult it is to be sure that there is one right approach to teaching, or teaching about teaching'.

One strand, which permeates throughout the programme undertaken by student teachers featured in this study, is the development of reflective practice. Its significance in teaching and learning about teaching cannot be overemphasised as it positions the direct, concrete experience of professional practice at the heart of the process. Becoming a reflective practitioner is not so much about the *acquisition* or development *per se* of the skills and areas of knowledge required for successful teaching, but rather concerns 'the particular skills needed to *reflect constructively* upon ongoing experience as a way of developing those skills and knowledge and improving the effectiveness of one's work' (Moore, 2000: 128).

A range of strategies are introduced and progressively built upon throughout a four-year course to support the development of reflective practice. During the final year, student teachers' draw upon the principles and procedures of action research in order to investigate and improve the effectiveness of their own teaching. This enterprise positions reflective practice at its core and calls upon student teachers to bring together all they have learned about the art and craft of studying their own teaching, so as to enhance and maximise the

learning opportunties they provide for all their pupils. In metaphorical terms, it forms the *apotheosis* of student teachers' experience as they near completion of initial teacher education.

Involvement with student teachers during the past decade has fuelled a personal interest and desire to better understand what, and how, factors which underpin the action research experience, might influence ways in which student teachers' approach, analyse, internalise and evaluate teaching to inform their future planning and practice. Personal experience suggests that change can be manifested by student teachers to varying degrees: from surface to deep to transformative learning; from descriptive to interpretive to critical reflection; and, from the dualist position of epistemological cognition to that of the relativist position. Yet, the full impact of this research experience on the development of student teachers' reflective practice has not been examined. This provided both the need and catalyst to investigate the development of student teachers' reflective practice within the context of action research. Seeking clarity as to how reflective practice has been conceptualised and its development promoted within the professional landscape of initial teacher education would seem an appropriate springboard for this enquiry.

1.2 The professional landscape

The ways in which student teachers' think about and learn from their own practice is a component of initial teacher education that has received attention in curriculum design, research and the writing of educational theorists for many decades. Origins of this fundamental component can be traced in the early writing of John Dewey (1910, 1933) and his use of the term *reflection* to denote thinking about practice, and *reflective thought* to denote a systematic form of enquiry into aspects of personal practice, driven by the student teachers' particular orientation and patterns of thinking.

Donald Schon (1983, 1987, 1991) presents a counter discourse to that advanced by Dewey and argues for the need to develop an epistemology of practice, one informed by analysing teaching as a professional activity. He considers Dewey's conceptualisation of reflective thought to be a process of problem solving 'made rigorous by the application of scientific theory and technique' (Schon, 1983: 21), for which he introduces the term *technical rationality,* to be wholly inadequate in coming to recognise and understand how professionals actually work and learn in, and through, practice. He argues persuasively that in professions such as education and social work there is not a body of secure knowledge that can be used prescriptively to guide practice, which can lead to a state of confusion as

'real world problems do not come well formed. They tend to present themselves, on the contrary, as messy, indeterminate, problematic situations' (Schon, 1983: 68).

The terms *reflection* and *reflective thought* have been variously associated with experiences that involve discrepancies, dissatisfactions, exercising discernment and making judgements, problem solving, questioning, logical reasoning and uncertainties (Brookfield, 1987; Dewey, 1933; Mezirow, 1990) in relation to learners who construct 'their own meanings within a community of professional discourse' (Boud, 1999: 123). Boud, Keogh and Walker (1985: 19) capture how reflection and learning might be linked through defining reflection as:

> an important human activity in which people recapture their experience, think about it, mull it over and evaluate it. It is this working with experience that is important in learning. The capacity to reflect is developed to different stages in different people and it may be this ability, which characterises those who learn effectively from experience.

This implies that to become informed, purposeful and thoughtful decision makers, student teachers should be encouraged to question their own actions and background experiences and reconsider personal attitudes, assumptions, beliefs, knowledge, theories, understandings and values in the light of experience. In so doing, student teachers can process their experience in a number of different ways so as to explore their 'understanding of what they are doing, why they are doing it and the impact it has on themselves and others' (Boud, 1999: 122). This, however, is not always realised in terms of liberating student teachers from the 'often unseen constraints of assumptions, habit, precedence, coercion and ideology' (Carr and Kemmis, 1986: 86).

Reflecting on personal experience is vitally important as research has shown all teachers have personal theories and beliefs about themselves as teachers, their teaching, subject matter, pupils, and their roles and responsibilities within the classroom (Berliner, 1987; Calderhead, 1984; Clark, 1988; Clark and Peterson, 1986; Ennis, 1994; Feiman-Nemser and Floden, 1986; Fenstermacher, 1986; Kagan, 1992; Lester, 1990; Munby, 1986; Nespor, 1987; Pajares, 1992; Porter and Freeman, 1986; Tabachnick and Zeichner, 1991). Clark (1988: 5) cautions that teachers' develop and hold implicit theories which tend to be 'eclectic aggregations of cause-effect propositions from many sources, rules of thumb, generalisations drawn from personal experiences, beliefs, values, biases and prejudices'. If left unchallenged, personal theories and beliefs could result in the affirmation of habitual practice, which might not be wholly appropriate in changed contexts.

In relation to learning from experience, Boud and Walker (1990) emphasise the importance of the *learning milieu*, which includes the totality of human and material influences impinging on learners in any particular situation. This incorporates the local

context of learning materials, pupils, teachers and physical environment in addition to the wider social, cultural and political contexts, which act through the learning milieu. Research undertaken by Hatton and Smith (1995) exemplifies the significance of context. To encourage student teachers to reflect on their school-based experiences, one group was required to write a reflective essay, another engaged in debrief sessions with a member of staff trained to prompt reflective thinking and a third discussed personal experiences with their peers. Research findings indicated a great deal of variation in the amount of reflection noted in the three activities: the most occurred in peer discussions and the least in the essay. Hatton and Smith concluded that the relatively open context of peer discussion permitted the most reflection to take place, the debrief session with an authority figure (member of staff) enabled some, whereas the assessment context (the essay) had a constraining influence on student teachers' reflection. Contextual factors are perhaps the most important influence on reflection and learning as they can either inhibit or support working with the learners' experience. Such forces as protecting personal interests and working alongside an authority figure operate within the local context through the reaction or lack of reaction of student teachers, colleagues and the pupils themselves (Taylor, 1997). As Boud (1999: 127) notes, it is 'easy to take them for granted and thus blind ourselves to the influence they have'. These factors have implications for devising strategies and in creating environments that aim to nurture the development of student teachers' reflective practice.

Educational theorists and researchers have written extensively over past decades about the important role student teachers' play in their own development as they strive to become effective practitioners. Moore (2000: 146) suggests teachers should perceive themselves 'as researchers and theorists as well as practitioners' and considers action research provides a particularly valuable way for them 'to evaluate and critique their own current practice and to move in an informed and principled way towards more effective future practice'. Providing student teachers with opportunities to engage in contextually focused research activity should enable them progressively to become more effective in accurately assessing a situation, selecting an appropriate course of action, implementing the plan of action and evaluating the outcome to inform future practice. While the outcomes of research can have significant impact on student teachers' future actions and personal development, arguably, it is the process that provides an essential tool for their ongoing professional development as teachers. The potential for improving professional practice through reflection and critical enquiry has also been in the foreground in recent literature

on school improvement and on teachers' continuing professional development (Burton and Bartlett, 2005; Campbell *et al*, 2004; Dadds, 1995; Dadds and Hart, 2001). It could be argued that student teachers who effectively internalise the process are well prepared to embrace numerous challenges, which working in twenty first century schools might pose, in addition to making informed judgments when contributing toward the culture of professional learning communities.

1.3 Purpose of the thesis

Although a number of Standards serve to identify the knowledge, skills and understanding student teachers must acquire and develop in their own teaching to achieve the award of QTS, these cannot be applied in a purely prescriptive manner to guide practice. Numerous variables and complexities inherent within classroom environments call upon student teachers to demonstrate capacity and commitment in responding effectively to situations of uncertainty and to learn from their experiences. A variety of strategies, embedded within the course featured in this study, are designed to lay the foundation for the development of student teachers' reflective practice. This should enable them to reflect on their own development and challenge themselves further through incorporating a wider range of ideas in their own teaching as they continue to learn from their experiences. This culminates in year 4 with an action research investigation, which positions reflecting on practice at the heart of the process, in order to study and improve the effectiveness of their own teaching. How this research experience might influence the development of student teachers' reflective practice and how student teachers' engage in reflective practice to realise this goal is not known.

   The purpose of this study was to analyse and synthesise previous theories advanced by eminent scholars, researchers and practitioners within the field so as to better understand the nature of, and constituent components associated with, reflective practice. From an informed background, a conceptual framework was designed to capture and investigate nine dimensions of reflective practice in which student teachers could demonstrate capacity and commitment as they engaged in action research to study their own teaching. This study sought to add to the growing body of research literature, which focuses on how reflective practice can be conceptualised and its development nurtured in initial teacher education, particularly within the context of practitioner based research as student teachers' engage in the art of self-study and prepare to become extended professionals.

1.4 Structure of the thesis

This thesis is divided into six chapters. The present chapter provides an overview of the rationale and professional landscape that have guided the direction and purpose of this study.

Chapter 2: Review of Literature

This chapter identifies key characteristics attributed to reflective practice by scholars, teacher educators and researchers in the field of teacher education by examining the concept as: a discourse, involving different patterns of thinking, distinguishable from routine practice and underpinned by the development of forms of knowledge which serve particular interests; a disposition to enquiry, generating an epistemology of professional practice; an integral part of action research; and, a core component of professional development. From this platform, a working definition of reflective practice is introduced, which has been devised to capture the constituent components of this phenomenon and to guide the direction of this research study. This is followed by an exploration of how reflective practice has been developed and researched within initial teacher education programmes, particularly physical education initial teacher education programmes. The research questions, which steered the direction and purpose of this study, are presented.

Chapter 3: Context of the research participants

This chapter provides an overview of how reflective practice is developed and nurtured within the course featured in this study through: school experience; learning how to teach; the professional development portfolio and profile system; in addition to the Reflective Teacher and Action Research Project modules.

Chapter 4: Research methodology and design of this study

This chapter details methodological approaches to research that informed the design of this study and is organised in terms of: approaches to research; qualitative case study approach; sampling; research techniques used in educational research and those selected and designed for this study; frameworks designed and procedures used to analyse data. The conceptual framework, designed to capture dimensions of reflective practice in which student teachers' can demonstrate capacity and commitment is introduced.

Chapter 5: Research findings

This chapter presents the study's findings and is organised in relation to dimensions of reflective practice in which student teachers' can demonstrate capacity and commitment. Evidence gathered to inform the research questions is presented within each dimension of reflective practice. The main findings of this study are summarised.

Chapter 6: Discussion and implications of research findings

This chapter discusses the main results of the study and considers how they relate to previous research and theoretical literature of reflective practice. Implications for teacher educators behind key research findings are examined and suggestions proposed for the development of reflective practice in student teachers. Limitations of this study are identified and recommendations made of areas that warrant further research.

References

Appendices

Chapter 2: Review of Literature

2.1 Introduction

Reflective practice can be described as phenomenological, in that a given phenomenon is studied through direct experience, interpreted and the insights gained used, to further understanding and modify actions. Reflective practice is widely acknowledged as an essential component in the professional development of student teachers (Bartlett and Leask, 2005; Calderhead, 1989; Day, 1999; Ghaye and Ghaye, 1998; Moon, 2005; Pollard *et al*, 2005). Over past decades, terms associated with reflective practice: the *reflective practitioner* (Schon, 1983, 1987), *teacher as researcher* (Hopkins, 2002; McKernan, 1996; Ruddock and Hopkins, 1985; Stenhouse, 1975) and *reflective teaching* (Calderhead, 1989; Cruickshank, 1987; Dewey, 1910, 1933; Grimmett *et al,* 1990; Smith, 1980; van Manen, 1977; Zeichner and Liston, 1996) have been introduced into initial teacher education and classroom contexts based on the assumption that acquiring skills associated with reflective practice should lead student teachers toward becoming more effective practitioners (Burn *et al*, 2003; Feiman-Nemser, 1990; Gore, 1993; Loughran, 2002; Pollard, 2002; Pollard *et al*, 2005; Richert, 1991; Rodgers, 2002).

However, an exploration of conceptual and theoretical underpinnings of these terms reveals a number of variations (Calderhead, 1989; Furlong and Maynard, 1995). Discussions and debates highlight dissonance between claims made about the benefits of reflective practice in the professional development of student teachers and the lack of systematic research to substantiate those claims, given the absence of an agreed definition of reflection (Korthagen and Kessels ,1999; Rodgers, 2002; Zeichner, 1994). Rodgers (2002: 842) cautions that without a shared definition and view of reflection, several problems emerge:

> It is unclear how systematic reflection is different from other types of thought; it is difficult to assess a skill that is vaguely defined; without a clear picture of what reflection looks like, it has lost its ability to be seen and therefore has begun to lose its value. And finally, it is difficult to research the effects of reflective teacher education and professional development on teachers' practice and students' learning.

Forums for debate as to how reflection might be conceptualised and reflective practice developed in teacher education programmes emerged in the 1980s in response to Schon's (1983, 1987) distinction between *reflection on action* and *reflection in action*. Clark (1988) notes the emergence of the *reflective practitioner* as the Zeitgeist or 'buzzword' in educational discourse. This was concurrent with growth of research on teacher thinking and increased

acceptance of teachers' practical theories (Hellison and Templin, 1991). Teachers' craft knowledge and classroom thinking gained recognition by researchers (Elbaz, 1983; Calderhead, 1987; Cortazzi, 1990), the role of intuition by experienced teachers (Atkinson and Claxton, 2000; Tomlinson, 1999) and, empirical research studies in initial teacher education received support from policy makers. The research showed although some agreement was evident in preparing student teachers to become thoughtful decision makers (Calderhead, 1989; Clark and Peterson, 1986; Hellison and Templin, 1991; McNamara, 1990; Shulman, 1987; Siedentop, 1991; Zeichner, 1987), there was little consensus on meanings associated with reflective practice, approaches toward its implementation and notions as to what ought to be the object of reflection (Adler, 1991; Calderhead, 1989; Feiman-Nemser, 1990; Gore, 1987; Hatton and Smith, 1995; Tom, 1985; Valli, 1992; Zeichner and Tabachnik, 1991). Furlong and Maynard (1995: 38) argue, part of the confusion concerning debate in how to develop reflective practice 'stems from the fact that different writers have focused on at least two very different dimensions within the process of learning to teach' to examine the complex relationship between the process of theorising and other forms of propositional knowledge - those derived from Dewey (1910, 1933) and those derived from Schon (1983, 1987). Zeichner and Tabachnik (1991) identified four distinct traditions in North America to develop reflective practice in initial teacher education: *academic, social efficiency, developmental* and *social reconstructionist* (see Appendix A).

The purpose of this chapter is to examine what key characteristics theorists, practitioners and researchers within education and initial teacher education associate with reflective practice. The proliferation of literature in this area since the 1980s is almost exponential and thus, educationalists drawn upon are by no means exhaustive. Table 2.1 chronologically illustrates the diverse nature of key concepts and themes associated with reflective practice. The proponent, main focus and terminology embedded within each theme have been identified. Each theme represents a particular ideological stance, which incorporates a specific set of practices pertinent to its position. Although followers of each tradition appear to make little reference to the literature of other discourse communities, Boud (1999: 124) notes 'a remarkable degree of overlap' in terms of learning experiences derived from their respective positions and argues that the fact that reflective practice can be justified by various positions 'is part of the apparent strength of the movement'.

Table 2.1: Concepts related to, and underpinning, reflective practice in teacher education

Proponent	Focus	Themes
Dewey (1910, 1933)	Reflective thinking Orientations to enquiry	Problem, suggestions, reasoning, hypothesis, testing Open mindedness, responsibility, wholeheartedness
Habermas (1971)	Knowledge constitutive interests	Instrumental, interpretive, emancipatory
Stenhouse (1975)	Teacher as researcher	Extended – restricted professional
Van Manen (1977)	Levels of reflection	Technical rationality: methodology and theory development to achieve objectives Practical rationality: pragmatic placement of theory into practice Critical rationality: value commitment toward educational process
Schon (1983, 1987)	Professional practice	The reflective practitioner: reflection in action, reflection on action Epistemology of personal practice: theories in use, reflective conversations, reframing
Kolb (1984)	Experiential learning	4-stage cycle: concrete experience, reflective observation, abstract conceptualisation, active experimentation 4 learning styles: diverging, assimilating, converging, accommodating
Boud, Keogh and Walker (1985)	Reflective practice	Cycle of association, integration, validation, appropriation Dimension of feelings
Grimmett, MacKinnon, Erickson & Riechen (1990)	Levels of reflective teaching	Technical: instrumental mediation of actions Deliberative: deliberation among competing views Dialectical: reconstruction of experience
Valli (1990)	Images of teaching	Technical rationality: non-reflective Practical decision-making: technical within a reflective context Inculcation, indoctrination: moral, ethical & social in a non-reflective mode Moral reflection: deliberative, relational, critical
Sparks-Langer and Colton (1991)	Orientations to reflective thinking	Cognitive, narrative, critical
LaBoskey (1993)	Orientation toward growth and enquiry Cognitive abilities	Common sense thinkers - Alert novices Analysis, synthesis, evaluation
King and Kitchener (1994)	Model of reflective judgement	Pre-reflective reasoning (stages 1-3) Quasi-reflective reasoning (stages 4 & 5) Reflective reasoning (stages 6 & 7)
Barnett (1997)	Critical reflection: political-social dimensions	Action, self-reflection and understanding
Ghaye and Ghaye (1998)	Reflective conversations	Descriptive, perceptive, receptive, interpretive, critical
Moon (1999)	Critical thinking	Reflexivity, metacognition
Baxter Magolda (1999)	Epistemological cognition	Dualist position – Relativist position
Jay and Johnson (2002)	Dimensions of reflection	Descriptive, comparative, critical

Following an extensive search of literature, key characteristics which scholars, teacher educators and researchers associated with reflective practice were identified and grouped into eight sub-sections. The chapter begins by framing reflective practice as a discourse and argues that reflective conversations student teachers' engage in with self, others and theoretical literature can provide a vehicle through which they challenge and question personal beliefs, assumptions, theories and values which give shape, form and purpose to what they do, or aspire to do, within their own practice. The chapter then examines Dewey's (1910, 1933) conceptualisation of reflective thinking and considers how his writing has been influential within initial teacher education to identify and shape the type of questions student teachers' raise when they reflect on their own and others' practice. The different types of question serve particular interests, which range from personal, social, cultural to political concerns. Habermas' (1971) framework of *knowledge constitutive interests* is introduced as it positions interpretation at the heart of forms of enquiry used in the hermeneutics.

The seminal work of Schon (1983, 1987, 1991) presents the view that reflective practice can be a creative process in that student teachers' generate their own *theories-in-use* as they frame each unique teaching situation. The relationship he draws between *knowing in action* and *reflection on action* provides a means through which student teachers can make their implicit assumptions, beliefs, theories and values explicit, which arguably resides at the heart of the improvement process. His discourse illuminates how student teachers can generate their personal epistemology of professional practice. When reflective practice is positioned at the core of professional development, engagement in this process implies that student teachers enter the realm of research into their own practice. The role of reflecting on practice within the action research paradigm, a form of research driven by personal enquiry to improve a particular aspect of teaching, is examined. The chapter then situates reflective practice within a discourse of professional development and argues that despite numerous government constraints of accountability, student teachers can become self-governing practitioners as they reflect on practice for personal growth and development. Thus, this chapter aims to explore key characteristics of reflective practice as:

- a discourse
- involving different patterns of thinking
- distinguishable from routine practice
- underpinned by the development of forms of knowledge that serve particular interests
- a disposition to enquiry
- generating an epistemology of professional practice

- an integral part of the action research process
- a core component of professional development

The focus of the chapter then turns to an exploration of how reflective practice has been developed and researched within initial teacher education programmes, particularly physical education initial teacher education programmes. From an informed platform, a working definition of reflective practice has been devised and a new conceptual framework designed to capture dimensions of reflective practice in which student teachers can demonstrate capacity and commitment within the context of action research. Following a summary, the direction and purpose of this study is presented and the research questions identified.

2.2 Reflective practice as a discourse

The term discourse is used in this study in a broad sense to denote ways of talking and thinking about teaching as well as practising teaching; activities which can be viewed as key drivers within the context of practitioner based research. Ovens' (2002: 511) suggests the concept of *discourse communities* might be useful to 'highlight the discursive nature of reflective practices and the way these are connected to the underlying beliefs and values of its members'. He identifies three discourse communities: the phenomenological, critical and situated learning communities, which become the context where individuals are 'both situated within and situate themselves and is the generative location of the discursive practices students experience in their teacher education' (*ibid*).

Building on Fairclough's (1998) interpretation coupled with that of Ovens, a discourse can be understood as a set of assumptions, beliefs, meanings, statements and theories, which produce a particular version of situations and events. For example, teacher beliefs can be defined as 'a way to describe a relationship between a task, an action, an event, or another person and an attitude of a person toward it' (Eisenhart *et al*, 1988). Thus, for student teachers to understand their own practices in the teaching-learning context it is important they examine their own theories and beliefs, as these have been found to influence both their perceptions and judgements (Clark, 1988; Ennis, 1994; Gubacs-Collins, 2007; McCormack, 2001). That, in turn, has an effect on their classroom practices.

Zeichner and Liston (1996: 35) suggest practical theories and beliefs become more articulate when student teachers engage in the process of reflection. Through practical and personal theorising they become more conscious and critical, reflection as a form of educational theorising provides an insider's perspective on teaching and learning and identifies the subtleties and nuances of student teachers knowledge. However, the degree

to which student teachers develop and reflect on their underlying theories and beliefs affects the extent to which they are likely to examine and enhance their own teaching practice. Individual differences can be evident in the level of development and articulation of practical theories and beliefs in relation to the student teachers degree of concern about them and, in the reflection on their teaching in terms of their inclination toward it and environment within which they work.

Research has shown that prior attitudes and beliefs must be recognised, modified and reconstructed for professional growth to occur (Doolittle, Dodds and Placek, 1993; Kagan, 1992; McCormack, 2001; Gubacs-Collins, 2007; Tsangaridou, 2006). Brookfield (1995) suggests that there are many techniques and strategies student teachers tend to take for granted as good practice. Others (Clark, 1988; Lortie, 1975; Pajares, 1992; Schempp and Graber, 1992) have argued that what student teachers experience and observe during their own schooling can have a powerful impact on their subsequent teaching and act as a 'filter' through which they interpret and view the content of initial teacher education (Knowles and Holt-Reynolds, 1991). Brookfield uses the metaphor *hunting assumptions* to describe an important step toward becoming critically reflective which examines teaching systematically through a range of perspectives or lenses. Apart from student teachers' personal assumptions, beliefs, experiences and values, three other lenses should be considered to illuminate and further inform practice: pupils, colleagues and theoretical literature.

As a form of discourse, the *reflective conversation* (Loughran, 1996: Schon, 1983, 1987; Yinger, 1990) is recognised as the responsive interchange between acting and thinking and an insight into the data of reflective practice. Described by Schon (1983, 1987) as having a conversation with the situation, it provides a vehicle through which student teachers can interrogate what they do, question the educational values and goals which give 'shape, form and purpose' (Ghaye and Ghaye, 1998: 19) to what they do and learn from their experiences. As such, the reflective conversation can be positioned at the very core of the improvement process and has potential on the one hand, to challenge and disturb those educational values and goals student teachers perceive to be important and on the other, reaffirm values and goals they perceive as important in defining the kind of teacher they aspire to be. If student teachers are to recognise factors which serve either to improve or constrain their practice, Smyth (1992: 295) claims, they will need to engage with some fundamental questions:

- *Describe* – What do I do?
- *Inform* – What does this mean?
- *Confront* - How did I come to be like this?

- *Reconstruct* – How might I do things differently?

The different types of question can lead to differences in patterns of thinking. For example, the question, 'What do I do?' requires a reflective process-analysis of the approach that has been followed. It is formative in nature and aims to develop abilities. The question, 'How might I do things differently?' requires a reflective self-evaluation of a particular type of performance using criteria against which judgements can be made. This is summative in nature and aims to develop goals and standards individuals set for themselves. The terms *analytical reflection* and *evaluative reflection* are used by Cowan (1998) to distinguish between these two types of process. Clearly, student teachers need to engage with both types of questioning as they interrogate why they do what they do in a given context if they are to learn from their experience.

Although questions of significance to teaching and learning about teaching can involve private, inner *conversations with self,* Freire (1972) persuasively argues the need for participants to adopt a *reflective posture*, one that enters the public arena and examines experience critically, by questioning and interpreting personal experience through *conversations with others.* The move from the private to the public domain, from tacit and subconscious knowing (Polanyi, 1958, 1967; Schon, 1983) toward more conscious knowing, can often be a difficult transition for student teachers as they must attach words to thoughts in order to articulate and express what they mean. Further, they need to make sense of their teaching experience within the context in which it occurs and using language in reflective conversations with others is one channel through which, in part, this goal can be realised.

Reflective conversations do not happen in a personal and social vacuum as teaching experience is situational and context specific. The context that shapes the experience also shapes the kind of learning from experience (Boud and Miller, 1996: 18) that is possible:

> Learning occurs within a framework of taken-for-granted assumptions about what is legitimate to do, to say and even think. It is influenced directly and indirectly by the power of others as well as by forces, which constrain participants' views of what is possible.

At the heart of learning through reflective practice is the student teacher's propensity to acknowledge the importance of working with experience (Boud et al, 1985). Through reflective conversations with others, student teachers demonstrate their readiness toward being open about the learning that evolves from the experience of teaching. An important consideration noted by Miller (1990) is *reflective moments*, that is, opportunities to engage in reflective conversations, should be thought through, planned for and time protected to ensure they do happen.

Pendlebury (1995) uses the metaphor *dialogical other* to describe the way a reflective conversation between a student teacher and significant other can be structured in a supportive way to explore assumptions, beliefs and personal theories which might underpin the student teacher's practice. Within her three-stage approach, the dialogical other first guides the student teacher to reflect on the aims and means to devise a course of action for a particular situation and teaching group. Second, the dialogical other challenges and critiques this course of action to invite the student teacher to formulate sound justifications for decisions and judgements made and respond to any perceived developmental needs. Third, the dialogical other facilitates the construction of an improved course of action as considered necessary. In this way, the dialogical other simultaneously affirms and encourages the interrogation of the student teacher's own voice (Ruddock and Sigsworth, 1985) and in so doing, assumes the role of a *critical friend* (Gore, 1990). An important aspect of this process concerns the endeavour to add meaning to what the student teacher claims to know. For some student teachers this might be perceived as a threatening experience, particularly in circumstances that question core values and beliefs (Korthagen and Vasalos, 2005) and when improvements to practice are advocated. Guiding student teachers through this process incorporates the second component of the *reflective posture* advanced by Freire (1972), in that, reflective conversations should not only explore previous experience they should also focus on the possibilities of future action and practice.

Implicit within such discourse is recognition that several possible meanings can be associated with any course of action in relation to a particular teaching group within a particular classroom context. Thus, an important characteristic of the reflective conversation is that making sense of specific situations. Contexts must be viewed as an active and creative process of jointly constructed interpretations (Newman and Holzman, 1997), one 'that construes learning as an interpretative, recursive, building process by active learners interacting with the physical and social world' (Fosnot, 1996: 30). Underpinning this social constructivist perspective is the view that interpretation is a meaning-making process, which requires reflective practitioners to recognise:

> problems do not exist 'out there', ready made, well defined and waiting to be solved…a problem is seen as a human construct which arises out of a particular perception or interpretation formed about a unique educational context with its values and ends; the values, interests and actions of its inhabitants; and crucially, the particular relation of these features to a theoretical perspective which describes and explains them and their interrelations (Parker, 1997: 40).

This supports Bruner's (1996) learning theory insofar as we construct ourselves through narrative (language) and by telling stories of our lives can make sense of our lives. The

knower is inextricably linked to the known and knowledge making is recognised as an active, creative, interpretive process, in which the telling and retelling of stories provide a framework for the construction of professional knowledge in teaching (Beattie, 2000: Connelly and Clandinin, 1990). Theory and practice are integrated in the development of professional knowledge as personal meanings and understandings are made explicit and situated alongside concepts, descriptions of practice and theories, which emanate from others.

In recent decades, a body of literature has emerged which captures the stories of teachers and student teachers as they strive to become more effective. Through narrative enquiry, their voices can be heard, as they speak of ways in which they experience their learning and lives in education (Beattie, 2000; Christiansen et al, 1997; Clandinin, 1986; Connelly and Clandinin, 1990; Knowles and Cole, 1994; Witherall and Noddings, 1991). These researchers actively challenge the traditional view of teacher education as 'training', where gaining proficiency in specified techniques or strategies from theory externally produced is privileged over theory grounded in personal experience (Elliott, 2005; Glaser and Strauss, 1967; McKernan, 1996). For example, Beattie (2000: 18) reports the narrative accounts of three prospective teachers to illustrate 'their increasing understandings of teaching as moral, ethical and socially responsible work…a willingness to review choices available…question the 'status quo'…engage in critical and creative thinking, and rescript the stories of their current and future professional lives'. Through the process of reflection and enquiry they were able to question their 'life histories, socialisation and the ideologies and 'official stories' being enacted around them'.

As student teachers' gain experience, confidence and learn to challenge, communicate, explore and justify their *lived experiences* (Whitehead, 1993), shifts in attitudes, beliefs, perspectives, theories and values can arise. Reflective conversations that detect biases, prejudices and problem areas can for example, lead to the modification and reorganisation of student teachers' established and existing knowledge which guides their teaching 'to increase its future educational worth' (Ghaye and Ghaye, 1998: 22). As one early career teacher reports, progressing through this 'reflective odyssey' highlighted some 'failures of the past' especially about things he used 'to think were the right way of doing things' (Attard and Armour, 2006: 222). This led to a realisation that it was always better to be informed than moving forward in ignorance (Golombek and Johnson, 2004).

When reflective practice is characterised as a discourse, it becomes evident through the way student teachers use language and frame questions about aspects of their teaching and

experience, that different kinds of reflection on practice can be identified. The typology devised by Ghaye and Ghaye (1998: 34) recognises useful qualitative distinctions, which can be drawn between reflective conversations:

- *Descriptive* reflection on practice - is personal and retrospective
- *Perceptive* reflection on practice - links teaching to feelings
- *Receptive* reflection on practice - relates personal views to others' views
- *Interactive* reflection on practice - links learning with future action
- *Critical* reflection on practice - places individual teaching within a broader 'system'.

Each kind of reflection on practice serves a particular purpose and can be used to shape the way student teachers express and make sense of their own practice. Underpinning the direction of reflective conversations they can engage in with self, others and theoretical literature are situated the different types of question, identified earlier, they might ask. However, research studies highlighting qualitative distinctions in student teachers' reflective practice have shown critical reflective conversations are far less frequent than descriptive reflective conversations, as their principle concerns focus on the development of subject matter knowledge and pedagogical content knowledge (Hatton and Smith, 1995; Macdonald and Brooker, 1999; Tsangaridou, 2005) (see section 2.10). This implies that some student teachers are at different stages in their professional development and might need more guidance than others in relation to positioning their own teaching within the wider professional landscape of ideological and political contexts.

2.3 Reflective practice involves different patterns of thinking

John Dewey's (1910, 1933) work on the nature, acquisition and use of problem solving skills has been particularly influential within the context of learning how to teach by reflecting on practice (Calderhead and Gates, 1993; Furlong and Maynard, 1995; Pollard *et al*, 2005; Rodgers, 2002). He identifies reflection as one of the modes of thought: 'active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the future conclusions to which it tends' (Dewey, 1933: 7). He associates reflection with the *kind of thinking* that involves turning a subject over in the mind to give it serious consideration and thought and identifies five phases or states of thinking – *problem, suggestions, reasoning, hypothesis and testing.*

The *problem* phase relates to seeing 'the big picture' rather than discrete, small entities on their own and identifying the real cause for concern. Through recognising and understanding the perplexity of a situation, a plan of action can be intellectualised and thought through more fully. *Suggestions* incorporate the possibilities and ideas that spring to

mind when confronted by a puzzling situation. When suggestions are plentiful, each must be considered in an appropriate manner, and thus there is a greater need to suspend judgement as suggestions provide an impetus for further enquiry. *Reasoning* involves linking ideas, information and previous experiences in order to extend the knowledge of, and thinking about, the subject. It facilitates the expansion of hypotheses, suggestions and tests since 'even when reasoning out the bearings of a supposition does not lead to its rejection, it develops the idea into a form in which it is more apposite to the problem' (Dewey, 1933: 112). The *hypothesis* phase reconsiders a suggestion in terms of how it might be used and what can be accomplished with it. Acting upon a working hypothesis involves examining how it stands up to tentative testing, considering more information and undertaking more observations. Thus, 'the sense of the problem becomes more adequate and refined and the suggestion ceases to be a *mere* possibility, becoming a *tested* and, if possible, a measured probability' (*ibid*: 110). *Testing* refers to the stage at which the hypothesis is tested and the outcome can be used either to corroborate or negate the conjectural idea. Although overt testing provides the opportunity to discover how well the problem situation has been thought through, the results need not corroborate the thinking that preceded the action. 'It either brings to light a new problem or helps to define and clarify the problem on which he has been engaged. Nothing shows the trained thinker better than the use he makes of his errors and mistakes' (*ibid*: 114). Thus, in reflection failure can be instructive. Covert testing may also occur which involves conducting a 'thought-experiment' to test the hypothesis.

Student teachers must place each phase within the context of past and future actions and experiences, and some might be expanded or overlap dependent upon the nature of the problem. When pieced together, the phases form a process of *reflective thinking*, which involves:

> a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity (Dewey, 1933: 12).

Through interrogating their practice systematically and rigorously in this way, student teachers should question what they do and strive to learn from engaging in this process. This particular form of problem solving enables them to resolve 'a situation in which there is experienced obscurity, conflict (and) disturbance of some sort' into one that becomes 'clear, coherent, settled (and) harmonious' (*ibid*: 100). The ultimate goal is to find a solution so as to improve the quality of their practice and enhance pupil learning.

The capacity to effectively engage in this process requires student teachers to develop a range of specific skills, for example, keen observation, logical reasoning and analysis, as the process of thinking incorporates:

> the suggestion of a conclusion for acceptance and also search or enquiry to test the value of the suggestion before accepting it. This implies (a) a certain fund or store of experiences or facts from which suggestions proceed; (b) promptness, flexibility and fertility of suggestions; and (c) orderliness, consecutiveness and appropriateness in what is suggested (Dewey, 1910: 30).

Importantly, Dewey does acknowledge that limitations can be prevalent in any of these three regards. Student teachers' thinking, for example, might be irrelevant or narrow as they do not possess enough raw material from which to base conclusions or because raw material and concrete facts, even when extensive, 'fail to evoke suggestions easily and richly' (*ibid*). Moreover, even if these two conditions are fulfilled, when ideas are suggested they might be 'incoherent and fantastic' as opposed to 'pertinent and consistent' (*ibid*). In such circumstances, perhaps a more appropriate approach would be to place an emphasis on *suggestions for practice* (McIntyre, 1993) as opposed to a *systematic enquiry into aspects of practice* through Dewey's process of reflective thinking. This consideration is important, particularly for student teachers with limited knowledge or direct experience of teaching practice and those who exhibit deeply ingrained personal theories, assumptions and beliefs about teaching which they are reluctant to challenge.

Research that focused on the degree of 'orientation toward growth and enquiry' student teachers' exhibit led LaBoskey (1993: 24) to distinguish between *common sense thinkers* and *alert novices*. In her studies, some student teachers categorised as common sense thinkers appeared to be unable 'to engage in the cognitive approaches of reflective thinking' whereas others 'had the necessary cognitive abilities, but seemed to have beliefs, values, attitudes or emotions that prevented or distorted the reflective process in most situations' (*ibid:* 30). This finding supports the view that student teachers' personal theories, assumptions and beliefs can be a powerful force and influence their patterns of thinking about the theory and practice of teaching.

LaBoskey's categorisation of cognitive abilities incorporates the higher levels of thinking in Bloom's (1956) taxonomy of educational objectives, analysis, synthesis and evaluation, which are involved in various stages of Dewey's reflective thinking process. She claims that reflective student teachers must be able to:

> describe and analyse the structural features of an educational situation, issue, or problem – *problem definition;* gather and evaluate information as to the possible sources of the dilemma under consideration and to generate multiple alternative solutions and their

potential implications – *means/ends analysis;* and, integrate all of the information into a tempered conclusion about or solution for the problem identified – *generalisation* (LaBoskey, 1993: 30).

Results from her studies suggest reflective student teachers not only exhibit 'intelligent' processing ability but also have a propensity for engaging in these reasoning activities. This finding indicates that support structures should be in place for student teachers who struggle to engage in, or who might not exhibit 'intelligent' processing abilities, to enable them to practice and learn these skills.

Dewey's association of reflective practice with problem solving has received a measure of agreement in that one central concern of reflection is to find solutions to real problems encountered by practitioners (Adler, 1991; Calderhead, 1989; LaBoskey, 1993; Pollard *et al*, 2005; Rodgers, 2002; Schon, 1987). However, questions arise as to whether solving problems should be viewed as an inherent characteristic of reflecting on practice. Hatton and Smith (1995: 3) argue if the essential nature of reflection is to think about action, this may involve processing information while a group event is taking place, or debriefing a student teacher after a particular experience, for the purpose of gaining insights and understanding of 'relationships between what took place, the purposes intended, and difficulties which arose viewed within broader cultural or professional perspectives'.

Rodgers (2002: 845) recently examined the theoretical underpinnings of Dewey's reflective thinking framework in relation to its significance within initial teacher education, and suggests that it could usefully be broken down into the following components:

- Is a meaning-making process that moves a learner from one experience into the next with deeper understanding of its relationships with and connections to other experiences and ideas
- Is a systematic, rigorous, disciplined way of thinking, with its roots in scientific enquiry
- Needs to happen in community, in interaction with others
- Requires attitudes that value the personal and intellectual growth of oneself and of others

These components have resonance with the approach used in preparing the student teachers featured within this study for entry into the profession, particularly in relation to their school-based experiences and opportunity to engage in action research to study and improve the effectiveness of their own teaching (see sections 3.2 and 3.6).

Early qualitative research on student learning (Perry, 1970) indicates a developmental trend in the nature of thinking during higher education in which students gradually shift from a belief in *dualism* (right answers exist) to recognition of *relativism* (conclusions rest on evidence which learners interpret themselves). Building on this work, and Dewey's

interpretation of reflective thinking and association of 'uncertainty' with the search for knowledge, King and Kitchener (1994) devised a model of *reflective judgement*. They use the term reflective judgement to denote *epistemological cognition*, which is underpinned by the assertion that some problems cannot be resolved with certainty. In their study, university students were asked to work with ill-structured problems and discuss their respective experiences of having worked through the process to resolve them. Their findings led King and Kitchener to devise a model, which is characterised by seven distinct, yet developmentally related, sets of assumptions. These assumptions are concerned with the process of knowing (view of knowledge) and of how that knowledge is acquired (justification of beliefs). Stages within the model can broadly be summarised on three levels: *pre-reflective reasoning* (stages 1-3), *quasi-reflective reasoning* (stages 4 and 5), *reflective reasoning* (stages 6 and 7).

Pre-reflective reasoning is characterised by the belief that:
> knowledge is gained through the word of an authority figure or through firsthand observation, rather than, for example, through the evaluation of evidence…people who hold these assumptions…believe that what they know is absolutely correct, and that they know with complete certainty. People who hold these assumptions treat all problems as though they were well structured (King and Kitchener, 1994: 39)

Quasi-reflective reasoning is characterised by the recognition that:
> knowledge – or more accurately, knowledge claims – contain elements of uncertainty, which…people who hold these assumptions…attribute to missing information or to methods of obtaining evidence. Although they use evidence, they do not understand how evidence entails a conclusion (especially in light of the acknowledged uncertainty), and thus tend to view judgements as highly idiosyncratic (*ibid*: 40).

Reflective reasoning is characterised by the acceptance that:
> knowledge claims cannot be made with certainty, but (they) are not immobilised by it: rather, (they) make judgements that are 'most reasonable' and about which they are 'relatively certain', based on their evaluation of available data. They believe they must actively construct their decisions, and that knowledge claims must be evaluated in relationship to the context in which they were generated to determine their validity. They also readily admit their willingness to re-evaluate the adequacy of their judgements as new data or new methodologies become available (*ibid*).

The developmental nature of King and Kitchener's reflective judgement model indicates that each successive set of epistemological assumptions is characterised by a more complex and effective form of justification. The most advanced stage indicates a level of understanding has been reached which enables individuals to work with provisional or uncertain knowledge and information. At this level, individuals can acknowledge there is not necessarily any one correct answer to a given situation but rather several possible

solutions. Recognition is also given to the notion that at this level expert practitioners may have competing views. Brookfield's (1995) notion of *hunting assumptions* can support the decision-making process of student teachers as they learn to base their professional judgements from a platform that considers the epistemological assumptions underpinning the perspectives of others.

In her review of King and Kitchener's ten-year longitudinal empirical study, Moon (1999) raises an important issue. She notes that although the focus of their research might have been to measure epistemological cognition, an influence from variables that affect the ability to express or represent those cognitions, whether orally or in written tasks, was inevitable. She raises concern that 'the difficulty of distinguishing the processes of learning from the representation of that learning is common to many studies of reflection and learning' (*ibid:* 7). This view suggests that the role of the dialogical other (Pendlebury, 1995) assumes great significance in enabling student teachers, through reflective conversations with a critical friend (Gore, 1990), to build a vocabulary of shared understandings which can be used to help them express what they mean and want to convey about situations within the teaching-learning context.

In her studies, Baxter Magolda (1999) used semi-structured interviews with mixed gender students from a range of programmes to trace progressive stages of epistemological development and identified four distinct stages: absolute knowing, transitional knowing, independent knowing and contextual knowing, as detailed in Table 2.2. She found very few students reached the contextual knowing stage before they graduated from their first degree. She also noted that students did not progress systematically from one stage to the next but found they often worked on different topics with different conceptions and shifted between stages. Following graduation, she identified two major factors which seemed to influence the students' progression into the contextual knowing stage: either the challenging experience of postgraduate studies and education or the need to make significant independent decisions, explore and evaluate the opinions of peers and colleagues, in the professional work environment.

Moon (2005) draws on the work of Baxter Magolda to trace the progressive development of students' ability to think critically. Moon (*ibid*: 12) defines critical thinking as the capacity 'to work with complex ideas whereby a person can make effective provision of evidence to justify a reasonable judgment. The evidence, and therefore the judgment, will pay appropriate attention to the context of the judgment'. Further, the fully developed capacity to think critically 'relies on an understanding of knowledge as constructed and

related to its context (relativistic) and is not possible if knowledge is viewed only in an absolute manner (knowledge as a series of facts)'. This perspective of critical thinking has resonance with King and Kitchener's characterisation of reflective reasoning.

In reference to the development of writing skills, Moon (2005: 34) describes progressive stages of critical thinking in terms of *reflective learning* 'a form of cognitive processing of complex issues when the material under consideration is largely already known'. She argues that the 'quality of reflective learning' can be seen as along a continuum from 'descriptive writing' in which ideas are displayed but not subjected to further processing, through three more stages of 'deepening' (*ibid*). The deepest level of reflective writing incorporates the consideration of: multiple perspectives, engagement with prior experiences, the broader context surrounding issues, and meta-cognition. Moon (*ibid*) defines meta-cognition as 'a form of reflection in which a process of cognitive work, itself, is reviewed. The focus is not on the content of the work, but on the cognitive processes – and, as such, this is an activity that is part of good quality critical thinking'.

There is also an awareness of relevant emotional issues and an understanding of how emotions can relate to, and influence, thinking. Moon equates deep reflective thinking to the qualities she associates with critical thinking but notes some shades of difference in connotation: 'there is a sense of critical thinking being more purpose driven toward the reaching of a judgment, and more focused on the identification and evaluation of evidence. In this connection, there is a connotation of precision about critical thinking that is not generally associated with reflection' (*ibid*). She suggests meta-cognition is common to both reflection and critical thinking and that the development of effective reflection critical thinking are contingent on the learner's progression away from the dualist position of absolute knowing toward the relativist position of contextual knowing (see Table 2.2). Within the context of initial teacher education, opportunities to engage in critical thinking and reflect upon learning occur all the time. Barnett (1997) suggests an important aim for institutions of higher education is to develop the 'critical being' – an individual who thinks critically as a way of life and is willing to act on his understandings.

Table 2.2 *Progressive stages of epistemological development identified by Baxter Magolda (1999)*: adapted from Moon (2005: 27)

Absolute knowing	Transitional knowing	Independent knowing	Contextual knowing
The least developed stage Knowledge is seen as certain or absolute Learners believe that absolute answers exist in all areas of knowledge. When there is uncertainty it is because there is not access to the 'right' answers. Such learners may recognise that opinions can differ between experts but these are differences of detail, opinion or misinformation. Formal learning is a matter of seeking and absorbing knowledge from experts who might be teachers. Learning methods are seen as concerning, absorbing and remembering. Assessment is simply checking what the learner has 'acquired' This state of thinking is described as a *dualist* position	There is partial certainty and partial uncertainty. There are doubts about the certainty of knowledge – learners accept that there is some uncertainty. Authorities may differ in view because there is uncertainty. Learners see themselves as needing to understand rather than just acquire knowledge so that they may make judgements as to how best to apply it. Teachers are seen as facilitating the understanding and the application of knowledge and assessment concerns these qualities, and not just acquisition	Learning is uncertain – learners recognise the uncertainty of knowledge, and feel that everyone has their own opinion or beliefs. This would seem to be an embryonic form of the more sophisticated stage of contextual knowing. Learning processes are changed by this new view because now learners can expect to have an opinion and begin to think through issues and to express themselves in a valid manner. They also regard peers as having useful contributions to make. They will expect teachers to support the development of independent views, providing a context for exploration. However, in 'the excitement over independent thinking, the idea of judging some perspectives as better or worse is overlooked' (Baxter Magolda, 1992: 55)	Knowledge is constructed and any judgement must be made on the basis of the evidence in that context. This stage is one in which knowledge is understood to be constructed but the way in which knowledge is constructed is understood in relation to the consideration of the quality of knowledge claims in the given context. Judgements must now be supported by evidence. Teachers are seen as facilitators and partners in the process of the development of appropriate knowledge: 'they promote evaluative discussions of perspectives - student and teacher work toward goal and measure progress' *(ibid)* This state of thinking is described as a *relativist* position

Themes common to Baxter Magolda (1999), Dewey (1910, 1933), King and Kitchener (1994), LaBoskey (1993) and Moon (2005), are the views that reflective and cognitive activity can operate on a range of levels dependent upon how knowledge is generated, developed and processed. Further, the capacity to reflect is developmental and progressive in nature, from working with certain basic, concrete knowledge to that of working with provisional or uncertain knowledge. There is also an emphasis on the notion that reflective skills can, in part, be learned through a range of strategies and techniques and applied to practice to resolve issues or concerns. An awareness of constituent components embedded within these themes is of central importance in coming to understand different patterns of thinking which can be manifested by student teachers at various stages of their professional development.

To examine the complexity of reflective practice in a way which captures the thinking behind decisions and judgements student teachers make in their own teaching, Jay and Johnson (2002) devised a typology along three dimensions of reflection: descriptive, comparative and critical. Table 2.3 highlights how they defined each dimension and the types of question that can be posed to guide and scaffold student teachers' thinking within each dimension. Although separating the dimensions out is useful for the purpose of gaining clarity about epistemological cognition from different angles, it is important to note they are not mutually exclusive, rather 'intimately intertwined to compose a composite concept *(ibid:* 80). The approach they frame to reflecting on practice stems from work undertaken at the University of Washington's Teacher Education Programme with teacher educators and teaching assistants, to guide their understanding of pedagogy during reflective seminars. The course culminates in the presentation of a portfolio, which is 'representative of the individual student's knowledge of effective teaching, assessment, and evaluation, the ability to meet the needs of diverse learners, their ability to create a positive learning environment, and their professional commitment' *(ibid:* 81). The portfolio is created during a university-based course, which follows school-based teaching practice.

Although they appear deceptively simple, the types of question identified by Jay and Johnson are particularly useful in recognising how to shift student teachers from absolute conceptions of knowing toward contextual knowing, as they reflect on practice. It can be argued that this progression is vitally important if they are to become well-informed, knowledgeable and effective teachers. Within the context of initial teacher education, student teachers make decisions and exercise discernment all the time: during the process of planning a lesson; in their organisation of time, resources and teaching spaces; in their

selection of teaching and assessment strategies. In making those judgements they should increasingly take the contextual and situational factors into account and engage in the kinds of question identified in the critical dimension of reflection (see Table 2.3).

Table 2.3 Typology of reflection: dimensions and guiding questions (Jay and Johnson, 2002: 77)

Dimension	Definition	Typical questions
Descriptive	Describe the matter for reflection	What is happening? Is it working, and for whom? For whom is it not working? How do I know? How am I feeling? What am I pleased and/or concerned about? What do I not understand? Does this relate to any of my stated goals, and to what extent are they being met?
Comparative	Reframe the matter for reflection in light of alternative views, others' perspectives, research, etc.	What are alternative views about what is happening? How do other people who are directly or indirectly involved describe and explain what is happening? What does the research contribute to an understanding of this matter? How can I improve what's not working? If there is a goal, what are some ways of accomplishing it? How do other people accomplish this goal? For each perspective and alternative, who is served and who is not?
Critical	Having considered the implications of the matter, establish a renewed perspective	What are the implications of the matter when viewed from these alternative perspectives? Given these various perspectives, their implications, and my own morals and ethics, which is best for this particular matter? What is the deeper meaning of what is happening, in terms of public democratic purposes of schooling? What does this matter reveal about the moral and political dimension of schooling? How does this reflective process inform and renew my perspective?

2.4 Reflective practice as distinguished from routine practice

Dewey (1910, 1933) not only places an emphasis on the need to develop certain skills of thinking and reasoning in order to become a reflective practitioner but draws a sharp contrast between *reflective* and *routine* action which has shaped the way many researchers and teacher educators distinguish between different types and levels of reflection (Carr and Kemmis, 1986; Handal and Lauvas, 1987; McIntyre, 1993; van Manen, 1977; Zeichner and Liston, 1987, 1996).

At the core of Dewey's argument is the notion that the chain of linked ideas that focus on resolving a problem involves not only a stream of consciousness, but also the anticipated outcome determines the *process of operations* that lead to it. He describes *reflective action* as the 'willingness to sustain and protract that state of doubt which is the stimulus to thorough inquiry, so as not to accept an idea or make a positive assertion of a belief until justifying reasons have been found' (Dewey, 1933: 16). The need to resolve a problem is what drives the enquiry forward as 'the exercise of thought is, in the literal sense of that word *inference*; by it, one thing carries us over to the idea of and belief in another thing. It involves a jump, a leap, a going beyond what is surely known to something else accepted on its warrant' (Dewey, 1910: 26). Reflective action considers the assumptions underpinning any form of knowledge or belief and consequences which might follow from action that incorporates such knowledge or beliefs (Adler, 1991; Calderhead, 1989; Cutler, Cook and Young, 1989; Farrah, 1988; Gibson, 1989) and, includes 'a conscious and voluntary effort to establish belief upon a firm basis of evidence and rationality' (Dewey, 1933: 9).

By contrast, Dewey argues *routine action* is guided by a disposition to accept the most commonly held view of resolving a problem in a given situation in a routine almost thought-*less* way. No attempt is made to experiment with alternative strategies or viewpoints, rather, attention is directed toward the means to achieve specific ends which are taken for granted, guided by such factors as authority, custom, tradition, institutional definitions and expectations. Dewey (1910: 4-5) describes such thoughts as *prejudices,* in other words 'prejudgements, not judgements proper that rest upon a survey of evidence'.

An issue, which has arisen from Dewey's conceptualisation of reflective action and its subsequent interpretation within initial teacher education concerns whether reflection is limited to thought processes about action, or is more inextricably bound within an action (Noffke and Brennan, 1988; Grant and Zeichner, 1984). There appears to be support for the view that reflection is a special form of thought (McNamara, 1990; Sparks-Langer and

Colton, 1991; Waxman *et.al.* 1988) both in terms of reflective thinking and reflective action, and the latter can be distinguished when the cycle of professional 'doing' is informed by reflection which gives rise to a modification in subsequent action (Noffke and Brennan, 1991; Gore and Zeichner, 1995). This particular cycle should be exemplified by the student teachers featured in this study as they engage in the reflective processes inherent within action research to subsequently guide their future practice.

Van Manen (1977: 264) suggests much of teachers' daily 'practical' thinking about such issues as 'planning, adapting materials, developing courses, arranging subject matter content, teaching and evaluating' can be described as technical and routine as 'the practical in this sense…expresses itself in the routines or taken for granted grounds of daily activities'. He does however distinguish between levels of reflection underpinning the nature and focus of questions teachers might ask about their practice, which can lead to different interpretations of teachers' practical work.

Van Manen's level of *technical reflection* is characterised by the application of existing knowledge to reach a given end which is not open to criticism or modification and refers to acting efficiently on an everyday basis. The primary focus of teachers' questions is to resolve concerns about aspects of their own practice and social contexts are taken for granted. Tinning (1995: 27) draws a parallel between van Manen's interpretation of technical reflection and the first level of reflective teaching identified by Grimmett *et al.* (1990), which applies research findings to practice and 'essentially represents thoughtfulness about action'.

Van Manen's level of *practical reflection* is characterised by the process of analysing and clarifying assumptions, experiences, goals, meanings and perceptions which underpin practical actions. Teachers' questions focus more on the 'educational' aspects of their work to gain 'an interpretive understanding both of the nature and quality of educational experience, and of making practical choices' (van Manen, 1977: 226-227). At this level teachers' recognise meanings are not absolute rather they are embedded in, and negotiated through, language (Fosnot, 1996; Hatton and Smith, 1995). Tinning (1995: 26) describes it as 'a form of contemplative inquiry that involves clarifying the assumptions underpinning practical actions. It is concerned with moral, ethical and value commitments'. He (*ibid*: 27) draws a parallel between van Manen's interpretation of practical reflection and the second level of reflective teaching identified by Grimmett *et al.* (1990) in that 'reflection is essentially a deliberation among choices of competing versions of good teaching'.

Van Manen's (1977: 227) level of *critical reflection* is characterised by moral and ethical questions teachers can raise which focus on 'the worth of knowledge and the nature of the social conditions necessary for raising the questions of worthwhile-ness in the first place'. Teachers analyse the wider cultural, social and political contexts, challenge their taken for granted assumptions and question their practice in relation to ideological and equity issues: 'universal consensus, free from delusions or distortions, is the ideal of a deliberative rationality that pursues worthwhile educational ends in self-determination, community, and on the basis of justice, equality, and freedom' (*ibid*). Tinning (1995: 27) draws a parallel between van Manen's interpretation of critical reflection and the third level of reflective teaching identified by Grimmett *et al.* (1990) in which 'new understandings of previously taken-for-granted assumptions about practice are developed'. There is synergy between van Manen's three levels of reflection and the three dimensions of reflection identified by Jay and Johnson (2002) (see Table 2.3).

Zeichner and Liston (1987: 27) draw similar distinctions to van Manen between reflective and routine practice and express these in terms of the teacher as *technician, craftsperson* and *moral craftsperson*:

> The teacher as technician would be concerned primarily with the successful accomplishment of ends decided by others. The craftsperson teacher would consider the educational justification for classroom actions and how well the educational goals are being accomplished. The teacher as moral craftsperson would also be concerned with the moral and ethical implications of particular institutional arrangements.

The nature of particular types of question, which underpin reflective practice as proposed by van Manen (1977) and Zeichner and Liston (1987, 1996) has raised concern. Although moral and ethical questions are important, particularly when the needs and interests of pupils must be addressed, Furlong and Maynard (1995) argue that to prioritise and separate moral and ethical questions from those which might focus on other aspects of teaching such as, the nature of pedagogy and of how pupils' learn, could be perceived as inappropriate. Calderhead (1989: 45) also notes the conceptualisations of reflective practice proposed by van Manen and Zeichner and Liston provide inadequate 'conceptions of professional learning as it occurs in classrooms or of how it might occur'.

The fundamental dichotomy drawn by Dewey between reflective and routine action has been challenged. Furlong and Maynard (1995: 45) question the interpretation of teaching as routine and argue that this view does not capture the 'multifactedness, unpredictability and sheer complexity of teaching'. Moreover, whether student teachers are aware of them or not, 'teaching is never 'merely' technical; it always involves educational and moral

assumptions' (*ibid*). Similarly, Zeichner and Liston (1996) assert educational and moral dimensions are always implicit within teaching even when viewed as a technical process. They have drawn distinctions to shape their own teacher education programme and claim that by explicitly placing an emphasis on each of these dimensions, student teachers are better able to recognise them in their own teaching. The research of Macdonald and Brooker (1999) supports this perspective. In their two-year longitudinal study to embed critical pedagogy into the course structure, they conclude that having focused on socially critical subject matter, student teachers were able to gain awareness of socio-political issues and develop a more caring approach to their teaching (see section 2.10).

Although several theorists drawn upon in this section endeavour to distinguish between reflective and routine practice by positioning certain types of question within levels of reflection, it is questionable whether their interpretations are entirely appropriate or justified, given the complex nature of professional environments within which student teachers work. Thus, caution needs to be exercised when making judgements about their capacity to engage in reflective as compared to routine action or practice. The notion of qualitative distinctions in relation to the types of reflective conversation student teachers' engage in when they reflect on practice in different ways (see section 2.2) is perhaps a more useful indicator of the degree to which they can move from surface to deep to transformative learning.

2.5 Reflective practice underpins the development of forms of knowledge that serve particular interests

Reflective practice can be viewed as a purposeful activity in that questions student teachers' raise are formulated with specific goals and needs in mind. Different kinds of interest can be served: ethical, moral, personal and social ones. The new knowledge created must be put to work and tried out to achieve a particular outcome. Student teachers, for example, concerned to find ways to challenge all pupils within a mixed ability setting might experiment with a range of approaches and use new insights and understanding to inform future planning.

The critical theorist Jurgen Habermas (1971) devised a model of *knowledge constitutive interests* to distinguish between technical, social science and emancipatory interests of people, which guide and shape human knowledge with their characteristic processes of inquiry. Habermas' technical or instrumental interests, driven by a person's concern to understand the environment in which he lives, are realised through empirical and analytical

scientific explanation. Interests within the social sciences and humanities – the historic hermeneutic disciplines – driven by a person's concern to understand human behaviour and forms of communication are realised through the interpretation and integration of ideas in order to understand meanings associated with human behaviour and forms of communication. Emancipatory interests, driven by a person's concern to understand 'self' and 'self within the human context' are realised through critical and evaluative modes of thought and inquiry. Moon (1999: 14) argues that the acquisition of knowledge which accommodates emancipatory interests aim to bring about a 'transformation in the self, or in the personal, social or world situation or any combination of these'.

Habermas' model suggests reflective practice is hierarchical, that knowledge must initially be developed by instrumental or interpretive means before a critical overview of that knowledge or processes that have led to its generation are possible. He considers methods of empirical and analytical enquiry associated with scientific explanation to provide an inadequate base for the social sciences since interpretations, which are essential to the social sciences, are derived from subjective experiences that require continuous evaluation. Although the fundamental mode of enquiry for the social sciences is interpretation, Habermas suggests this process, in and of itself, requires a critical form of evaluation and enquiry so as to scrutinize how and from which viewpoints interpretations have arisen. This reflexive form of reasoning has resonance with critical theory that emerges from the process of critique and evaluation: specifically, the generation of questioning and understanding to serve emancipatory interests.

Habermas' endeavour to incorporate theoretical and practical reasoning within a comprehensive theory of rationality has been challenged. Of major concern was Habermas' inability to show 'how a theoretical critique of the powerful ideological forces that have distorted and suppressed practical reasoning (*phronesis*) in our institutions can provide reasons for justifying social and political action on the part of the enlightened' (Elliott, 2005: 361). By not doing so, some critics (Bernstein, 1976) argued that Habermas failed to demonstrate the unity of theory and practice.

Bernstein (1976: 192) claims the knowledge constitutive interests reflect Habermas' attempt to go beyond epistemology, to develop a philosophical anthropology 'that singles out the distinctive characteristics of human social life'. Habermas regards them as basic human interests because they are grounded in what makes human social life distinctive. As such, they determine what counts as knowledge and the appropriate methods of discovering and verifying it. However, Bernstein (*ibid*: 209) questions the lack of symmetry

between forms of knowledge and enquiry constituted by emancipatory interests, and those constituted by technical and practical interests. He argues that the former is substantive and normative inasmuch as the specific aim of enquiry is prejudged, whereas the latter are formal conditions of enquiry, which do not prejudge specific outcomes.

Themes common to Dewey and Habermas' conceptualisation of reflective practice are their interpretations of reflection as a process, which serves both to develop and generate knowledge. Their views may be considered complementary in that 'Dewey considers the process, and Habermas…the place of the process in the acquisition, development and consideration of knowledge' (Moon, 1999: 15). Habermas' discourse suggests reflective student teachers are those who generate or develop particular forms of knowledge. When the motivation or underlying driving force which guides reflective practice is considered however, a distinction between their approaches becomes evident. Dewey's conceptualisation is embedded within the social sciences in which interpretations focus on 'making sense of the world' for the purpose of effective education; whereas Habermas' conceptualisation drives toward the ideals of empowerment and political emancipation (Morrison, 1995) towards freedom, justice and the pursuit of truth.

Barnett (1997) claims that by reflecting on their own situation student teachers gain awareness as to the causes and consequences of their actions; they come to understand their true situations sufficiently to create the freedoms they need for themselves. Carr and Kemmis (1986: 157) argue that this process, which they associate with critical reflection, can expose and identify self-interests and ideological distortions between practices, understandings and the structure of educational situations 'with a view to transforming them in ways which will improve these situations as educational situations for students, teachers and society'. Their interpretation of critical reflection has synergy with that advanced by Moon (1999) in terms of seeking to serve the emancipatory interests of people by transforming aspects of educational practice.

However, Macdonald and Tinning (2003) suggest this proposition represents a claim for what Carr and Kemmis (1986) believe critical reflection should be rather than a claim for how it is translated in practice. They share concerns of others from the critical reflection community about what reflection has become within contemporary educational discourse. The term critical reflection appears to be used in different ways. Calderhead (1989) notes that some take it to mean no more than constructive self-criticism of one's own actions with a view to improvement whereas others' argue (Gore, 1987; McNamara, 1990; Wildman and Niles, 1987; Zeichner and Liston, 1996) the concept of critical reflection

implies the acceptance of a particular ideology, along with its accompanying epistemology and assumptions. McKernan (1996: 259-260) cautions that some critical theorists have 'become obsessed with the use and development of *grand theory* as a principal goal' and the approach espoused by Carr and Kemmis to distinguish critical reflection from other forms of reflection imposes a form of 'academic imperialism' which seeks to 'hijack' the action research movement by 'separating theory-research from practice'.

Barnett (1997) argues the predominant focus on discourse about knowledge and the ill-defined concept of *critical thinking*, which has been a strong feature in past decades of Western universities, will not support the climate and trends within higher education. He argues that a fragmented and partial view of reflective practice, one which carries self-monitoring and reflexive connotations, is superseding that of 'criticism'. He further suggests this could become an ideology that uses reflective practice, solely at interpretive levels rather than acknowledge its potential for emancipation and empowerment.

Barnett applies, interprets and further develops ideas proposed by Habermas of the emancipatory interests and those associated with critical theory to the context of higher education. He proposes a system, which includes both action and critique, within a frame of reference that focuses on the student teacher as a developing person. He identifies *action, self-reflection* and *understanding,* as three key domains that higher education needs to focus on and considers that empowered student teachers to be capable of both critical self-reflection and critical action. He aligns this disposition with the capacity to size up the 'real world' in all its manifestations yet not to kowtow to it. Important attributes of 'critically' empowered student teachers are that they have the clarity of thought and emotional strength to justify what they value and demonstrate, in their actions, that there are alternative ways of understanding and teaching in the 'real world'. Barnett concludes that critically reflective practitioners view their professional lives in terms of what they can and want to do in order to improve the quality of pupils' educational experiences as opposed to what they are permitted to do. They are risk-takers who strive continuously through their 'desire to think again' (Clandinin and Connelly, 1995) to explore new ways of doing things.

Underpinning the goal toward becoming a critically reflective practitioner is the metaphor *liberation.* Zeichner and Liston (1987: 23) describe the liberated person as one 'free from the unwarranted control of unjustified beliefs, unsupportable attitudes and the paucity of abilities which can prevent that person from completely taking charge of his or her own life'. From this premise, it could be argued that reflective conversations, which

value student teachers' lived experiences, authentic concerns, beliefs and practical theories have potential to empower and enlighten them and should be nurtured and encouraged.

2.6 Reflective practice as an orientation or disposition to enquiry

Dewey (1933:30) suggests reflective student teachers should be dedicated, single-minded, energetic and enthusiastic as:

> There is no greater enemy of effective thinking than divided interest …
> A genuine enthusiasm is an attitude that operates as an intellectual
> force. When a person is absorbed, the subject carries him on. Questions
> occur to him spontaneously; a flood of suggestions…further inquiries
> and readings are indicated and followed…the material holds and buoys
> his mind up and gives an onward impetus to thinking.

Dewey considers particular orientations, notably attitudes of open-mindedness, responsibility and whole-heartedness are prerequisite to reflective action and should be cultivated and nurtured in initial teacher education. He argues that these attitudes, integral to reflective action, should drive individuals toward a critical examination of their own teaching practice.

Open mindedness refers to the willingness to consider more than one side of an argument and fully embrace and attend to alternative possibilities. This requires an active desire to listen to more than one side and recognise formerly held views and beliefs could be misconceived. Open minded individuals both listen to and accept the strengths and limitations of their own and others' points of view. Reflective student teachers' question and challenge why they do as they do (Zeichner and Liston, 1996) by interrogating assumptions, beliefs and personal theories from a range of perspectives or *lenses* (Brookfield, 1995). Reflective practice can thus be evidenced in those who are open to scrutiny and change.

Responsibility refers to the disposition to carefully consider the consequences of actions and willingness to accept those consequences. Misconception and confusion arises when individuals 'profess certain beliefs *(yet)* are unwilling to commit themselves to the consequences that flow from them' (Dewey, 1933: 32). Student teachers who evaluate their practice and question whether the outcomes are effective, for whom and in what ways, as opposed to those who merely question whether their objectives have been met (Zeichner and Liston, 1996) demonstrate responsibility.

Whole-heartedness refers to the way in which open-mindedness and responsibility come together through an interest and enthusiasm of some situation or event. Whole-hearted student teachers' examine their assumptions, beliefs and consequences of their actions

regularly and approach each situation with a view to learning something new (Zeichner and Liston, 1996).

The notion that reflective practice can be influenced by student teachers' orientations or disposition to enquiry is a common theme in literature within the field of teacher education (Korthagen, 1988; LaBoskey, 1993; Noffke and Brennan, 1988; Tann, 1993) and enables qualitative distinctions to be drawn between student teachers and their teaching practices (Cruickshank, 1987; Jay and Johnson, 2002). Research by Gore (1990: 117) into second year physical education student teachers' experiences of, and commitment to, a fourteen-week taught course which introduced peer teaching and group activities identifies three broad categories of student teacher: *recalcitrant, acquiescent* and *committed* in terms of their disposition to think, talk and write about their experiences as learners and as teachers (see section 2.10).

In a similar vein, arising from her studies of student teachers and their proclivity to explore pedagogical thinking LaBoskey (1993: 30) categorises *alert novices* as those who appear to be driven by the desire to continuously look out for something 'better' and who possess the 'will to know'. She introduces the metaphor *passionate creed* to describe this disposition and based upon her research evidence concludes, as do Noffke and Brennan (1988), that Dewey's 'attitudes of open mindedness, responsibility and wholeheartedness are integral to reflective action' (*ibid*). She supports Moon's (1999) view that learners' approach their studies with a cognitive structure, a flexible network of ideas and knowledge, shaped by prior learning. This cognitive structure provides the framework within which student teachers locate new ideas, and will, if deep learning is to occur, be challenged and modified (transformed) in this process. Moon associates the development of new understandings, insights and increased awareness with *deep* as opposed to *surface* learning.

To exemplify this progression, Brockbank and McGill (1998) and Cowan (1998) argue that surface learning is not reflective, rather it refers to situations where no attempt is made to examine the meaning of acquired facts and information or to challenge received wisdom. A parallel can be drawn to King and Kitchener's (1994) characterisation of pre-reflective reasoning. Deep learning, characterised by 'a desire to get a grasp of the main point, make connections and draw conclusions' (Brockbank and McGill, 1998: 36) results in more effective retention of learning and the ability to apply learning to new situations, which results in greater transfer of learning. The euphemism *transformative learning* is applied to the highest level of learning and describes situations where learners are prepared to abandon

preconceptions and re-examine their fundamental assumptions about subject matter, themselves and the nature of knowledge (Brockbank and McGill, 1998; Cowan, 1998). This stage of *possible transformations* can be applied to the role of reflection in Habermas (1971) and Barnett's (1997) interpretation of *emancipation* and *critical thinking*, respectively (see section 2.5). There is also a very clear link between the notion of possible transformations and King and Kitchener's model of reflective judgement, which specifically underpins the progression from *surface* to *deep* to *transformative* learning (see section 2.3).

2.7 Reflective practice develops an epistemology of professional practice

Schon's (1983, 1987, 1991) conceptualisation of the reflective practitioner originated in earlier work (Argyris and Schon, 1974) which distinguished between two forms of theory of practice or action: *espoused theory* and *theory-in-use*. This distinction emerged from concern that there was a gap between the propositional (espoused) knowledge and theory, which purports to underpin professional activity and the reality of how a professional behaves in practice. For example, espoused theories refer to those formally seen by a profession to guide action and encompass the formal philosophy of the profession, whereas theories-in-use refer to those patterns of behaviour learned and developed in the day-to-day work of the professional. Schon argues, it is the latter type that more aptly characterises the real behaviour of professionals.

Although Schon acknowledges professionals must acquire a body of specialised knowledge, he persuasively argues that such knowledge cannot simply be applied in a rule governed way to practice. This line of argument questions the appropriateness of using knowledge produced in a different context to that in which it has to be applied. Further, the assumption that problems can be resolved by applying others' knowledge to one's own practice does not account for the artistry and skilfulness involved when student teachers, with their personal biographies and individual characteristics, teach a particular group of pupils in a particular environment. Schon reverses Dewey's (1910, 1933) *technical rationality* approach and claims that knowledge, embedded within and gathered from the context of the school, can both generate and develop an understanding of practice.

At the heart of Schon's (1987: 22) discourse is the emphasis placed on *professional artistry,* which he describes as:

> the kinds of competence practitioners display in unique, uncertain and conflicted
> situations of practice…a high powered esoteric variant of the more familiar sorts of

competence all of us exhibit everyday in countless acts of recognition, judgement and skilful performance.

Within the context of teaching, student teachers constantly encounter situations that are unique; no two groups of pupils are the same. Even when student teachers become familiar with a particular teaching group, how they explain and present new material to promote pupil learning and understanding can also be unique. Schon argues that the repertoire of teaching approaches and strategies student teachers' gain from experience provide *exemplars, images* and *metaphors* that they can draw upon to structure and frame each new teaching situation. *Framing a situation* involves interpreting it in one way as opposed to other possible ways and this process must be viewed as experimental since imposing meaning onto the situation by taking action leads to particular consequences, which should then be evaluated. Schon (1983: 151) suggests the student teacher:

> can shape the situation and in conversation with it so that his own models and appreciations are also shaped by the situation. The phenomena he seeks to understand are partly of his own making: he is in the situation that he seeks to understand.

To understand this conundrum Schon (1987: 83) makes reference to the *Meno paradox*:

> in the first instance, he can neither do it nor recognise it when he sees it. Hence he is caught up in a self-contradiction: looking for something implies a capacity to recognise the thing one looks for but the student lacks at first the capacity to recognise the object of his search.

To resolve the perplexing conundrum of the *Meno Paradox* there is need to help student teachers learn how to frame problems of practice. Schon (1987) introduces three models of *coaching reflective practice* which are designed to show student teachers how a particular setting appears through the eyes of experienced practitioners:

Hall of Mirrors: the experienced practitioners' practice exemplifies that which student teachers seek to develop and understand in their own practice. As such, student teachers need to experience being a learner in a particular situation to gain greater awareness of the position of their learners when they assume the role of teacher.

Joint Experimentation: student teachers are encouraged to lead the reflective enquiry while experienced practitioners offer advice, alternatives and constructive feedback as the need arises. This enables student teachers to question problems concerning practice in a particular setting.

Follow Me: experienced practitioners describe and demonstrate their pedagogical knowledge and student teachers endeavour to develop and imitate the appropriate use of that pedagogical knowledge. Discussions about the actions both from experienced

> practitioners and student teachers' perspectives promote learning about the practice setting.

These models juxtapose two perspectives on learning, notably, the student teachers' learning about learning and their learning about teaching. They come to recognise that reflective practice incorporates far more than a display of the skills associated with an *expert pedagogue* (Berliner, 1986), as expressed by MacKinnon (1989: 23):

> experimenting about the inevitable 'mistakes' and confusions that follow are encouraged and discussed, and viewed as departure points for growth…a climate of trust, as well as the disposition to take learning seriously…begins with the supervisor's own capacity for reflection on teaching, together with his or her ability to make this evident to the student teacher.

This has resonance with the role of the dialogical other, introduced by Pendlebury (1995), through which student teachers engage in discourse to explore personal theories, beliefs and assumptions which might underpin their own practice (see section 2.2).

What emerges from Schon's discourse is that competence or *intelligent action* can be shown in the ability of reflective practitioners to respond effectively in particular situations. This perspective contrasts sharply with Dewey's interpretation that competence can be demonstrated through an ability to articulate and justify behaviour. Schon (1987: 25) elaborates further and describes intelligent action as *knowing in action,* which he claims can be intuitive as 'we reveal it by our spontaneous, skilful execution of the performance; and we are characteristically unable to make it verbally explicit'. Although this knowledge is inherent, intangible, intuitive, spontaneous and tacit, it 'works' in practice. This intuitive form of *knowing in action* is aligned to *reflection in action* (Schon, 1987: 28)*,* which occurs when practitioners encounter an unknown situation or a surprise occurrence in the learning environment triggers it off:

> reflection-in-action has a critical function, questioning the assumptional structure of knowing-in-action…(and)…gives rise to on the spot experiment. We think up and try out new actions intended to explore the newly observed phenomena, test our tentative understandings of them or affirm the moves we have invented to change things for the better.

This interpretation of reflection in action involves simultaneous reflecting and doing, which implies the professional has reached a stage of competence where he is able to analyse what is taking place and modify actions virtually instantaneously. The process of interpreting and providing solutions to complex and situational problems happens during an action as events unfold, 'the period of time in which we remain in the same situation' (Schon, 1983: 278). Such expressions as 'thinking on your feet' and 'keeping your wits

about you' aptly portray reflection in action, which Kounin (1970) associates with *contemporaneous reflection* and 'withitness'. McIntyre (1993: 43) argues that reflection in action is more likely to be characteristic of how experienced teachers respond within the teaching context as they have a richer vocabulary of exemplars, images and metaphors from which to frame teaching situations, along with the confidence to shape and try these out in new ways:

> Expert practitioners…(have)…extensive repertoires of past experiences on which they can draw in order to illuminate current problems; and, when they use the possibilities of constructing new frames by modifying and combining old ones, they have very rich, even although bounded, capacities for thinking creatively through reflecting in and on their experience

The generation of knowledge and understandings which arise from interpreting and shaping situations one way as opposed to other possible ways strongly suggests teaching is a creative process, driven by the imaginative way reflective practitioners frame each new situation uniquely and strive to learn from the experience. It has been suggested (Feiman-Nemser, 1990: McIntyre, 1993; Schon, 1983, 1987) reflection in action is one means of distinguishing between professional and non-professional practice, which could be indicative of the more perceptive student teachers when they respond effectively to situations of uncertainty, as they unfurl in the learning environment.

Korthagen and Kessels (1999) suggest that teachers often make decisions and act intuitively by drawing on previous knowledge and experience, which can be considered 'an essential part of the teachers' repertoire' (McNamara, 2002: 22). However, Day (1999) cautions that reflection in action can often be very rapid, as split second decisions need to be made, which implies it is not always possible:

> to judge the effects of action and to assess the nature of newly created situations, because of the rapid pace of decision making and volatile nature of circumstances in densely populated classrooms and schools…the selection of information may be rapid and impressionistic; the likelihood of information being missed is considerable, and the potential for misjudgement enormous (Tickle, 2000: 127).

This highlights the need for student teachers to reflect on their teaching and capacity to enhance learning opportunities for all their pupils through rigorous, systematic evaluation procedures.

Reflection-in-action can be evidenced through what student teachers' do, how they teach and encourage pupils to learn and thus, presents a different view of theory underpinning the development of knowledge to that described in earlier sections (see sections 2.3, 2.4, 2.5). Student teachers become researchers in the practice context and, as

such, are not dependent upon categories of established theory or technique rather, they develop personal theories about what does or does not work in their teaching. 'Means and ends' are not separate but defined 'interactively' as student teachers frame a situation: 'thinking' is not separate from action as 'experimenting is a kind of action' (Schon, 1983: 68) and implementation has been woven into the inquiry. Reflection in action can, in part, be viewed as *theory-guided practice* (Carr, 1987: 165) since all practice:

> presupposes a more or less coherent set of assumptions and beliefs, it is, to this extent, always guided by a framework of theory. Thus, on this view, all practice…is 'theory-laden'. Practice is not opposed to theory, but is itself governed by an implicit theoretical framework which structures and guides the activities of those engaged in practical pursuits.

This reinforces the need for student teachers to reflect on how personal theories and beliefs might influence the decisions they make in the teaching context. In other words, intuitive decision-making derived from personal experience gives added importance to the purpose of reflecting on practice (Mason, 2002), which can 'render the invisible, visible' (Moore, 2000: 221).

Schon recognises that many professionals find it difficult to reflect on practice as whatever language they use descriptions of professional practice will always be *constructions*. Also, by trying to capture 'intelligent action' which originates from being spontaneous and tacit through language, reality is distorted as 'knowing in action is dynamic' whereas 'facts, procedures, rules and theories are static' (Schon, 1987: 25). However, as Polkinghorne (1995: 16) argues 'the very act of bringing these happenings into language imposes a higher level of order on them than they have in the flux of everyday experience' which is a vitally important consideration in coming to understand the complex mosaic of factors which underpin the decisions student teachers make in the teaching environment. In support of this view, Stringer (1996: 97) notes that when practitioners 'reflect on their situation, they can conceive solutions to their problems with a degree of clarity that escapes them in the rush and clutter of their day-to-day lives'.

Thus, although student teachers' verbal (re) constructions of situations and events might seem inadequate, reflection on action is an important process in learning about the professional activity of teaching as it moves them from *knowing in action* toward *reflection on action* (Schon, 1987). The journey serves to make much that was implicit explicit and enhance their level of awareness and consciousness as to how they frame teaching situations. This enables student teachers to gain control of their own teaching and to develop 'artistry' as reflection on action encourages the questioning of principles and

theories, which underpin what student teachers do, and engagement in the conscious exercise of discernment as they provide reasons to support the professional judgements they make.

Reflection on action provides a frame for recognising how student teachers make sense of, and gain control over, their situated knowledge. Further, it acknowledges that student teachers' personal reflection must be subject to systematic questioning so that their professional practice can be justified. Schon does not prioritise, as do others (Carr and Kemmis, 1986; Zeichner and Liston, 1987, 1996) one particular form of questioning in preference to others. Any of the foundation disciplines in education such as philosophy, psychology and sociology can provide the source of questioning to gain understanding of the principles underpinning their teaching.

Reflection on action involves looking back on action some time after the event has taken place. Within teacher education, certain models that have been termed technical reflection (Killen, 1989) are based on thinking about skills and competencies with a view to evaluating their effectiveness almost immediately after an attempt at implementation, and then making changes to behaviour. Other models (Smith and Lovat, 1991; Gore and Zeichner, 1991) encourage deliberation over a relatively extended period of time about the purposes of action with a view to exploring alternatives that might be implemented in the future whereas others (Boud, Keogh and Walker, 1985) suggest, reflection on action involves conscious detachment from an activity followed by a distinct period of contemplation. In this study, student teachers are encouraged to reflect on action as soon as possible after the event so as to capture key events and occurrences in relation to their research investigation lest they should be forgotten. Also, to reflect on feedback gathered from pupils, peers and colleagues. This informed evidence base should enable them to triangulate data and refer to pertinent literature in order to reflect on and plan how they might improve their own effectiveness in the next research lesson (see section 3.6).

Schon's (1983, 1987) reference to the *Meno paradox* has synergy with King and Kitchener's (1994) development of reflective judgement and Baxter Magolda's (1999) progressive stages of epistemological cognition (see section 2.3) in that, the ability to cope with ill-structured problem situations, with uncertain knowledge is considered a more advanced stage in the development of reflective reasoning and contextual knowing. His distinction between *technical rationality* and *artistry* implies those student teachers that reflect in and on action are thought-full as compared to thought-less practitioners.

2.8 Reflective practice as an integral part of action research

Reflective practice is at the heart of certain research paradigms, particularly those situated in the hermeneutics, which focus on practitioners learning about the art and craft of their profession through personal 'authentic' (Whitehead, 1993) lived experiences. Reflective practice has been explicitly linked to action research (Pollard, 2002; Reason and Bradbury, 2001), which 'rejects the mindless application of standardised practices across all settings and contexts, and instead advocates the use of contextually relevant procedures formulated by inquiring and resourceful practitioners' (Stringer, 1996: 3). In this study, action research provides the vehicle through which student teachers' interrogate personal practice in a specific context so as to improve the effectiveness of their own teaching. Professional knowledge and judgement can be developed through reflection and further development, while critical reflection supported by practitioner research can provide the 'means by which the quality of teaching and learning in the classroom can be evaluated as a prelude to improvement' (Bartlett and Leask, 2005: 298).

McKernan (1996: 29) refers to action research as *grounded curriculum theory* in that 'theories are not validated independently of practice and then applied to curriculum…they are validated through practice'. Similarly, Elliott (2005: 372) writes 'theory from my perspective arises in the context of the practice and its warrant is determined in practice. Therein lies the unity of theory and practice'. This viewpoint reinforces the line of argument advanced by Schon (1983, 1987) of how student teachers come to develop their personal epistemology of practice (see section 2.7) in addition to that of Boud and Walker (1990) of the importance placed on the context of the learning milieu (see section 1.2). As they engage in reflective practice, the knowledge gained and theories constructed will, in part, be shaped by personal experiences within the context of a specific teaching situation.

While advocating action research as a vehicle to validate 'teachers' personal, professional and political knowledge' Gore and Zeichner (1995: 209) challenge the claim that it necessarily provides a voice for teachers as there is 'a sense in which the 'scientific' mask of action research, of social research generally, can be seen to devalue what teachers know and ways in which they have traditionally practised their work'. For example, Cochran-Smith and Lytle (1993: 304) identify a number of obstacles which need to be addressed before teachers can be expected to engage in research: 'teacher isolation, a school culture that works against raising questions, a technical view of knowledge for teaching, and the negative reputation of education research'. Also, McTaggert *et al*, (1997) found action research was a difficult process for teachers to learn and sustain due to its complexity and

lack of congruence with the hectic nature of life in the classroom. It is important to be mindful that such factors might also influence the research experiences of some student teachers featured in this study.

Within educational discourse, action research has become a recurrent theme, as has the concern to improve and develop professional practice from within the profession. This implies ownership of the research process to generate new insights into teaching and learning to improve practice by those most likely to be affected by its outcome. Price (2001: 44) suggests action research is simultaneously an individual and collaborative project and Kemmis and McTaggart (1982; 7) argue that 'groups of people can organise the conditions under which they can learn from their own experience, and make this experience accessible to others'. One aim of collaborative action research is to construct knowledge about issues, which arise from professional practice to facilitate change and improvement (Lewin, 1946; Carr and Kemmis, 1986; Elliott, 1991). However, the effectiveness of active participation by practitioners in the research process will, in large measure, depend upon 'success with working with other people' (Gray, 2004: 377). This implies that working with peers and fellow practitioners requires sensitivity, trust and a mutual respect for the feelings and expertise of others. These are factors that student teachers in this study will need to embrace as they engage in research within the school environment.

Integral to the process are the goals of equity and social justice as existing practices within the school are examined critically and transformed (Carr and Kemmis, 1986; Cochran-Smith and Lytle, 1993; Gore and Zeichner, 1995; Noffke, 1994, 2005; Noordhoff and Kleinfeld, 1990). This frame of reference suggests that an examination of the conditions and contexts of their work helps practitioners to learn about and change their practice in ways appropriate to their unique environment. As McNiff, Lomax and Whitehead (2003) note, the ethical and moral principles inherent within action research, can influence the outcomes of action research in relation to:

- personal development
- improved professional practice
- improvements in the institution
- contribution to the good order of society

This critical perspective widens the aims of action research as a vehicle for educational reform as it becomes a process of creating the conditions for change on three levels of the work of teachers: personal, professional and political. Not only is this an issue of how

teachers' behave in their classrooms or with others in their school but also 'of how they come to 'own' and produce knowledge for their own purpose' (*ibid*: 44).

Although action research has been recognised as a means to develop reflective practice and promote educational change, few studies have examined its influence in student teacher education. Many studies have focused on written artefacts (portfolios, project reports, reflective journals) of teachers' enquiries (Beyer, 1984; Bissex and Bullock, 1987; Goswami and Stillman, 1987) as exemplified in experienced teachers' grounded in self-study, providing narrative accounts of their personal experiences and professional lives through teacher stories and stories of teachers (Connelly and Clandinin, 1988; Russell, 1993); and, in professional development projects which expect teachers to engage in collaborative action research as a process both for professional learning and educational reform (Cochran-Smith and Lytle, 1999; Elliott, 2004; Gore and Zeichner, 1995; Knight, 2002; Noffke, 2005; Somekh, 2006). Few studies have examined how student teachers learn the processes inherent within action research, what they learn, and further, how they make connections between classroom enquiry, teaching and educational change.

In one study, however, Price (2001) examined the experiences of 11 student teachers enrolled in an action research course on a Master's level programme, to identify ways in which they made connections between research, pedagogy and change. The framework he used had four components (or domains of teaching): reflection and enquiry; learning about students; learning about pedagogical content knowledge; and, learning about social justice and democracy. Findings showed that 9 of the 11 student teachers 'embraced the challenge of developing morally and ethically defensible practices…that considered the wide range of student experiences in and out of school, and recognised the ways in which classrooms and schools can both create and address social justice' (*ibid:* 67). In learning to become agents of change, many undertook a systematic study of their teaching which focused on changes in their understanding of teaching underpinned by the commitment to provide 'engaging and empowering experiences that challenged students intellectually, helped them make subject matter connections to their own lives, and nurtured their cultural and social identities' (*ibid*). All 11 experimented with ideas and practices, which largely focused on the learning and engagement of their pupils and perceived the research experience was helpful to their development and growth in terms of what they came to know and were able to do. Each developed a view of teaching that 'potentially seemed transformative and counter to many ideas that pervade schooling and classrooms' (*ibid*). Most saw a limited accomplishment of change in their pupils lives which shaped their 'visions of the kind of

change they hoped to promote' (*ibid*: 70) in their future teaching. These findings could be useful for comparative purposes in relation to the outcomes of this research study.

Price (2001: 58) reports the student teachers' encountered several challenges: finding time to reflect on their lessons; struggling to keep up with data collection; and, receiving support from mentors; for example, although mentors could be a tremendous support for student teachers, simultaneously they could also 'unwittingly set boundaries upon their experimentation'. This study also seeks to explore whether student teachers' experienced any such challenges as they prepared for, engaged in and evaluated the impact of their own research investigations.

When practitioners undertake their own action research, there is need to place oneself (the I) at the centre, in addition to providing an explanation as to how oneself is positioned in relation to other research participants and the particular setting (McNiff *et al*, 2003: 17). Guba (1996) suggests teachers perceive action research to be a form of personal enquiry that is right for them; a form of professional enquiry carried out by the practitioners themselves (Anderson *et al*, 1994; Kincheloe, 1991; McNiff, 1993; Stringer, 1996), which is 'closer to the kind of knowledge that teachers hold – context-sensitive, particular (and) richly descriptive knowledge' (Hiebert *et al*, 2002: 12). Usher (1998: 18) adds, the study of self 'seems to be ideally suited to revealing experience-based learning and tracking the development of self as learner'. These views clearly have resonance with Schon's (1983, 1987) discourse about developing a personal epistemology of professional practice guided by theories in use (see section 2.7). It is also a fundamental goal behind the purpose of undertaking this study.

As an ontological phenomenon, Grimmett *et al,* (1990: 29-30) consider self-reflection:

is concerned with ways of being in the world…human beings acquire an understanding of themselves through self-reflection, and it is only through life that one can understand life. In using the concepts of self-reflection as a life philosophy and self-reflection as a methodology…(one can)…gain insights into the actions of teachers, not only as educators but also as adults who share a lived reality with children. To be self-reflective in this sense is to be attentive to the relationship between theory and practice.

The development of 'knowing oneself is a never ending process' (Rodgers and Raider-Roth, 2006: 271) as aspects of self are 're-storied' (Holstein and Gubrium, 2000), shift and evolve over time. This can be viewed as a process that moves from 'embeddedness' in relation to beliefs, culture, feelings, history, prejudices and values, and varied contexts which give rise to these, toward 'differentiation' (Kagan, 1992) wherein these beliefs, culture and feelings can be observed as objects, rather than being subject to them. A critical

self-awareness is key to such growth (Dewey, 1933: Lipka and Brinthaupt, 1999; Palmer, 1998; Zembylas, 2003). When student teachers allow themselves to be present both with and to pupils, such awareness can be accelerated, as pupils' responses often provide the windows to their self-knowledge (Rodgers *et al*, 2006). This has synergy with Belenky *et al*'s (1986 227) notion of 'connected teaching' as a means to enter into the perspectives of each pupil. The interrelationship between teaching and learning necessarily calls upon student teachers to reflect upon pupil learning and development so as to better understand reasons behind the outcomes of their own teaching. Throughout professional development, we constantly construct and reconstruct our own selves in order to confront situations. We do this by resorting to memory of the past and considering hopes and fears about the future (Bruner, 1990). Therefore, explaining ourselves to ourselves is like creating a story about who and how we are and how and why we do what we do.

Through self-study there are 'new possibilities for qualitative research to focus on the everyday practices by which individuals constantly construct and reconstruct their sense of individual identity' (Elliott, 2005: 124). In writing and speaking of personal experiences student teachers' engage in discourse which can explore 'vulnerabilities, conflicts, choices and values' and take measure of the 'uncertainties, mixed emotions, and multiple layers' (Ellis and Bochner, 2000: 748) of their experience. Reflective conversations can thus become a powerful agent of understanding 'self' as student teachers recount not only what they observed in a given context, but also their emotions, feelings, ideas and thoughts as to 'future possibilities' (Pollard, 2002). Palmer (1998) claims questions concerning the *what, how* and *why* of teaching are not as important as the '*who*' and that there should be coherence between teaching methods and self. His notion of the 'inner self' purports that good teaching comes from identity rather than technique. He strongly urges student teachers to have the courage to teach in ways attuned to their deepest values, as compared to the expectations imposed by institutions. This proposition, however, may not necessarily be realised in practice, particularly in situations where prescribed approaches to teaching and power relations might challenge the core values held by some student teachers.

The dimension of feelings and emotions is woven into Boud *et al's* (1985: 19) approach to reflective practice as student teachers are encouraged to 'recapture their experience, think about it, mull it over and evaluate it' through:

- *association* - relating new data to that which is already known, making links between feelings and ideas we have about teaching;
- *integration* - seeking relationships among the data, making sense of associations in some way;

- *validation* - determining the authenticity of the ideas and feelings which have resulted, trying out new ways of viewing and understanding teaching;
- *appropriation* - making knowledge one's own, taking ownership of new insights and learning to inform future teaching.

Their approach to gaining knowledge from experience, which begins with the description of a particular teaching situation, incorporates the view that reflective practice involves looking back (returning to experience) and looking forward.

This framework has however been interpreted 'in such a reductionistic manner' (Boud, 1999: 125) as to be unrecognisable as reflective practice. Some staff within placement schools for example, asked student teachers to reflect by numbers '1 – return to the experience, 2 – attend to feelings, 3 – reevaluate by stages…' as though it were a simple, linear process of 'working through a series of prompts to reach deeper understanding' (*ibid*). Boud argues persuasively that *recipe following* is wholly inappropriate as it does not take account of the 'uniqueness of learners, their prior experience, the particular context in which they are operating nor the need to address any unhelpful dynamics of power or oppression which may intrude' (*ibid*: 128). Further, the emphasis placed on the need for personal disclosure was often found to be beyond the capacity of some student teachers. Boud suggests these shortcomings can be addressed when school staff build a context for reflection unique to every learning situation and create an environment of trust. What emerges from this discourse is the need to recognise the unique nature of each student teacher, the unique nature of each school context and to provide support structures, which enable each student teacher to gain maximum benefit from their situational experiences.

The focus on attending to feelings and emotions has been furthered by Korthagen and Vasolos (2005: 48). They recommend that when student teachers' engage in reflective practice, they should probe and explore the following questions:

- What was the context?
- What did I want?
- What did I do?
- What was I thinking?
- How did I feel?
- What did the pupils want?
- What did the pupils do?
- What were the pupils thinking?
- How did the pupils feel?

The importance placed on this approach, marked by a balanced focus on wanting, feeling, thinking, and doing, distinguishes it from other views of reflective practice, which emphasise rational analysis (Dewey, 1910, 1933). Another distinguishing feature is how

student teachers are encouraged to 'decentre' midway through the series of questions and position their pupils' needs and concerns in the foreground, as in Belenky *et al's* (1986) primary way for student teachers to come into relationship with their pupils.

Kolb (1984) explicitly links reflective practice to his theory of experiential learning, which sets out a 4-stage cycle of learning underpinned by four distinct learning styles. The cycle can be summarised as: immediate or *concrete experiences* (1) provide the basis for observations and reflections; *observations and reflections* (2) are distilled and assimilated into *abstract concepts* (3), which produce new possibilities for action, which can be *actively tested* (4) through experimentation, that in turn, create new experiences. Kolb describes this process of learning as 'self-perpetuating' in that the learner shifts from actor to observer, from direct involvement to analytical detachment, which creates a new form of experience to reflect on and conceptualise. His theory is built on the notion that experiential learning is a process, which involves re-creating personal lives and social systems rather than the application of a series of techniques to current practice. It is distinguished by attending to the organisation and construction of learning from observations made in some practical situation so that learning can then lead to improved practice.

Kolb associates experiential learning with Piaget's (1967) theory of cognitive development in that both consider the processes of *assimilation* and *accommodation* to underpin stages of development. Assimilation incorporates receiving information from the environment and, accommodation incorporates modifying that which is already known by the learner in light of the new learning. Reflection is used to move the learner beyond current thoughts and ideas and to progress in their learning. Experiential learning can refer to those situations where experience 'is initially apprehended at the level of impressions, thus requiring a further period of reflective thinking before it is either assimilated into existing schemes of experience or induces those schemes to change in order to accommodate it' (Eraut, 1994: 107). LaBoskey's (1993) research into the cognitive processing ability of student teachers found that *common sense thinkers* and *alert novices* engage with experiential learning in different ways, which has implications for how they assimilate and accommodate information from the environment and learn from their experiences. This study seeks to further explore these concepts by examining whether qualitative distinctions can be drawn between student teachers in relation to the types of reflective conversation (descriptive, comparative and critical) they engage in when reflecting on different aspects of their research experiences.

Several theorists examined the role of reflection in Kolb's model of experiential learning. Moon (1999) suggests the precise role of reflection is unclear due to confusion as to its interpretation. She affirms that phases of the model trace how an event or situation is experienced yet suggests one factor tends to become lost, that of recycling the cycle when action and learning can provide new forms of experience which can themselves become the subject of reflection. Although an emphasis is placed on the purposes or outcomes of action and learning, she suggests the model does not account for possible reflective interaction between the phases and further, that the notion of a cycle could be misleading. Others (Boyd and Fales, 1983; Steinaker and Bell, 1979) suggest that areas of cognition and aspects of life can be re-evaluated by the learner in light of the new learning. Such factors highlight the complex nature and diverse roles played by reflection in the learning process.

Kolb's model of experiential learning has become closely associated with the process of action research, which Carr and Kemmis (1986: 162) define as:

> a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which these practices are carried out.

Grounded in Habermas' (1971) classification of knowledge constitutive interests, Carr and Kemmis categorised different forms of action research: *technical* involves exercising control over human behaviour to perform desired outcomes; *practical* involves making judgements about the right course of action in specific circumstances; and, *critical* concerns emancipating people from oppression. This is synonymous with the three levels of reflection identified by Van Manen (1977) in the endeavour to distinguish between routine and reflective practice as discussed in section 2.4.

A recent critique of Carr and Kemmis' conceptual framework has raised several concerns. For example, Elliott (2005: 359) claims that 'its theory of rationality is very weak in creating a link between ideology critique and the organisation of strategic action', which is possibly why it is not able to support critical action research at the operational level. He purports, critical self-reflection is integral to action research when conceived as the systematic organisation of action, which aims to realise educationally worthwhile and socially just learning experiences for pupils. In other words, the power to transform practice is dependent upon an awareness 'of the habitual patterns of interaction that shaped students lives in classrooms and the norms and beliefs embedded in them' (*ibid*). The critical is therefore an intrinsic aspect of practical enquiry when directed toward implementing curricular and pedagogical change at the classroom level. By engaging student teachers in action research Elliott (*ibid*: 366) reports, we were 'asking them to

reflectively critique their taken-for-granted assumptions about good practice'. He concludes that Carr and Kemmis' categorisation of three forms of action research did not fit his own understanding of this process. Following this line of argument the terms reflection and critical reflection are inextricably linked and attempts to separate them out could result in tautology. This has implications for how they are defined and can be used meaningfully within educational discourse.

Cohen and Manion (1994: 194) suggest action research is of relevance to many aspects of work in the social sciences and appropriate in any context when 'specific knowledge is required for a specific problem in a specific situation, or when a new approach is to be grafted onto an existing system'. *Professional discretion* (Hargreaves *et al*, 2001) can be demonstrated when student teachers' ask searching questions of educational practice which arise from their own professional circumstances, interests and commitments. Such student teachers exemplify a commitment to continuous learning by seeking new ideas, evaluating and reflecting on their impact and trying out new practices and ways of working to improve their own effectiveness in the teaching environment. In this study, action research provides the vehicle through which student teachers can gain greater understanding and awareness of personal professional growth and development and internalise the processes associated with the art of self-study.

The concepts *enquiry* and *research* have become embedded within the discourse of teacher professional development, yet there is limited research evidence as to: how school structures enable or constrain professional learning (Mayer *et al*, 2003); what and how teachers learn (Guskey, 2002); and, whether teachers use reflection to improve their practice. Further, Brouwer and Korthagen (2005) caution that it has been argued, educational research lacks the kind of knowledge, which can be gained from practitioners researching their own practice, as research literature concerning the process of teacher development lacks in-depth studies conducted by practitioners in situ over a sustained period of time. This lends considerable support of the need for studies of, and by, individual practitioners to be undertaken by examining closely the learning processes involved when teachers and student teachers engage in practice and development (Verloop *et al*, 2001; Brouwer and Korthagen, 2005).

Thus, action research for improving practice, thinking and creating more meaningful work environments seeks to take the value laden, socially constructed nature of practice as its starting point. When student teachers identify action for improvement this can usefully be viewed as both a dialogical and reflective process. The commitment to learn from

practice and to improve practice is characteristic principles of action research, as is the concern to generate and produce knowledge. Reflective practice lies at the heart of action research, which aims to provide student teachers with a greater sense of autonomy over their own work and to identify possible avenues for alternative practice. A detailed account of the purpose for, and approach to, action research adopted for the student teachers featured in this study is presented in section 3.6.

2.9 Reflective practice as a core component of professional development

Professional development has been described by Day (1999: 4) as:

> all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school, which contribute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers *review, renew* and *extend* their commitment as change agents to the moral purposes of teaching: and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional *thinking, planning* and *practice* with children, young people and colleagues throughout each phase of their teaching lives.

Reflective practice can be viewed as the key driver through which the processes highlighted above (in italics) can be realised. Embedded within this interpretation of professional development are factors associated with the nature of student teachers' knowledge, autonomy and responsibility, along with suggestions as to how they might acquire the knowledge, skills and values which underpin effective educational practice. Also, it embraces the development of the individual student teacher, pupils and the school, affective aspects of personal growth and development driven by intrinsic motivation and, explicitly makes reference to continuous development throughout working lives. It endorses the view that student teachers should stay abreast of developments in subject knowledge and not 'overly rely on knowledge gleaned during their previous educational experiences' (Moore, 2000: 125) and importantly, that of Hargreaves (2003: 16) who cautions, 'teachers' who do not keep learning by more than trial and error are a liability to their pupils'.

Features of professional development identified by Day have resonance with the criterion approach used by Hoyle and John (1995) in their exposition of *Professional Knowledge and Professional Practice,* in which they claim that *knowledge, autonomy* and *responsibility* are the central concepts of professional development. Earlier work by Hoyle (1974) gave rise to the distinction between *restricted* and *extended* professionals. Characteristics of the restricted professional include: a high level of skill in classroom practice; an ability to

understand, establish and enjoy positive working relationships with children by adopting a child-centred approach; use of personal perceptions of change in pupil behaviour and achievement to evaluate performance; and, short-term practical course attendance. Characteristics of the extended professional incorporate all qualities associated with the restricted professional in addition to: contextualising classroom practice by relating it to the wider contexts of school, community and society; participating in a wide range of professional development activities such as conferences, subject panels and in-service educational training; an active concern to link theory and practice; and, engagement in peer observation and small-scale collaborative research studies. An important goal behind the research experiences of student teachers featured in this study is to prepare them for becoming extended, as opposed to restricted, professionals.

Building on Hoyle's distinction, particularly in relation to the *teacher as researcher* movement, Stenhouse (1975) argues that the outstanding feature of extended professionals is their capacity and commitment to engage in autonomous self-development through systematic self-study. He identifies five key attributes to characterise extended professionals as they research their own practice; specifically, that extended professionals (*ibid*: 143-144):

- need to reflect critically and systematically on their practice
- should have a commitment to question their practice and this should be the basis for teacher development
- should have the commitment and the skills to study their own teaching and in so doing develop the art of self-study
- might benefit from their teaching being observed by others and discussing it with them in an open and honest manner
- should have a concern to question and to test theory in practice

These attributes have synergy with those student teachers are encouraged to develop as they engage in reflective practice to improve the quality and effectiveness of their own teaching, particularly in relation to their action research experiences. In working systematically through the reflective cycle of planning – acting – observing – reflecting and continuing the 'self-reflective spiral of cycles' (Carr and Kemmis, 1986: 162) the foundation is laid for student teachers to internalise the process and engage in the art of self-study in future teaching so as to enhance their professional development.

Stenhouse (1975) suggests the capacity to make sound judgements can be greatly enhanced when student teachers demonstrate openness to scrutiny from professional colleagues about their practice and are receptive to considering and deliberating over alternative viewpoints. The term *reframing* (Loughran, 2002) has been used to describe the process of viewing practice through the eyes of others, which resonates with Dewey's

(1933) reflective attitude of open mindedness (see section 2.6). The capacity to keep an open mind has been expressed by Chetcuti (2002: 154-155) as the reflective student teachers' desire to:

> listen to more sides than one, to give full attention to alternate possibilities, and to recognise the possibility of error in the beliefs that are dearest to us. Being a reflective teacher means that you keep an open mind about the content, methods and procedures used in your classroom. You constantly re-evaluate your worth in relation to the students currently enrolled and to the circumstances. You not only ask why things are the way they are, but also how they can be made better.

Although considerable emphasis is placed on the need to develop this attribute for numerous reasons discussed in earlier sections (see 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8), Costa (1998) notes that it can be a very challenging activity. The roles of the *dialogical other* (Pendlebury, 1995) and *critical friend* (Gore, 1990) in addition to models of *coaching reflective practice* (Schon, 1983, 1987) assume increased significance in the process of nurturing the development of this attribute, particularly in the case of those student teachers who might demonstrate limited capacity or reluctance to consider other ways of seeing or doing things.

2.9.1 Standardisation of professional development

In 1992, the Department for Education (DfE) in England introduced a profiling system and competence-based approach to professional development, which Hutchinson (1994: 303) describes as a 'cradle to grave profiling system, going from initial teacher training through induction to further professional development'. In essence, student teachers were to gather evidence during their course, reflect on specific aspects of their teaching and demonstrate to others they had acquired the knowledge, skills and understanding necessary to meet those competencies. A range of assessors including external examiners, mentors and university-based tutors, provided support structures and constructive criticism by commenting on student teachers' strengths and areas in need of development, for the purpose of assisting them with personal target setting so as to become more effective teachers.

Reforms in the late 1990s, which emanated from the extended roles and remit of the Teacher Training Agency (TTA), [established following the abolition of the Council for the Accreditation of Teacher Education (CATE)] and, the development of a new inspection framework from the Office for Standards in Education (OFSTED) led to a proliferation of interventions into the curriculum. New Standards for the Award of QTS (DfEE, 1997) replaced competencies, the National Curriculum for student teachers in English, Mathematics, Science and Information Communication Technology (DfEE, 1998) was

developed, league tables and teacher appraisal emerged, all of which serve to challenge traditional conceptions of autonomy within the teaching profession.

Student teachers need to ensure the curriculum they deliver is relevant to, and can be accessed by, all their pupils in line with the principles of inclusion articulated within the national curriculum (DfEE/QCA, 1999) in terms of potential and entitlement. In order to realise their obligations, student teachers are required to stay abreast of new initiatives as they are rolled out by government agencies, as 'professional obsolescence' could 'enfold all except those engaged in life-long learning' (Knight, 2002: 230).

A range of performance criteria is used to establish whether student teachers meet the Standards and professional development targets as articulated by government. Since the 1990s, Macdonald *et al* (2006: 234-235) claim that education systems have 'sought to describe, observe, measure and report upon teachers' work aligned with professional standards…self-governance has become supplemented by accountability technologies'. *Performativity* has thus become 'a marker of new ways of seeing the control of teachers' work in line with shifts in governmentality from the self to codified forms of accountability' (*ibid*: 235). If professional development is targeted purely toward 'landmark' stages of teachers' career progression and role development, it could be argued that many 'affective' aspirations student teachers might have for their own professional development, as articulated by Day (1999), could become suppressed.

More recent Standards for the award of Qualified Teacher Status (TTA/DfES, 2003) (see Appendix II) in addition to the revised Professional Standards for Teachers in England (TDA, 2007) however, explicitly make reference to the student teachers' capacity and commitment to improve their own teaching and take increasing responsibility for their own professional development, by evaluating their teaching and reflecting on it to identify and meet their own developmental needs. For example, those recommended for the award of QTS should:

> Q7 (a) Reflect on and improve their practice, and take responsibility for identifying and meeting their developing professional needs
> (b) Identify priorities for their early professional development in the context of induction

This could suggest that Stenhouse's notion of the art of self-study, advanced more than forty years ago, has received renewed interest as student teachers are expected to exercise an increased measure of autonomy over their professional development. Whether this is plausible and realised, not only in principle but also in practice, remains to be seen, particularly in light of the government's strategy to manage and reward teachers'

performance. For example, the view of professional development portrayed by government in the *Five Year Strategy for Children and Learners* (DfES, 2004, para 39) advocates:

> a new professionalism for teachers in which career progression and financial rewards will go to those who are making the biggest contributions to improving pupil attainment, those who are continually developing their own expertise, and those who help to develop expertise in other teachers.

This interpretation clearly places an emphasis on *performativity* (Lyotard, 1986; Macdonald and Kirk, 1996; Usher and Edwards, 1994) and *accountability* by the government in England in terms of measurable, instrumental outcomes as compared to the more intrinsic development of professional knowledge and understanding, which permeates the view of professional development expressed by Day.

To inform and develop personal practice, an increasing number of pressures have been placed on those working within education to become more research active. From approaches to pedagogy through the construction and nature of the curriculum to the deployment and training of professionals working in education, the educational agenda in England has become driven by research evidence of best practice. Guidance material, resources and toolkits concerning pupil achievement, attendance, behaviour and standards, the programmes of study and curriculum which state schools are required to deliver and assess (DfES, 2005; DfES, 2007; NC, 1999; NCSL, 2007a; OFSTED, 2007; QCA, 2007; Standards, 2007; Teachernet, 2007) have influenced the nature of teaching and learning in schools along with the environment in which student teachers of the twenty first century need to operate. For example, with the introduction of Curriculum 2004 toolkits, such as assessment for learning and behaviour4learning, were made available to schools so that practising teachers could engage in a range of professional development activities appropriate to the needs of their own school context with a view to raising the educational standards and achievements of all their pupils. The sheer volume of such material, coupled with guidance for the development and training of teaching professionals (GTC, 2007; NCSL, 2007b; TDA, 2007), suggests a somewhat 'implicit mistrust of teachers using their professional judgement' (Taber, 2007: 5). In light of the government's agenda to raise educational standards and increased demand for accountability within the teaching profession, it could be argued that opportunities to enhance personal professional growth through reflective practice are somewhat limited and, that when opportunities do arise they might well become extrinsically orientated in the wake of achieving targets, meeting expectations and managing performance.

2.9.2 Moving toward autonomy

Precisely what is meant by the expression take *responsibility for identifying and meeting their developing professional needs* is far from transparent. One restrictive view could be to interpret responsible action as the student teachers' disposition to question why they do what they do. Dewey (1910, 1933) extends this interpretation and positions responsibility within his conceptualisation of reflective thinking which can be realised when student teachers' consider the consequences of their teaching and school practices and question what is worthwhile in the educational relationships they develop with their pupils. Responsible action involves reflecting both on the means and ends of educational goals and values as student teachers' question in what ways their teaching can benefit and impact on their pupils. Such questions enter the wide professional landscape and draw student teachers into the realm of ethical, moral, social and political issues as they strive to act responsibly (Ashcroft and Griffiths, 1989). In this way, student teachers can move beyond the school context and local system to consider how regional and national systems might serve either to empower or constrain responsible action.

Dewey's other two orientations to professional growth and enquiry can also be aligned to responsible action. Open mindedness is demonstrated when student teachers reflect on what they do, and by questioning principles underpinning their own teaching practice and that of others, demonstrate openness to alternative approaches and other possibilities. Whole heartedness is demonstrated when student teachers approach their teaching in an enthusiastic and energetic manner with a frame of mind that is receptive to learning something new from each lesson. Very clear links can be drawn between reflective practice and assuming responsibility for professional development:

> When embracing the concept of reflective teaching, there is often a commitment by teachers to internalise the disposition and skills to study their teaching and become better at teaching over time, a commitment to take responsibility for their own professional development. This assumption of responsibility is a central feature of the idea of a reflective teacher (Zeichner and Liston, 1996: 6)

Another interpretation of taking responsibility for their own professional development can be recognised in the qualities or elements, which Eraut (1994: 232) attributes to the *accountability* of professional practitioners when they demonstrate:

- a moral commitment to serve the interests of students by reflecting on their well-being and their progress and deciding how best it can be fostered or promoted

- a professional obligation to review periodically the nature and effectiveness of one's practice in order to improve the quality of one's management, pedagogy and decision-making
- a professional obligation to continue to develop one's practical knowledge both by personal reflection and through interaction with others

These qualities have resonance with some key attributes Stenhouse associates with extended professionals, in addition to those Hoyle and John (1995) identify in their interpretation of responsibility, which they broaden to include the view that a teacher, or group of teachers, also ensure the interests of pupils are addressed. They suggest this requires a degree of trust from pupils, which can be established when teachers' engage in the 'continuous development of knowledge and skill, the cultivation of judgement, and acceptance of a child-centred ethic' (*ibid*: 128). In this study, the student teachers' accountability for Standards in schools is explicitly stated in terms of the expectation that those awarded QTS are capable of demonstrating the enhancement of pupil learning and development. Further components within the Standards encompass both theoretical and experiential knowledge along with professional values and commitments which closely parallel elements of accountability in professional development identified by Eraut.

The interrelationship between the concepts of professional development proposed by Hoyle and John, of knowledge, autonomy and responsibility have been summarised by Furlong *et al* (2000: 5):

> It is because professionals face complex and unpredictable situations that they need a specialised form of knowledge; if they are to apply that knowledge, it is argued that they need the autonomy to make their own judgements. Given that they have that autonomy, it is essential that they act with responsibility – collectively they need to develop appropriate professional values.

This highlights not only that it is important for student teachers to clearly express and frequently review their own educational values, but also that these values must be derived from what constitutes ethical and effective practice. To realise this aim, student teachers need to justify that their own values are underpinned by the expectations of what those within the profession regard as appropriate, legitimate rules of engagement: teachers' professional behaviour must conform to specific rules when conducting their duties (GTC, 2004). Thus, one principle task for student teachers as professionals is to 'work out their educational values, not in isolation and abstraction but in collaboration with colleagues and amid the complexities of school life' (Nixon, 1995: 220). This requires student teachers to critically reflect on what they do in relation to what is happening around them in their classroom and school. This said however, a number of teachers in the same school may

have very different backgrounds, career aspirations, expectations and priorities along with divergent perspectives as to the purposes of education, which might lead to differences in values. Haydon (1997: 11) notes 'the difficulty often faced by teachers lies not in outlining the values which a school stands for, but in recognising what this endorsement will mean in practice, particularly if some of the values do not sit comfortably together'. This counter discourse suggests that some student teachers' school-based teaching experiences could be incongruent, as values expressed in principle might not necessarily be demonstrated in practice.

Educational values are socially constructed, critically and consciously reflected upon, discussed and demonstrated in student teachers' actions, feelings and thoughts with pupils and colleagues. The phrase *principled preferences* has been used to describe values as 'a consequence of something approaching intelligent deliberation', which are thus, in principle, 'susceptible of rational appraisal and re-appraisal' (Carr, 1992: 244). As student teachers' gain experience and confidence to exercise discernment, the professional judgements and decisions they make will be based on personal educational goals and values, which in turn, can reflect the kind of teacher they aspire to be. When they experience autonomy in relation to making professional judgements and decisions as to the content, pedagogical strategies/approaches and assessment procedures they use with pupils in the context of their own classrooms, student teachers should begin to more fully realise personal values in their own teaching (Whitehead, 1993).

2.10 Developing reflective practice in student teachers

The importance attached to the development of reflective practice in student teachers has been widely recognised by scholars, teacher educators and practising teachers for several decades. Research studies on teaching and the development of teachers portray classrooms as multidimensional, complex and unpredictable environments (Britzman, 1991; Doyle, 1986; Shulman, 1987). The development of reflective practice has been recognised as a vitally important component in initial teacher education in order to prepare student teachers for the challenges and complexities of working within the classroom environment (Borko and Putnam, 1996; Calderhead, 1996; Macdonald and Tinning, 2003; Tsangaridou and Siedentop, 1995) and to become effective decision makers with an understanding of how to translate pedagogical knowledge into their own practice (Berliner, 1985; Siedentop, 1991).

Reflective practice has been advocated, not only in relation to practitioners' responding appropriately to the complex pedagogical decisions they need to make on a daily basis (Calderhead, 1987; McNamara, 1990; Shulman, 1987) but also, in relation to coming to recognise the moral and political dimensions of teaching (Gore, 1990; Griffin, 1986; Tinning *et al,* 2001). These views, are succinctly captured by Henderson (1989: 13):

> Teaching in a pluralistic, modern, democratic society is a complex affair requiring interpretive sophistication. 'Teaching' is more than a technical activity. In its most versatile forms, it is a dynamic, reflective juggling of historically significant, content-specific, and personally relevant discourse.

Borko and Putnam (1996) further suggest that complexities inherent within interactive teaching require high levels of thinking and reflection and that the ability to question why a teacher does what he does has been linked to the development of intelligent practice (Richert, 1991; Zeichner, 1987), reflective reasoning (King and Kitchener, 1994), contextual knowing (Baxter Magolda, 1999) and critical thinking (Moon, 2005) as discussed in section 2.3. Teacher educators have also argued that reflective practice is characteristically associated with teacher autonomy, empowerment and effective teaching (Calderhead, 1996: Macdonald and Brooker, 1999; Macdonald and Tinning, 2003; Tsangaridou and Siedentop, 1995; Tsangaridou, 2005).

 Initial teacher education programmes have sought to devise strategies that support the development of student teachers' reflective practice, which enables them to critically examine their own teaching (Clandinin, Davies, Hogan and Kernard, 1993; Knowles and Holt-Reynolds, 1991; Zeichner, 1993; Zeichner and Liston, 1996) and, to draw links between theory and their own practice (Calderhead, 1989; Elliott, 2004; Furlong and Maynard, 1995; Pollard, 2002). The development of reflective skills has been viewed as a means to improve practice and as an end in itself, which LaBoskey (1993) and McIntyre (1993) both consider to be a valid outcome of initial teacher education.

Reflective practice can be conceived as a collection of strategies used as a vehicle to encourage professional growth and development (McCormack, 2001). Such strategies incorporate contemplation and deliberation about the technical and practical aspects of a teachers' work to the critical appraisal of meanings embedded within aspects of teaching, in moral and ethical contexts (Reddon, Frid and Reading, 1997). Reflective practice implies that for student teacher growth to occur, mere experience is insufficient as growth arises from experience and reflection on that experience (Moon, 2005; Posner, 1993; Schon, 1983, 1987).

Furlong and Maynard (1995) suggest that student teacher growth is developmental and characterised by a shift in focus of their personal concerns: beginning with their own teacher behaviour and modelling themselves on others, moving toward their concern of skill development and content, followed by their focus on pupils and culminating in an exploration of personal attitudes and theoretical assumptions which underpin their teaching. Their five-phase model of student teacher development moves from *early idealism, survival, recognising difficulties, hitting the plateau* toward *moving on*. As student teachers featured within this study are nearing completion of their four-year initial teacher education programme, it could be argued that they should be positioned toward the latter stage of this model.

Despite the numerous claims advanced concerning values inherent in reflective practice, scholars have emphasised that an important consideration in research literature is the limited description of the nature of teacher reflection, how it relates to the quality of action and, what it might actually look like in practice (Macdonald and Tinning, 2003; Tsangaridou and Siedentop, 1995; Tsangaridou, 2005). Such factors provide sound reason and justification for the purpose behind, and direction of this study, which seeks to better understand the nature of reflective practice and to investigate the development of student teachers' reflective practice within the context of action research.

2.10.1 Reflective practice in initial teacher education

Appendix A presents an overview of the traditions or orientations identified within initial teacher education, by Zeichner and Tabachnik (1991) and Valli (1992), which serve to develop reflective practice in student teachers. This section reviews a number of research studies, which sought to examine the development of reflective practice in student teachers in different ways and at different stages of their programme of their study.

Research undertaken by Hatton and Smith (1995: 10) at the university of Sydney sought to investigate the nature of reflection in teaching so as to identify specific forms of reflection and evaluate strategies (incorporated within the four-year programme to foster reflection) in relation to 'the degree to which they facilitated particular types of reflection in student teachers'. For the purpose of their investigation they defined reflection as 'deliberate thinking about action with a view to its improvement' (*ibid*).

Research data gathered from year 3 (n=26) and year 4 (n=34) student teachers comprised written essays; self-evaluations from both year groups following a school-based teaching experience; 20 minute interviews of year 4 student teachers in *critical friend* dyads;

and two, 7 minute videotape excerpts of teaching from a sample of 13 student teachers, one taken in year 3 and the other in year 4. They found student teachers' written essays generated the most evidence of reflection and subsequently used this source for their analysis. Based on the relationship between theory and practice they identified four types of writing, which they categorised (Hatton and Smith, 1995: 11) as:

- *descriptive writing* – not reflective, merely reports events or literature;
- *descriptive reflection* – does attempt to provide reasons based often on personal judgment or on students' reading of literature;
- *dialogic reflection* – a form of discourse with one's self, an exploration of possible reasons;
- *critical reflection* – involves giving reasons for decisions or events that take account of the broader historical, social and/or political contexts.

Results from their analysis showed the largest number of reflective units coded for any single written piece was 52, the smallest was 2, and overall average was 19. When categorised, the largest proportion of coded units (60-70%) were descriptive reflection and the smallest (8%), critical reflection. The highest proportion of dialogic reflection (more than 30%) was found in the year 4 essays, those based directly on the critical friend interviews. The researchers noted a reasonably high incidence (nearly 50%) of multiple forms of reflection evident within essays and an emergent pattern that descriptive reflection often led to dialogic reflection as 'the descriptive phase often served to establish the context…where further issues and alternative reasons were explored, usually in a more tentative way' (*ibid*).

From their findings, Hatton and Smith proposed there were at least five distinctive forms of reflection, which could be used in initial teacher education to conceptualise reflection and its development. The technical form was considered a useful starting point to address the concerns of student teachers who could then be encouraged to move from that basis to understanding and using other forms of reflection on action. Notably, from descriptive to dialogic reflection toward the more 'demanding critical forms' (*ibid*: 16). They perceived that reflection in action involves 'the application of the others as appropriate to an unfolding situation' and that the dialogic and critical forms 'require knowledge and experiential bases that take some time to develop' (*ibid*). This reinforces McIntyre's (1993) view of characteristics associated with how more experienced teachers respond in the teaching situation (see section 2.7).

Sparks-Langer and Colton (1991) propose there are three distinctive ways of developing reflective practice in initial teacher education, which have synergy with the descriptive, dialogic and critical forms of reflection identified by Hatton and Smith in addition to the

levels of reflection identified by Van Manen's (1977, 1991). First, based on studies of student teachers' decision-making and information processing is the cognitive approach. Second, based on student teachers' telling their own stories through case studies, naturalistic inquiry and problem framing, is the narrative approach. Third, based on student teachers using moral and ethical reasoning and taking account of the political and social contexts, is the critical approach. They advocate these approaches for examining and coming to understand the professional work of teaching where knowledge can be viewed as fragmented and partial.

In their programme at Eastern Michigan University, described as the Collaboration for the Improvement of Teacher Education (CITE) programme, student teachers engage in such activities as classroom observation, classroom teaching, microteaching and writing during foundation methods courses, to practice and develop their reflective skills. Following the synthesis of findings from four studies to examine the effectiveness of this programme they conclude that guided field experiences:

> with writing, thought, discussion, and a coherent view of reflective thinking can help future teachers analyse and interpret their classroom experiences…we feel fairly successful in promoting the cognitive/micro/technical aspects of teacher thinking. It is harder, however, to develop the critical-reflection crucial for responsible professional practice (Sparks-Langer and Colton, 1991: 13-14).

Research undertaken by Lee (2005: 703) sought to examine and assess changes in the *content* and *depth* of student teachers' reflective thinking as they gained field experience. The content of reflective thinking was captured through monitoring the main concerns of student teachers and the depth was gauged according to the following criteria:

- *Recall* level (R1): describe what they experienced, interpret the situation based on recalling their experiences without looking for alternative explanations, and attempt to imitate ways that they have observed or were taught
- *Rationalization* (R2): look for relationships between pieces of their experiences, interpret the situation with rationale, search for 'why it was', and generalise their experiences or come up with guiding principles
- *Reflectivity* (R3): approach their experiences with the intention of changing or improving in the future, analyse their experiences from various perspectives, and is able to see the influence of their cooperating teachers on their students' values, behaviour and achievement.

Research data were gathered from three student teachers during their junior and senior field experiences, each of one-month duration, who followed a secondary mathematics programme in a university in Korea. The expression field experience was used to highlight that student teachers were not teaching full time, rather teaching opportunities for the purpose of their study ranged from 8 to 26 hours. Research instruments included

interviews, observations, questionnaires and reflective journals. Data were analysed inductively to find emergent patterns and themes.

In relation to the *content* of student teachers' reflective thinking, the findings showed: concerns regarding discipline and instructional skills decreased whereas those concerning lesson preparation and pupils' level of understanding increased as they gained experience; the content related to the field experience context with reflections that focused on what student teachers had observed, had done, were not able to do, and hoped to do in future experiences; the cooperating teachers' instructional approaches and comments guided reflections; and, the student teachers had hoped to establish a closer relationship with their pupils.

In relation to the *depth* of reflective thinking, reflections were evidenced at all three levels: recall, rationalisation and reflectivity in all three student teachers. The levels varied according to the content of student teachers' reflections, protocol of dialogue/question, and mode of communication in addition to differing cooperating teachers' characteristics and school placement atmosphere. Each student teacher showed different capacities and preferences when expressing their thoughts: 'some indicated deeper reflections in the oral format than in their written reflections and vice versa' (Lee, 2005: 712). All three student teachers' reflections tended to decrease at Level R1 while the frequency of Levels R2 and R3 grew as they gained field experience: the rate of growth at R3 was lower than that at R2.

Overall, reflectivity during the teaching period was deeper than reflections during the observation period. Lee (2005: 699) concludes that findings indicated 'variations in the content, and that the pace at which reflective thinking deepens depends on personal background, field experience contexts, and the mode of communication'.

Although the diverse nature of these research studies limit the potential to generalise findings about the development of reflective practice in student teachers, a number of themes emerge which are worthy of note. Specifically:

- qualitative distinctions can be drawn between student teachers in relation to the types of reflective conversation they engage in;
- the context in which student teachers are called upon to engage in reflective practice can give rise to different forms of reflection;
- the capacity to engage in descriptive reflective practice outweighs that of critical reflective practice;
- when student teachers' engage in reflective practice patterns of thinking tend to move from descriptive, through dialogic toward critical reflection.

What appears to be missing from the way these researchers endeavour to capture and analyse reflective practice is to focus on an exploration of alternative perspectives and possibilities through comparative/interpretive means. Although this could be an implicit goal within Hatton and Smith's interpretation of dialogic reflection and Lee's categorisation of rationalisation, it is surprising that it is not made more explicit, particularly in light of the literature explored in sections 2.2 and 2.7.

2.10.2 Developing reflective practice in physical education student teachers

Prior to the early 1990s limited empirical research evidence exists concerning the development of reflective practice in physical education teachers and student teachers. In 1991, Tinning also raised concern that technical, individualised, and practical forms of reflection seemed to be in the foreground of many physical education teacher education programmes. Support for the view that the process of reflection should move beyond the technical aspects of teaching was advanced by Gore (1990), who suggests pedagogical strategies could be used to stimulate student teachers to discuss their biases and assumptions, consider how their assumptions might influence teaching, and think about alternative strategies for addressing particular educational problems and issues.

In a concerted effort to define what they meant by critical and reflective teachers, McKay, Gore and Kirk (1990: 65) distinguish them as teachers who have the ability 'to step outside of concerns with purely technical issues; to see how they are influenced by political, economic and bureaucratic forces; and to face up to the fact that, like it or not, they contribute to both the reproduction and transformation of structures of domination in the educational system'. To develop the reflective capacity of student teachers, these scholars recommend critical questions about teaching physical education need to be encouraged and raised by teacher educators. Tinning (1991: 17-18) goes further and suggests physical education teacher education should prepare teachers who value the moral, political and social aspects of their work and cautions that by:

> accepting the discourses of performance pedagogy as the foundation of our teacher education, we will be in danger of continuing to prepare teachers who remain ignorant of the ways in which physical education itself is implicated in producing many of the unjust social practices that characterise much contemporary educational experience.

In response to debate, which proliferated literature around the 1990s about aspects of teaching that should provide the focus of physical education student teachers' reflection, Graham (1991: 14) questions the focus:

teaching versus reflection on such issues as social justice in the gymnasium or one's beliefs about teaching. To the contrary, the nature of the subject matter and the learning environment in physical education suggest that each of these focuses is not only a desirable focus of PETE students' reflection but also a critical focus.

One decade later, in their aim to encourage physical education student teachers to become reflective practitioners, Tinning *et al.* (2001: 87) provide a focus for reflection by means of two orientation questions:

- What are the implications of what I choose to teach?
- What are the implications of how I teach?

Through articulating their *principled position* in relation to the purposes of schooling and reflection as an educational practice, Tinning *et al* (*ibid*: 88) argue reflective practice should strive toward making physical education experiences for young people 'meaningful, purposeful, enjoyable, and just (fair)'. They suggest underpinning such experiences is the assertion that schools should 'challenge' the worst aspects of our culture and reproduce the 'best' so as to bring about improvement. Many issues upon which student teachers should reflect are not solely a matter of rational argument. As Macdonald and Tinning (2003: 89) acknowledge, 'issues of politics and education have a large measure of emotion and subjectivity embedded within them'. They note any pedagogical moment occurs within the cultural context of a student teacher's discursive history, which is 'a complex mosaic of ideas, experiences and emotions' (*ibid*) and, the power of the moment can only be understood within the context of that background. They also note, the extent to which consciousness of such factors translate into 'ongoing self-reflection' (*ibid*: 91) by student teachers is not known and suggest that it does for some yet not for others.

2.10.3 Reflective practice in physical education teacher education

Theoretical suggestions proliferate literature as to what should constitute the content, focus and purpose of reflective practice in student teacher physical education programmes (Graham, 1991; Hellison and Templin, 1991; Macdonald and Tinning, 2003; McKay, Gore and Kirk, 1990; Tinning, 1991; Tinning *et al*, 2001) yet there is limited research and empirical evidence to support those propositions. Although research on the preparation of physical education student teachers has grown in recent years (Graber, 2001), a line of research that has received modest attention is the role of reflective practice in their professional development. Similarly, although available literature shows consensus regarding the importance and usefulness of reflection, studies that examine how student

teachers' engage in self-study through action research to improve the quality of their own teaching and enhance the quality of pupil learning, are scarce.

Several pieces of research have been undertaken which focused on how the reflective capacity of physical education student teachers can be developed and nurtured. An early study by Tinning (1987) reports on the experiences of student teachers using action research during their teaching practice. Student teachers were asked to identify an area of concern in their teaching and to systematically work through the reflective cycles of action research with their peers, school-based teachers and university-based supervisors. Findings indicated that student teachers' improved in aspects of their own teaching they perceived as important, and also gained increased understanding of different issues, which influenced their own teaching. However, there are no further details or empirical evidence of this study to validate the findings.

Table 2.4 provides an overview of research studies, which sought to examine the development of reflective practice in physical education teacher education. Each study used student teachers of different ages and stages of professional development, which includes elementary and secondary physical education programmes. Three of the studies were undertaken in Australia, one in the United States and another at a university in Europe (Cyprus). As the studies are very diverse and exhibit far more differences than similarities they are reviewed chronologically to synthesise the salient features of each study, emergent themes are then drawn out for comparative purposes.

Gore (1990)

Gore's (1990) study involved second-year elementary physical education student teachers (n=46) during a 14-week taught module on the 'Introduction of Movement Education', which was designed to facilitate reflective practice through shared experiences of the teaching act. Based on McCutcheon and Jung's (1990: 148) definition of action research as 'systematic inquiry that is collective, collaborative, self-reflective, critical, and undertaken by the participants of the inquiry' Gore introduced her student teachers to peer teaching, personal journal writing and a series of lectures and seminars.

During peer teaching sessions, student teachers taught 15-20 minute lessons to a group of 6 or 7 peers, which was followed by time spent reflecting on the experience, initially within their own group and then within the whole group. Although the subject matter for lessons was specified by the lecturer, student teachers subsequently made decisions regarding specific content and teaching strategies and were required to write critiques of all peer teaching sessions. One member of each group took photographs of peer teaching

lessons, a sample of which were later examined by the photographer and teacher for comment.

Student teachers were required to respond to specific questions in a personal journal at four points during the course and although guidelines for keeping a journal were provided (Holly, 1984; Walker, 1985) 'they were encouraged to approach it in a manner which suited

Table 2.4 *Research of reflective practice in physical education teacher education*

	Gore (1990)	*Macdonald & Brooker (1999)*	*McCormack (2001)*	*Tsangaridou (2005)*	*Gubacs-Collins (2007)*
Purpose & focus	Facilitate reflection through shared experiences of the teaching act	Introduced to programme of critical pedagogy: socially critical subject matter, negotiation, reflection, praxis	Develop skills in, and attitudes towards, dance teaching, differences between genders	How student teachers' reflections related to their practice	Change perceptions of teaching tennis from traditional to tactical approach
Participants; duration & location	46 elementary - year 2 14-week module Australia	67 secondary – years 3 & 4 2 year longitudinal study Australia	90 elementary – year 1 14-week course Australia	2 elementary – year 4 13 weeks Cyprus	18 secondary – majors – years 1-4 8-week course United States
Instruments & methodology	Peer teaching, journal writing, questionnaires, discussions, photographs, action research	Group discussion, tutorials, reflective journals, current initiatives in media, action research and critical ethnography	Journal writing, focus group discussions, questionnaires	Journal writing, observations, documents, interviews	Reflective journals, interviews, video observations, action research
Framework & analysis	Focus of reflection: - technical skills - educational purposes - critical goals Documentary analysis of journals and interview transcripts	3 cycles of reflective activity: review of literature/dialogue between theory and practice personal experiences & biographies question factual knowledge	Reflective framework for teaching in physical education: - technical - situational - sensitising	Role of reflection Reflection in & on action Agency for change Nature & focus of reflection	Guided questions Reflective journals – inductive Interviews – constant comparison
Key findings & outcomes	Distinctions drawn between student teachers categorised as: Recalcitrant Acquiescent Committed Refine underpinnings of pedagogy as text concept	Technical knowledge dominated critical questions Barriers to engage in critical reflection Innovative, caring, socio-political awareness, more confident Review course structure: use of language; specificity; model reflective practice	Enjoyment, confidence & attitude toward dance teaching increased Gender & age differences noted in skill development, attitudes, capacity to engage in reasoning skills and journal writing	>50% of reflections concerned with content and pedagogical content knowledge Meaningful learning experiences for pupils most powerful agency for changing practice Situationally driven	Change in attitudes and patterns of thinking from traditional 'drill for skills' approach, with one exception Meaningful experience as combined skill development with tactical knowledge Question/answer session highly valued Shift in researcher's personal belief systems

their own style, needs and interests' (Gore, 1990: 116). The lectures, seminars, videos and readings, although structured around the central purposes of the course, were used to raise questions and contradictions 'in an attempt to facilitate reflection and present knowledge as problematic' (*ibid*). The course was designed to provide a variety of experiences in which student teachers were encouraged to talk, to think and to write about their experiences as learners and teachers within peer teaching contexts and was taken as the starting point for the development of reflective discourse.

Qualitative research methods were used to monitor the development of student teachers as reflective teachers and comprised semi-structured interviews with a representative sample of 12 journal entries, lesson critiques and photograph comments. Three questionnaires were also used, one to collect demographic and biographical information and the others to (i) evaluate all aspects of the course and (ii) complete an end of course teaching evaluation. Through undertaking documentary analysis of journals and interview transcripts Gore reports differences between student teachers in terms of how they reflected and on what they reflected. Although she notes each student teachers' experience of, and commitment to the programme was unique, and one should not forget 'the shifting membership of each group' and 'dynamic nature of each student teachers' experience' (Gore, 1990: 119) she identified three broad categories of student teachers: *recalcitrant, acquiescent* and *committed*.

Recalcitrant student teachers failed to see the relevance of keeping a journal and rejected the need to reflect on their own teaching. Journal entries were used solely as a personal diary rather than as a forum for discussion of course experiences and teaching. Their attitude was indicative of 'instrumentality whereby questions of efficiency and effectiveness dominate over concerns with purposes or with the moral or political implications of one's practice' (*ibid*: 120). *Acquiescent* student teachers would prefer to resist but were concerned it could mean failure of the course thus 'simply cruise along and do the minimum' (*ibid*). Journal entries were sporadic and usually made when student teachers thought they had to be submitted. They were concerned about assessment and the extrinsic rewards it offered, getting along with the lecturer or receiving a particular grade. Thinking about teaching and schooling was used instrumentally as a means to an end as student teachers' major concern focused on 'how to get through the course'. By contrast, *committed* student teachers enjoyed writing regularly in their journals and comments focused on the process of learning and reflecting. They were generally more willing to express their views in front of peers and attitudes of open mindedness, responsibility and whole heartedness, central to Dewey's

(1910, 1933) conceptualisation of *reflective thinking* and LaBoskey's (1993) interpretation of *passionate creed*, were very evident.

Gore analysed the focus of reflection in student teacher journals using a slightly modified version of van Manen's (1977) levels of reflection. Notably: reflection on technical skills (1), educational purposes (2) and, critical goals (3). She found all three groups of student teachers reflected on the technical skills of 'how to teach': 'positioning, pacing, feedback, instruction, demonstration, distribution of equipment, voice projection and timing' (*ibid:* 123). *Recalcitrant* student teachers were reluctant to extend the focus of their reflection and were more likely than others to believe the most important aspect of teaching was that 'kids were learning' (*ibid*). What they were learning and the methods employed were largely viewed as irrelevant: moral and political issues were not considered to be important and in some cases seen as inappropriate. *Acquiescent* student teachers were concerned about what and how their pupils were learning and endeavoured to justify their teaching by questioning 'Why am I teaching this?' Although occasional reflections focused on 'the system' their personal belief was essentially that teachers' major concerns must remain 'at the level of their own classrooms and school' (*ibid*: 124). *Committed* student teachers tended to be more concerned about their role as teachers in the wider context of society and acknowledged the role of schools in 'reproducing the status quo' (*ibid*). They believed in the need for change and recognised they could be influential toward that end. For much of the time their focus was based on the critical purposes of schooling.

Gore held discussions with a colleague who acted as a critical friend to study student teachers' responses to her course and introduces the metaphor *pedagogy as text* to acknowledge the need for interpreting and reading social action both within context and on the basis of particular subjectivities. She demonstrates the notion of pedagogy as text in an account of her attempts to research her own teaching, and demonstrates how the original analysis of her teaching, framed within the enquiry orientation of initial teacher education (see Appendix A) led to a number of contentious assumptions. When re-reading results of her research and employing her notion of pedagogy as text, Gore argues a more complex and sophisticated, yet less certain and prescriptive, account of how student teachers experienced her course can be realised. It is an interpretation, which she claims focuses more on the student teachers' subjectivities and denies the possibility of a 'preferred' reading:

> pedagogy as text acknowledges multiple readings, multiple realities, and so provides a much fuller portrayal of pedagogy or curriculum than many texts about pedagogy…pedagogy as text can be taken as part of a critical theory; it can enable full

critique (description), it can assist with the naming of alternatives for social transformation (prescription), and it has an immanent sense of its own history, its own limits (reflexivity) (Gore (1990: 103).

Gore reports that the research experience was positive both for the student teachers and herself as a supervisor, as the systematic reflection about teaching and schooling strongly encouraged throughout the course was subsequently achieved. This said, she does not disclose what percentage of research participants fall within her categories of recalcitrant, acquiescent and committed student teachers, which must influence the qualitative distinctions in their respective capacities to engage in systematic reflection.

Macdonald and Brooker (1999)

In response to Lawson's (1997) concern that higher educational institutions are under pressure to prepare student teachers, who are not only technically and intellectually proficient but also can function within their chosen profession in a 'socially responsible way', Macdonald and Brooker (1999: 51) took up the challenge to design and implement a programme of *critical pedagogy* comprising: 'socially critical subject matter, negotiation, reflection and praxis'. Their research reinforces interpretations of critical pedagogy, which consider the social and political dimensions of learning to be fore-grounded within democratic frameworks (Adler and Goodman, 1986; Fernandez-Balboa, 1997; Kirk, 1986; Zeichner and Liston, 1986). The two-year longitudinal study traced the development of physical education student teachers (n=67) in the final two years of a four-year programme. Macdonald and Brooker (1999: 54) worked as critical friends and kept reflective journals to record informal interactions with student teachers and challenge their own thinking about 'the direction of the subject matter, research processes and questions, reflections on the lectures and tutorials, and the constraints and possibilities' they encountered.

The study revolved around three cycles of activity. The first cycle involved 'reflecting upon anecdotal evidence concerning students' previous engagement with curriculum study and capturing, from the existing literature, practices and priorities that were characteristic of a critical pedagogy' (*ibid*). The second and third cycles were concerned with promoting active dialogue between theory and practice of educational contexts, pedagogical practices and, curriculum content and structure. Principles of action research were combined with aspects of critical ethnography as a form of 'representation and interpretation of social reality' (Anderson, 1989: 50) to guide the research process. Data were collected through audio taped lectures and tutorials, loosely structured interviews and student teachers' written work.

Central to their selection of *socially critical subject matter* was Zeichner and Liston's (1986) view that knowledge is socially constructed, which has ethical, political and social implications for pupils, teachers and schooling. To challenge the dominant traditional pedagogies preferred by student teachers in which 'the teacher (lecturer) is one who is to master techniques of effective instruction in order to implement a pre-determined curriculum' (Adler and Goodman, 1986: 6) and to challenge the student teachers' taken for granted assumptions, Macdonald and Brooker (1999: 56) incorporated questions which would raise 'awareness and scepticism about 'factual' knowledge' (Fernandez-Balboa, 1997: 128) by asking student teachers' such questions as:

- What is worthwhile PE knowledge in schools?
- What is the function of PE in schooling?

Negotiations with student teachers served in part to address one of Ellsworth's (1989) criticisms of critical pedagogy, that of the 'illusiveness of students feeling empowered' (Macdonald and Brooker, 1999: 58). Negotiation with student teachers was undertaken in two distinct ways. First, to support the development of the course assessment profile and second, to devise group work strategies which would encourage all student teachers, particularly less confident females (Dewar, 1991; Macdonald, 1993) to participate in discussions.

Weekly entries in reflective journals were used during the first year of the study to gather evidence of student teachers' development of critique and questioning and 'was intended to provide students with an opportunity for personal expression and synthesis of their (subject related) experiences over the past week' (Macdonald and Brooker, 1999: 59). In the second year the reflective journal was replaced by a number of structured writing tasks to place students' teaching practices in the foreground.

Macdonald and Brooker (*ibid:* 61) explain that praxis 'draws on individuals' perspectives, critical reflection and informed action to understand and refine professional practice'. In year one, praxis was developed in three ways: through discussions of students' teaching experiences; task based learning and role-play. In year two, more emphasis was placed on following current educational initiatives reported in the media and discussing how these relate to the political and social contexts of the teaching profession. Strategies used to encourage praxis served to reinforce the view that socially critical and transformative practitioners are those who can theorise their practice (Giroux and McClaren, 1996; Schon, 1987). During lectures and tutorials, student teachers were encouraged to refer to their own biographies and during teaching placements to collect and reflect upon data related to

specific curriculum issues in order to acknowledge 'the primacy of student experience' (Giroux and McClaren, 1996: 322). The reflective component of one particular task, which involved designing and implementing a unit of work, asked student teachers:

- What did the students learn?
- What have you learned about the status of PE within your school?
- How would you improve your planning process and content?

Following their analysis, Macdonald and Brooker (1999: 57) report for those student teachers that could make sense of socially critical subject matter 'the outcomes seemed to be worthwhile in that they had grasped fresh perspectives on taken for granted practices'. However, despite attempts to engage student teachers with critical questions, their enthusiasm for technical knowledge was found to dominate the subject matter. They reported positive responses by student teachers toward their role and argued 'if students are to come to understand the notions of empowerment and democracy or multiple perspectives, or the politics of change, it is essential to develop the principles of negotiation in teacher education courses' (*ibid*: 58).

Macdonald and Brooker (*ibid*: 59) found much of the student teachers' journal writing was at the technical level, descriptive and in summary form as opposed to the critical reflective enquiry they had anticipated and suggest barriers to their student teachers' capacity to engage in critical reflection include:

- preference to draw upon 'expert' knowledge rather than value their own ideas;
- uneasiness in working with the personal; and
- lack of exposure to the analysis of open-ended social processes as opposed to the more definitive work in the physical and biological sciences.

Richert (1990) attributes this type of student teacher response to possible cognitive and organisational barriers, which can make critical reflection difficult. Dewey (1910, 1933), LaBoskey (1993) and Moon (2005) highlight several factors, which can also influence the quality of reflective practice (see sections 2.3 and 2.6).

Data analysis was followed by a review of particular aspects of the course design and implementation, notably: the language of reflection used in the course outline; more specificity as to the type of reflection required (Placek and Smyth, 1995); the need to model reflective practice behaviours; and, how to bring curriculum issues, remote from the school context, to life in the university environment. Student feedback suggested the latter strategy proved useful 'to their reflection upon curriculum issues' (Macdonald and Brooker, 1999: 60). Conclusions drawn from anecdotal evidence and interview data were that their

particular student teachers were innovative and caring, socio-politically aware and more confident. Although the need to extend their framework and further develop research-based discourse was acknowledged, they persuasively argue 'socially critical subject matter, negotiation, reflection and praxis are signposts for a critical pedagogy' (*ibid*: 62).

McCormack (2001)

McCormack (2001) examined how first year elementary student teachers (n=90: 47 male, 43 female) with an age range from 18 to 35 years used the reflective strategies of journal writing, focus group discussion and questionnaires to reflect on their developing skills in, and attitudes towards, the teaching of dance in physical education. She aimed to examine two of LaBoskey's (1993) four dimensions of reflection, notably attitudes and content, to monitor any changes in attitudes and perceived dance skill development through their participation in dance. She further sought to investigate whether gender differences were apparent in attitudes toward teaching dance.

Data were collected over a 14-week course and student teachers' experienced a 2-hour dance class each week. Journal entries were analysed using the Reflective Framework for Teaching in Physical Education (Tsangaridou and O'Sullivan, 1994), which identifies three focus categories of reflection: technical, situational and sensitising. The latter category incorporates reflection on moral and personal values in addition to social aspects of the lesson and teaching.

Analysis of questionnaires indicated that after participating in the course, the student teachers' enjoyment, confidence and feelings about teaching dance increased. This finding was corroborated by attitudes expressed both in the journals and focus group discussions. The study confirmed that student teachers came to the course with a wide range of reflective skills and attitudes toward dance. Some, particularly the mature aged student teachers, were able to engage in sophisticated reasoning and analysis of events and issues in the form of sensitising evaluative comments, whilst others struggled to progress beyond the level of simple technical and situational responses. Analysis of responses also supported the theory (Furlong and Maynard, 1995) that student teachers move through a developmental path which begins with an initial emphasis or concern on technical reflection and that, as they gain confidence and experience, the focus shifts toward attitudinal and evaluative concerns exploring their actions as teachers.

Gender differences were noted both in attitudes expressed toward dance and the ability and willingness to engage with reflective writing. Male students were found to experience

difficulty in the journal writing activities, initially providing very brief comments and few personal reflections or critiques of early classes whereas female student teachers demonstrated eagerness to analyse personal experiences and voice their own feelings and ideas. Toward the end of the course, McCormack found male student teachers' confidence, skills and enjoyment of dance classes increased. The results indicated an increase in the focus and level of complexity of reflections and analytical responses in line with changes in attitudes and confidence in teaching dance experienced during the course. Significant gender differences were identified in attitudes to teaching dance prior to undertaking the course and in the early journal entries. McCormack (*ibid*: 5) notes that although improvement in, and value given to, journal writing was evident, 'some student teachers felt hindered by a lack of personal reflective writing skill'.

Tsangaridou (2005)

Tsangaridou (2005) conducted a study to explore elementary, year 4 student teachers' (n=2) reflections in the physical education teaching and learning environment and describe how their reflections related to their own practices. Reflection was defined as 'the act of thinking, analysing, or altering educational meanings, beliefs, actions or products by focusing on the process of achieving them' (*ibid*: 28).

Four instruments were used to gather data: observations (field notes), journals (written), documents (unit and lesson plans) and interviews (formal and informal). For the purpose of analysis, data were organised into four thematic clusters: the role of reflection, reflection on action and reflection in action, agency for changes in teaching practice and, the nature and focus of reflection.

Findings indicated student teachers considered reflection a necessity in teaching and further that knowledge of content, context, pupils and teaching opportunities were prerequisites for facilitating the process of reflection. Student teachers were more able to make changes in their teaching in relation to modifying tasks, staying longer in a specific task, and discussing issues with pupils that were situationally driven, as they gained experience. They engaged in reflection on action and reflection in action and, following the analysis of their own teaching, were able to provide meaningful learning experiences for pupils. The student teachers' reflections included pedagogical, content, pedagogical content knowledge and social issues of teaching, more than half of which fell into the content and pedagogical content knowledge categories. This finding contrasts other studies, which report issues of content and pedagogical content knowledge were absent from student

teachers' reflections (Mewborn, 1999; O'Sullivan and Tsangaridou, 1994; Woods, Goe, Karp and Escamilla, 2000).

Tsangaridou (2005: 42-43) draws several conclusions from this study: notably, 'student teachers were able to reflect on their own practice with a particular set of pupils for whom they had set particular educational goals; providing meaningful learning experiences for pupils was the most powerful agency for changing their teaching practices; and, elementary student teachers can learn to reflect about different aspects of teaching, including content knowledge and pedagogical content knowledge'.

Gubacs-Collins (2007)

Through action research, Gubacs-Collins (2007) studied her own perceptions and those of physical education major student teachers, (n=18: 8 male, 10 female) ranging from freshman to senior, in relation to the components and effectiveness of a tactical games approach, in an 8-week tennis course that met twice a week for 90 minutes. Data collection techniques included her self-reflections, student teachers' reflections, structured-interviews and videotaped observations. Questions posed to guide her own reflections include: Were my questions helpful and appropriate? What was my reaction to the student teachers answers? How successful were the students in playing the game? What aspects of the class would I teach differently? Questions posed to student teachers in interviews probed their initial thoughts about a tactical approach to teaching tennis; changes in their thoughts and expectations as the course progressed; and, identifying the most and least meaningful aspects of the approach.

Data were analysed through the inductive method for reflective journals and constant comparison for interviews. Videotapes were examined to identify similarities and differences between student teachers' reported findings and actual events that had occurred during the class. The findings indicated student teachers' perceived the experience had been meaningful 'because of combining skill development and tactical knowledge in the game context while in a fun environment' (Gubacs-Collins, 2007: 106). Student teachers' stressed the importance of question and answer episodes as questions challenged them cognitively and provided feedback about their performance. Gubacs-Collins (*ibid*) indicated that the tactical approach increased student teachers' content knowledge and created a shift in her own beliefs about teaching due to an increased understanding of the approach. She reports although several student teachers struggled to change their 'deeply ingrained technically oriented focus about games' teaching – 'drill-for-skill' approach' (*ibid*: 118-119) they all managed to think differently about practices required by a tactical approach, with

one exception, 'Diez did not even attempt to look at the possible advantages of this approach and decided to drop out of the study' (*ibid*: 119). She concludes that her 'in-depth reflective experience' (*ibid*: 123) brought her closer to student teachers both as a professional and fellow teacher. Further, all student teachers' realised that success at learning tennis with a tactical approach was contingent upon her success of learning to teach with a new approach.

Emerging themes

Several recurrent themes emerge from the research studies, which sought to examine the development of reflective practice in physical education student teachers. Strategies to promote reflective practice were found to be effective in terms of changing the focus of particular aspects of practice student teachers thought about, with one exception. The capacity to engage in critical reflection was not realised by many student teachers irrespective of whether they were year 2 elementary student teachers on a 14-week university-based module (Gore) or those in years 3 and 4 following a secondary programme which spanned two years (Macdonald and Brooker). Concerns over the development of technical knowledge exceeded those which sought to engage and address critical or sensitising goals and questions. Strategies to promote reflective practice were found to be effective in terms of changing the way student teachers' think about their practice with one exception. Evidence derived largely from reflective journals revealed differences in their orientation or disposition to enquiry, as in Gore's recalcitrant student teachers and the one student teacher that dropped out of a tennis course (Gubacs-Collins). These two themes were recognised in several studies as potential barriers to student teachers' growth and professional development. One additional issue raised by McCormack concerns the difficulties some student teachers' experienced in journal writing skills. This has implications when reflective journal entries form part of an assessment strategy. Moreover, the question has been raised as to whether written artefacts appropriately capture, and provide evidence of, student teachers' capacity to engage in reflective practice (Moon, 1999).

Each of the studies encouraged student teachers to engage in reflective discourse with others so that personal assumptions, beliefs, theories and perceptions could be made transparent, open to critique and challenged, with a view to awakening student teachers to alternative perspectives and new 'ways of seeing'. McCormack's reference to the increased confidence, positive attitude and enjoyment of male student teachers on her dance course

in addition to the shift Gubacs-Collins' notes in student teachers' acceptance of a tactical approach to teaching tennis exemplify this goal. Although it arises from Tsangaridou's study with only two student teachers, it is noteworthy that the most powerful agency for changing practice was identified as the ability to provide meaningful learning experiences for pupils.

A theme common to all studies is the use of multiple research instruments to gather evidence for the purpose of their research. Data extracted from student teachers' reflective journals, interview transcripts, field notes and documents were more common and woven together to report findings, yet in some instances, it is not readily apparent where evidence to support the reported outcomes of student teachers' reflective practice stems from. Another theme prevalent across studies, with the exception of Tsangaridou, concerns limited reference to the precise ratio of student teachers, which the research findings specifically relate to. Thus, generalisations suggested particularly from small-scale studies should be approached with caution. Macdonald and Brooker claim to use the principles of action research combined with critical ethnography and reflective journal writing yet what principles of action research they draw upon is not made explicit. By contrast, Gore does acknowledge researching the impact of her interventions with elementary student teachers through action research and clearly articulates how she defines action research and where evidence to support her findings originate from.

A further theme evident in several studies concerns the impact research findings had on the teacher educators themselves. Gubacs-Collins articulates this in terms of a shift in her own belief systems; in researching personal practice Gore refines her concept of pedagogy as text; and, the outcome for Macdonald and Brooker was to review the course structure in relation to advancing their theory of critical pedagogy.

2.11 *Summary*

Reflective practice is a complex, multi-dimensional phenomenon and over the past few decades has been at the centre of educational discourse and research. As this review of literature exemplifies, there has been much rhetoric about reflection and reflective practice in particular. In line with Calderhead's (1989: 43) argument it has become apparent that interpretations of reflective practice all encompass 'some notion of reflection in the process of professional development, but at the same time, disguise a vast number of conceptual variations, with a range of implications for the organisation and design of teacher education courses'. Furthermore, teacher educators, researchers and other writers in the field 'hold a

range of beliefs about teaching and teacher education into which they have incorporated their own particular notions of reflection' (*ibid*: 45).

This chapter has explored the complex, multi-faceted nature of reflective practice and examined the characteristics which key theorists, researchers and practitioners have attributed to this phenomenon. This has been realised by framing reflective practice as a discourse, the vehicle through which reflective conversations provide insight as to the assumptions, beliefs, theories and personal values underpinning what student teachers do, or aspire to do, in their own teaching. As a mode of thought, the questions student teachers raise about their practice provide insight as to how they generate, develop and process knowledge. An exploration of different patterns and stages of thinking shows that skills associated with reflective practice can be learned and are developmental. Several factors however, preclude some student teachers from engaging in the higher levels or stages of reasoning, contextual knowing, critical thinking and reflective judgement, such as: cognitive processing ability; personal orientation and disposition to enquiry; the capacity to seek and recognise alternative possibilities and explanations; and, their particular sense of reality and 'way of seeing' the world.

Reflective practice has been conceptualised as a creative process in that student teachers frame each unique teaching situation and begin to generate their own theories-in-use or personal epistemology as to what actually works for them in practice. The relationship Schon (1983, 1987) draws between knowing in action and reflection on action provides insight as to how student teachers can make their tacit, implicit assumptions, beliefs, theories and values explicit and open to scrutiny and critique as their reflective conversations move from the private, inner domain to the public arena. An emphasis is placed on the roles of the dialogical other and critical friend in supporting this process so as to move student teachers' learning forward.

When positioned at the core of professional growth and development, reflective practice is inextricably linked to the art of self-study and research into personal practice. Student teachers assume the role of teacher as researcher as they scrutinise what they do, how they do what they do and importantly, why they do what they do in the teaching environment. Following the reflective analysis of personal practice, they consider and reflect upon possibilities for future action by questioning how they might do things differently and try this out in their future teaching. Formative evaluation is a fundamental component of teacher research and arguably, one goal for student teachers to realise would

be to capture 'this way of being' in their professional lives as they ask searching questions about their own practice.

The notion that student teachers should strive to become reflective practitioners and take responsibility for their own professional development is prevalent not only in the governments' agenda but has also been advanced by scholars, teacher educators and practising teachers for many decades. The development of reflective practice has become 'a generic pedagogical principle' (Tsangaridou and O'Sullivan, 1997) in initial teacher education wherein strategies are woven into programmes from diverse theoretical traditions to nurture and cultivate its development (see Appendix A). The literature highlights aspects of teaching, which proponents of student teacher development advocate should provide the focus and content of student teachers' reflections, yet empirical evidence to support many theoretical propositions is exceedingly limited. While this literature champions the usefulness of reflection, in addition to developing student teachers' reflective capabilities and predispositions through a range of strategies in order to scaffold their learning, there is a paucity of knowledge in the physical education research literature concerning the impact that strategies drawn upon to promote reflective practice have made to the professional development of student teachers.

2.12 *Purpose of this thesis*

While research has been undertaken into the development of reflective practice in initial teacher education, few studies have incorporated physical education student teachers. Those which have been undertaken and reviewed in section 2.10.3, originate from university programmes in the United States, Australia and Cyprus, and with the exception of two, were integrated into university-based taught modules as compared to school-based teaching experiences. Three of the studies involved elementary physical education student teachers and two involved secondary physical education student teachers. The number of research participants featured in each study ranged from between 2 and 90, and from year 1 through to year 4. Other than one longitudinal study, which spanned two years, the research studies were integrated into an 8, 13 or 14-week university-based course.

A range of research instruments were used in each study and although three identified action research as a methodology, in each case this referred to the teacher educator/s not the student teachers. Thus, the development of student teachers' reflective practice within the context of action research is not known. The focus and purpose behind each study differed and ranged from goals which sought to foster reflection through microteaching; to

develop skills in areas of physical activity; to change attitudes and perceptions toward physical activities; to examine how personal reflections related to practice; and, to develop a critical pedagogy in their approach to teaching. Thus, it is very difficult to make generalisations.

Against this backdrop, however, three of the studies reported using a three-tier framework for the purpose of analysis to distinguish between technical, practical and critical forms of reflection in which the latter form related to the ethical and moral dimensions that underpin teaching. Other trends, which emerged include: student teachers' questions and concerns over technical and pedagogical content knowledge dominated those raised about critical aspects of teaching; distinctions between student teachers' disposition to enquiry influenced both their attitude and depth of reflections; potential barriers to reflective practice include student teachers' cognitive processing capacity and their attitudes.

The purpose of this study was therefore to undertake a substantive piece of research, which emanates from a university in England, and contribute toward the growing body of literature in a subject area where empirical evidence is both fragmented and scarce. It sought to better understand how reflective practice could be conceptualised and its development nurtured in physical education student teachers, particularly in relation to practitioner based research. The focus of this research study was:

an analysis of the concept reflective practice and investigation into the development of student teachers' reflective practice within the context of action research.

This study was guided by two research questions:

How can student teachers' develop reflective practice within the context of action research?

What qualitative distinctions in reflective practice can be drawn between student teachers?

For the purpose of this study, a working definition of reflective practice needed to be established. This was informed by the review of literature and involved three stages. First, it was necessary to be clear how the term reflection is used, as this must be situated within theoretical constructs associated with reflective practice. The conceptualisation advanced by Dewey (1910, 1933) of reflection as a process captures different phases of thinking (see section 2.3), which student teachers can work through as they question aspects of personal experience, challenge assumptions, beliefs, goals, theories and values, and deliberate over a

range of alternative possibilities to inform their future teaching, and was considered appropriate for the context of this particular study.

Second, individual traits and attributes that can influence the process of reflection needed to be identified. Those proposed by Dewey (*ibid*) and LaBoskey (1993) of cognitive processing ability and a particular disposition or orientation to enquiry have been drawn upon (see section 2.6) as these serve as indicators to qualitative distinctions, which can be identified between student teachers.

Third, the purpose of reflection within the action research paradigm needed clarification. Schon's (1983, 1987) concept of developing a personal epistemology of professional practice guided by theories in use (see section 2.7) has been drawn upon as this recognises the multi-faceted, complex nature of the teaching environment, which calls upon student teachers to frame each new situation from their emerging repertoire of images, exemplars and metaphors. In so doing, they can structure and restructure their own teaching as they reflect in, and on, practice for personal development and improvement.

Extracting the essential ingredients, which seemed to emerge from this three-stage approach, in this study reflective practice was defined as:

> *a disposition to enquiry incorporating the process through which student teachers structure or restructure actions, beliefs, knowledge or theories that inform teaching for the purpose of personal professional development.*

For the purpose of this study a conceptual framework was also designed, which sought to capture the development of student teachers' reflective practice within the context of action research, as no existing models were found. This framework is presented in chapter 4 along with an explanation as to how its construction was informed by the literature reviewed.

The following chapter serves to contextualise research participants involved in this study.

Chapter 3: Context of the research participants

3.1 *Introduction*

Eighty, year four student teachers, 38 male and 42 female, following a Bachelor of Arts (Honours) Secondary Physical Education degree course leading to the award of Qualified Teacher Status (QTS) (TTA/DfES, 2003) and 13 university lecturers within their role as dissertation supervisors were participants in this study. This chapter presents an overview of how reflective skills are nurtured and developed in different ways over the four-year course, and serve to provide the foundation for enabling student teachers to further develop reflective practice as they undertake an independent action research project to improve the quality and effectiveness of their own teaching.

An outline of the rationale, course structure and generic learning outcomes, which apply to the degree course as a whole are presented in Appendix B (i). The developmental nature of performance expectations and specific tasks associated with school experience from years one to four are presented in appendix B (ii), and the relationship between them discussed briefly. These exemplify the importance attached to school-based partnerships and of how the theory and practice of student teachers' experiences in learning about teaching and about how to teach effectively are brought together.

To support student teachers' professional development over the course and monitor progress as they work toward achieving Standards necessary for the award of QTS (see Appendix C) a robust profile system is in place. This serves not only to generate documentary evidence but also to provide a vehicle through which student teachers can engage in reflective discourse about personal aspirations, developmental needs, goals and strengths. The profile system aims to empower student teachers with guidance from university-based tutors, peers, school-based mentors and teachers to take ownership of their professional development, identify personal targets, formulate action plans and make informed judgements about the outcomes of progress as they reflect on their experience.

The chapter then examines how student teachers are prepared for undertaking a research project during their final school experience using principles and procedures, which underpin action research. This research enterprise forms the apotheosis of drawing together, and further developing, the reflective skills student teachers have developed over the course as they assume the role of *teacher as researcher* (Hopkins, 2002) to study an aspect of their own teaching in great depth. Details of the action research project are presented in

the module handbook (extracts presented in Appendix D (i)), which student teachers and their assigned dissertation supervisors draw upon for guidance purposes.

In essence, this chapter aims to position the development of reflective practice as an important key strand, which permeates through the four-year course and enable student teachers to become effective teachers and develop the attributes associated with becoming extended professionals (Stenhouse, 1975).

3.2 *School experience*

As a prelude to school experience, student teachers undertake a course of micro teaching during the first semester of year one to familiarise themselves with the basic skills of teaching: use of voice, movement and positioning, demonstration, observation, feedback. Through engaging student teachers in a controlled environment of on-campus teaching their teacher behaviour can be observed and scrutinised both by themselves and their peers. Video excerpts of lesson episodes, written feedback and focused discussions provide an emerging evidence base, which enables student teachers to think about their practice in ways designed to promote their subsequent teaching. The aims underpinning the micro teaching experience are to encourage student teachers to reflect on personal practice and that of others and enhance their ability to: engage in discourse about teaching and learning; develop knowledge about a range of teaching variables; gain confidence in receiving feedback and constructive criticism from others and demonstrate commitment to act upon that feedback; develop their powers of observation; acknowledge the potency and importance of their role as a teacher; and, recognise that within any group of pupils a diverse range of needs and individual differences will be prevalent.

Thus, before student teachers step into their first school-based teaching experience, opportunities to practice their basic teaching skills and engage in reflective discourse are designed, in part, to challenge their preconceptions of physical education. Literature in physical education suggests that student teachers enter initial teacher education with well formed beliefs about teaching, and as a consequence, what they observe and experience during their own schooling has been found to exert a powerful influence on their own teaching (Hutchinson, 1994; Kagan, 1992, Lawson, 1991; Lortie, 1975; Schempp and Graber, 1992). Doolittle, Dodds and Placek (1993: 364) argue that student teachers' beliefs about what physical education should do for pupils, which form 'through their own participation in physical education classes and sports as youngsters, persist as a reference

point against which are measured any alternative views they encounter during teacher education'.

On this degree course, school experience relates to any period of time student teachers are in school for specific observation, professional development, practical teaching and directed curricula tasks. School mentors, university link tutors and other school and university staff work collaboratively in school-based partnerships to guide and support the learning and development of student teachers. They strive to offer mutually supportive environments where student teachers can engage in dialogue about, and draw links between, the practice and theory of teaching. School experience is designed to introduce student teachers to the principles and practices of teaching, systematically and progressively, from year one to year four. As a vehicle to further develop the reflective capacity of student teachers, focused observation tasks are used to combine university-based courses with school experience. Student teachers are encouraged to critically examine different aspects of teaching from source material gathered during their visits to different schools. Viewing schools as a type of 'cultural laboratory' (Beyer, 1984: 39) enables them to analyse, discuss, interpret and reflect upon issues to gain an understanding as to why schools operate the way they do and consider who might benefit or otherwise from such modes of operation.

The focus of school-based tasks encourages student teachers to position their teaching and pupil learning within the wide professional landscape as they engage in discourse on such issues as: inclusion, personalised learning, standards, equality, disability, the aims and purposes behind school policies, principles and procedures. Thus, opportunities to draw links between theory, policy and practice are provided as student teachers' critically analyse and engage in reflective conversations about past, current and future educational goals and practices. They should gain increased awareness and understanding of the cultural, ethical, moral, social, ideological and political forces that operate within the profession.

McIntyre (1993: 141) suggests practising teachers are well positioned to introduce student teachers to the practice of teaching, particularly to the use of 'contextualised knowledge (of individual pupils, of established relationships with classes, of resources and their availability and of schools, customs and procedures), which is such a crucial element of teaching'. He also considers that university lecturers are better placed to enable student teachers 'much more than is generally possible for practising teachers, to know about alternative teaching approaches being used elsewhere, to study relevant research and theoretical literature and to explicate and critically examine the principles which should or

could inform the practice of teaching' (*ibid*: 114). There is need to bring these two versions of professional expertise together to ensure 'a better understanding (and use) of the relation between abstract theoretical knowledge, expressed at a higher level of generality, and situated, experiential knowledge, derived from particular contexts' (Humes, 2001: 12). Student teachers on this course can benefit from both perspectives during initial teacher education through well-established, collaborative school-based partnerships.

Performance expectations of student teachers during school experience are progressively built upon throughout the course. In year two, for example, student teachers are required to plan a unit of work, identify criteria for assessment of attainment levels 3 to 6 in the National Curriculum for Physical Education (DfEE/QCA, 1999), teach the unit during school experience, and assess pupils based on criteria they have identified. This school-based task is preceded by a university-based module that introduces the principles and purposes of assessment and the key principles underpinning *Assessment for learning* (DfES, 2003) to guide their assessment of pupil learning and development, and to evaluate their own effectiveness.

This strategy has resonance with the *curriculum enquiry* (Zeichner and Liston, 1987) approach for developing student teachers' reflective skills: student teachers are introduced to theoretical knowledge about a particular aspect of the curriculum (e.g. assessment); they analyse a range of curriculum materials and examine how these are used (e.g. principles underpinning assessment for learning); develop their own classroom curriculum (e.g. criteria for assessment within the unit of work); and, use this in their teaching to evaluate its effectiveness. Upon completion of the school experience, student teachers are expected to engage in reflective discourse about the total experience, which includes questioning the appropriateness of criteria identified for their assessment task, all facets of the teacher's role, and the need to adapt to the specific school context. An important aim underpinning the curriculum enquiry approach in developing reflective skills is to empower and give voice to student teachers as future decision makers.

The ability to reflect critically on personal teaching performance and plan future lessons in light of the outcomes of their reflective discourse is an important aim of the whole course and an essential component of student teachers' ongoing professional development. Student teachers take increasing responsibility for designing and planning each lesson within a unit of work, which involves the rigorous and systematic evaluation of establishing whether learning outcomes were achieved, by whom, how well they were achieved, and what next steps need to be planned to enhance their own effectiveness and move pupils'

learning and development forward. School-based mentors and teachers are pivotal in providing focused lesson feedback and encouraging student teachers, through regular debrief discussion sessions, to engage in such discourse. As student teachers' scrutinise aspects of their teaching and reflect on practice in different ways (Ghaye and Ghaye, 1998) to contextualise their teaching they should be able to establish appropriate developmental targets. This process of systematically analysing and evaluating practice to inform future teaching through reflective discourse, which begins in year one and is built upon throughout the course during successive school experiences, underpins the principles of researching their own practice and characteristic features both of action research and the extended professional (Stenhouse, 1975).

3.3 *Learning how to teach*

The focus of student teachers working toward the achievement of performance expectations and Standards for the award of QTS might suggest a technical competence-based model of learning how to teach. Primary emphasis during the first two years of the course is placed on enhancing student teachers' subject matter knowledge across all six areas of the physical education national curriculum (DfEE/QCA, 1999), along with the pedagogical principles and procedures of teaching and learning. The focus of their reflective discourse for example, will be concerned with devising lesson plans, units of work, organisation and management strategies, effective teacher behaviour, research on teaching and learning, individual pupil differences, motivational strategies, group processes and dynamics. This has resonance with the *social efficiency* tradition of learning how to teach within initial teacher education (see Appendix A) and is implicit within course documentation.

During years three and four student teachers continue to build subject matter knowledge and pedagogical content knowledge. There is however an important shift in emphasis along two distinct pathways. The first encourages student teachers to focus their attention both inwardly at their own teaching practice and outwardly at the social conditions in which these practices are situated, and thus critical (Carr and Kemmis, 1986) reflective discourse assumes greater significance. The second encourages student teachers to focus their attention on the individual needs, interests and natural development of their pupils. Differentiation is in the foreground as student teachers' strive to accommodate difference and diversity and in so doing, assume moral and ethical responsibility for their pupils. These orientations provide the focus of student teachers' reflective discourse and

resonate with the *social reconstructionist* and *developmental* traditions of learning how to teach within initial teacher education (see Appendix A) and is implicit within course documentation.

The opportunity for student teachers to gain teaching experience from four different school contexts and to work within various departments is an important component of the course. For example, student teachers' encounter pupils from diverse cultural backgrounds who display a range of individual needs across the special education and learning needs spectrum. They work alongside school staff who draw upon personal experiences, inner beliefs and ideologies (Porter and Freeman, 1986; Pajares, 1992) regarding the teaching strategies and approaches they select to accommodate difference and diversity and enhance the learning of all their pupils. These opportunities provide a fertile ground for student teachers to engage in reflective discourse about personal experiences and those of others and, importantly, to consider alternative perspectives and possibilities in a range of situations and contexts. The degree course aims to enable student teachers to develop an understanding of pedagogy, an appreciation of the interdependent nature of teaching and learning and recognition of the dialogic relationship between theory and practice, in coming to formulate their own theories and beliefs about the art and craft of teaching and of the teacher as an extended professional. Thus, by reflecting on multiple perspectives from multiple environments, student teachers are encouraged to question and challenge personal assumptions, beliefs, goals, theories and values, and to restructure them from a more informed platform when making professional judgements and exercising discernment in their own teaching.

3.4 *Professional development portfolio*

Each student teacher is assigned to a full-time university lecturer who contributes to the course and acts as a personal tutor over the four-year programme. Of the 13 dissertation supervisor participants in this study, 8 are currently personal tutors and 3 assumed this role of responsibility in the past. Personal tutors are pivotal in bringing together all aspects of the student teachers' university and school-based experiences. They retain copies of all grades and school experience reports and help student teachers to audit and assess their progress in working toward achieving the knowledge, understanding and skills that underpin Standards required for QTS. Personal tutorials are held each term and provide student teachers with guidance as to how they might build and maintain their professional development portfolio (PDP). The PDP is an essential component of the student teachers'

ongoing professional development as it provides a highly structured, supported opportunity for them to:

- reflect upon their own experiences
- take account of progress
- identify personal targets
- devise action plans to achieve targets set
- regularly review progress

During personal tutorials student teachers are encouraged to discuss feedback received on module assignments, examinations, and to discuss school experiences, final school reports and personal aspirations. They engage in discourse which focuses on the cyclical process of *reflecting* on their experiences, *formulating* plans of action, *implementing* action plans, and *reviewing* personal, academic and career development. Student teachers' document personal targets and action plans using a range of structured proforma, which are retained in their PDP for subsequent reference and tutorial sessions. Managing the PDP enables student teachers, through reflective discourse with their personal tutor and significant others, to generate documentary evidence about aspects of their work which can inform their thinking and move their teaching practice forward. The PDP is a working document that resembles a record of achievement to chart student teachers' progress in all aspects of the degree course. This links directly to the Career entry and development profile (CEDP) (TTA, 2003) and completion of Transition Point 1, as student teachers near the end of initial teacher education, which requires them to identify personal strengths, developmental needs and career aspirations in preparation for their induction year.

3.5 *Profile system*

During school experience placements in years one and two, student teachers are introduced to some of the Standards required for the award of QTS and begin to collect evidence to demonstrate their progress and achievement in those Standards. In years three and four, they address all of the Standards, which provide a series of performance expectations they need to achieve by the time they graduate (see Appendix C). The process of reporting the development of Standards is referred to as *profiling*. Each student teacher keeps a profile of working toward Standards, pertinent to each school experience. Judgements related to progress and achievement in each Standard, are agreed by the mentor, senior members of school staff and the university-based link tutor in discussion with the mentor.

Evidence of student teachers' progress in working toward the Standards is gathered from a range of sources including focused lesson observations, interim and final mentor reports, self-evaluations. This evidence is maintained in a *Best Evidence Folder* which each student teacher monitors and discusses with their university personal tutor and, as it constitutes a public document, will eventually be taken with them when they leave initial teacher education and begin their induction year. Student teachers take responsibility for gathering appropriate evidence of their achievement (3 pieces of evidence per standard is recommended) with guidance from their personal tutor. This can however be a challenging feat for some of them. The commitment to engage with this process requires a measure of confidence and motivation, as well as the capacity to identify where evidence for professional development has occurred, in relation to each Standard.

3.6 *The action research project*

Of particular significance to this study is the university-based taught module *The Reflective Teacher,* which dovetails with the completion of student teachers' year three school experience, as it lays the groundwork for their action research project in year four. Student teachers are introduced to the concepts *reflective practitioner, teacher as researcher* and *action research*. In preparation, they engage in reflective discourse to consider what might constitute useful and effective evaluation of teaching as they respond to two fundamental questions:

How do we recognize effective reflection?

What action does the teacher need to take to reflect effectively?

Student teachers' examine the stages of Dewey's (1910, 1933) model of *reflective thinking* and accompanying attitudes of *open mindedness, responsibility* and *whole heartedness,* and contemplate how educational theorists (e.g. Boud *et al,* 1985; LaBoskey, 1993) have subsequently built upon Dewey's original work. LaBoskey's framework of *problem definition, means/ends analysis* and *generalisation* combined with Schon's (1983, 1987) distinction between *reflection in action* and *reflection on action,* provide the impetus for an exploration of where in teaching and learning about teaching, reflection should occur to inform practice. For example, student teachers' question:

- what action/s they might have taken and why during a lesson episode in response to a particular pupil behaviour (*reflection in action*);
- possible reasons to suggest how pupil learning opportunities might be maximised or inhibited, where possible drawing from their own teaching experience (*reflection on action*);

- what problems they encountered during school experience, were able to resolve and how they achieved this alongside problems they were unable to resolve; through peer discussion identify possible alternative strategies they might implement to resolve these problems in future practice (*reflection on experience*).

The purpose, rationale and justification for this reflective discourse is for student teachers to ensure they are doing all that they can to improve the *quality* of their teaching so as to *enhance* pupil learning and development. By looking back at an event or incident that happened in a given lesson and reflecting on their own experience student teachers' question: *Why* the particular learning, or lack of learning, high levels of motivation or poor pupil behaviour occurred. Although the focus is on teaching, it is dependent upon the identification of pupil learning and development as its starting point.

Engagement in such activities models reflective practice and enables student teachers, through discourse and reflective conversations with self and others, to consider: particular aspects of their own teaching which require further development; suggestions from peers and others on how to refine their teaching; alternative strategies they might try and to plan how, when and where they could try these out; criteria they might use to judge whether particular strategies have been effective. A further task encourages student teachers to consider what consequences might arise from systematically reflecting on aspects of their teaching and learning about teaching and, by contrast, what consequences might prevail if they fail to engage in this process. By guiding student teachers through this in-depth analysis and critique of their third year teaching experience they are able to identify an area of particular interest or in need of further development. This provides a focus for the action research project they undertake during final school experience in year four.

There is much debate about the aims and nature of action research and of how student teachers should conduct their enquiries to resolve teaching concerns (Elliott *et al*, 1995; Lewin, 1946; McNiff *et al*, 1992; McKernan, 1996; Zuber-Skerritt, 1996). On this course, student teachers are introduced to the aims, definitions, purposes, structure and methodologies of action research predominantly advanced by Carr and Kemmis (1986), Cohen and Manion (1994), Hopkins (2002), McKernan (1996) and Moore (2000). The springboard used is Hopkin's (2002: 5) notion that central to the concept of *teacher as researcher* is the 'systematic reflection on one's classroom experience, to understand it and to create meaning out of that understanding'. This interpretation is firmly located within the realm of the practitioner and exemplified through the rigorous and systematic process of *reflection on action* (Schon, 1983, 1987), which student teachers use 'to find out about the quality of teaching and learning taking place' (Leask, 2001: 278). It involves the process of

analysing, synthesising and evaluating information about a particular experience, occurrence or situation after the event. This form of self-appraisal is seen as 'the systematic and deliberate thinking back over one's actions' (Russell and Munby, 1992: 3) and has been described by Carr and Kemmis (1986: 162) as a 'self-reflective spiral of cycles of planning, acting, observing, reflecting then re-planning, further action, further observation and further reflection'. To exemplify this process student teachers are introduced to the action research model devised by McKernan (1996) shown in Figure 3.1.

Figure 3.1: McKernan's (1996: 29) model of action research: a time process model

ACTION CYCLE 1
ACTION REQUIRES IMPROVEMENT
PROBLEM SITUATION

ACTION CYCLE 2

etc...

DECISIONS
(REFLECT, EXPLAIN
UNDERSTAND ACTION)

DEFINE PROBLEM

DECISIONS
(REFLECT, EXPLAIN
UNDERSTAND)

REDEFINE PROBLEM

EVALUATE ACTION

NEEDS ASSESSMENT

EVALUATE ACTION

NEEDS ASSESSMENT

HYPOTHESIS IDEAS

NEW HYPOTHESIS

IMPLEMENT PLAN

IMPLEMENT
REVISED
PLAN

DEVELOP ACTION PLAN

REVISE ACTION PLAN

T1   T2   T3

McKernan's action research model   McKernan, J (1996)

This model illustrates an important feature of action research, notably, the cyclical nature of an ongoing process to improve the quality and effectiveness of practice. In seeking to improve practice and personal understanding, McKernan's (1996) model shows that an enquiry must be undertaken by the practitioner, first to clarify and define the problem, and second to specify a plan of action which includes the testing of hypotheses by action to the problem. This is followed by an evaluation to monitor and establish the effectiveness of the action taken. In the final stage, 'participants reflect upon, explain developments and communicate results to the community of action researchers' (*ibid*: 5). Cohen and Manion (1994: 192) suggest that 'ideally, the step-by-step process is constantly monitored over

varying periods of time and by a variety of mechanisms (e.g. questionnaires, diaries, interviews and case studies) so that the ensuing feedback may be translated into modifications, adjustments, directional changes, redefinitions, as necessary'. Elliot (1991: 69) notes that the purpose behind this cyclical process is:

> to feed practical judgement in concrete situations, and the validity of the 'theories' or hypotheses it generates depends not so much on 'scientific' tests of truth, as on their usefulness in helping people to act more intelligently and skilfully. In action research 'theories' are not validated independently and then applied to practice. They are validated through practice.

Elliot's interpretation supports Schon's (1983, 1987) notions of intelligent action and professional artistry and McKernan's view that curriculum theory is grounded through practice. Systematically reflecting on data gathered, lesson-by-lesson, to consider why particular outcomes were realised in the light of a particular strategy is the hallmark of action research. Successful elements should be retained and built upon whereas less successful elements can be modified or discarded in light of their reflections. This process encourages student teachers to engage in dialogue, discourse and reflective conversations (Ghaye and Ghaye, 1998; Schon, 1987) which serve to guide decisions and justifications concerning how to teach the next lesson and how data can be collected to inform them of the effectiveness of subsequent interventions. Calderhead (1989) suggests action research could result in student teachers' changing their beliefs about their own teaching practices, the curriculum, or any other aspect of the teaching environment. Altrichter *et al* (1993) note, as action research involves enquiry into one's own practice, the distance between the researcher and participants of the study could be greatly reduced.

Expressed succinctly, student teachers come to realise that reflection has two distinctive roles within action research. First, to form the basis for the planned action; reflection focuses on the meaning of observing an event or situation in order to plan the action. Second, to evaluate the effect of the action; reflection focuses on the meaning of observing the effects of the action. In both phases of the cycle, reflection is retrospective and provides a link between the considered events of the past with future planning and development (Carr and Kemmis, 1986).

During seminar sessions, the role of reflection within action research is modelled through a range of simulated tasks. For example, student teachers' identify a particular teaching strategy they want to further develop, such as 'questioning', and consider:

- Why they have selected this focus; why effective questioning techniques might be important both within the physical education and wider school contexts?

- How questioning has been defined, conceptualised and can be broken down into constituent elements - specific, non-specific, general, focused; types of questions – open and closed; wording and language used; when to use questions; and who they should ask – individual, small groups, whole class; why are they asking the question?
- How effective questioning techniques might benefit pupil learning - does it foster independent learning, develop higher order thinking skills, increase participation and motivation?

Such questions engage student teachers in reflective discourse as they unpack the constituent components and examine the complexity inherent in that particular aspect of teaching. An understanding of how subtle changes in their own teaching behaviour can influence pupil learning enables student teachers to realise the importance of taking note of the minutiae in teaching and come to recognise that even little things which happen in the learning environment really can matter. Finding solutions to these preliminary questions not only encourages student teachers to reflect on their own experiences, it encourages them to question personal attitudes, assumptions, beliefs, theories and values as they undertake an extensive search of literature and review the findings of research studies undertaken by others. From a more informed platform, they can devise a plan of action which identifies how they plan to develop the use of questioning in a particular context, such as a year 7 gymnastics unit of work. Importance is placed on the notion that within action research the plan of action must be provisional, as results gathered from data collected to monitor the effectiveness of a particular strategy should be evaluated to further inform future planning, as exemplified in Action Cycle 2 of McKernan's model.

The critical analysis of relevant literature is vitally important in action research and is undertaken both to guide the formulation of a research question and the subsequent plan of action. Student teachers are directed toward Macintyre's (2000: 16-17) series of questions that can be asked for the purpose of comparing, contrasting and evaluating literature relevant to their own research. The pursuit of linking theory with practice implies that student teachers should be equipped to become research minded, encouraged to value research and supported during engagement in research and enquiry within professional contexts. This builds on the view proposed by Stenhouse (1983: 192) concerning the purpose of educational research, which is 'to develop thoughtful reflection in order to strengthen the professional judgement of teachers'. Humes (2001) suggests this can be realised when student teachers subject their own practice to critical scrutiny and rational reflection, informed by literature and research. As Campbell *et al* (2003: 2) note, student teachers 'need to be able to analyse critically the research evidence that they read as part of

their professional role, and to judge its findings and conclusions from a well-informed point of view'. In a similar vein, Pring (2000: 138) argues the importance of *teacher as researcher* as being 'crucial to the growth of professional knowledge' and considers that research should be 'the servant of professional judgement, not its master'.

Student teachers are encouraged to engage with the processes identified in McKernan's model and those described above to enhance their capacity for self-improvement and self-evaluation through systematic, rigorous research and the study of their own teaching. When they identify action for improvement, this can usefully be viewed as both a dialogical and reflective process. The commitment to learn from, and improve, practice are characteristic principles of action research, as is the concern to generate and produce knowledge. This research experience aims to provide student teachers with a greater sense of autonomy over their own work and to identify possible avenues for alternative practice. As a consequence, they should be able to *ground* (Glaser and Strauss, 1967; McKernan, 1996), *craft* (Schon, 1983; Stenhouse, 1975) and *validate* (Elliott, 1991; McKernan, 1996) personal theories, which emerge from their own teaching experiences.

Expressed succinctly, the overall aim of year four student teachers' school experience, in which their research enterprise is embedded, is to improve the **quality** *of their teaching* and *the* **quality** *of pupils' learning* in the classes they teach by:

- developing an innovative, problem solving approach to teaching;
- focusing their attention on the further development of personal skills of observation, analysis, reflection and evaluation;
- developing the curriculum of their pupils on the basis of formative evaluation.

The opportunity to place an aspect of teaching for close scrutiny under the microscope should lead student teachers toward a greater understanding and appreciation of the relationship between teacher and learner, the complexities embedded within the process of teaching and of how their teaching might be influenced by local, regional and national systems. Further, the experiences gained through research into their own teaching should enable student teachers to assume an enquiry orientation to other aspects of teaching, and continue to build, refine and internalise reflective practice when they enter the teaching profession.

The action research project report of 9,000 words plays an important part in the final degree award and the assessment rationale, which refers explicitly to the quality of reflection, provides criteria against which the report is judged (see Appendix D (i)). Concerns have been raised (Hatton and Smith, 1995; Moon, 1999) as to whether written documentation provides an appropriate vehicle for gathering evidence of, and assessing,

reflective practice in student teachers. This is a thorny issue. It could be argued that justifications, reasoning and analysis of key issues can be interpreted from the final written text, yet this does require student teachers to present tacit, internal reflective processes in written form and some might struggle to 'represent their learning' (Moon, 1999) in this way. Also, ontological issues must be acknowledged in matters concerning interpretations and meanings embedded within, and translated from, written artefacts.

Student teachers are allocated to schools in pairs where possible to assist one another in gathering data and providing feedback as an independent observer and *critical friend* (Gore, 1990) in those lessons selected for research purposes. In exceptional circumstances, a teacher in the placement school will assist in this capacity. Receiving highly focused feedback from, and establishing positive working relationships with, colleagues and peers are vital components of this experience. Student teachers must be able to consider multiple perspectives and alternative views if they are to make informed decisions and impartial professional judgements which are not biased by their own particular assumptions, beliefs, *pre-judgements* (Dewey, 1910, 1933) and subjectivities. The need for an open-minded disposition thus assumes increased significance as student teachers' engage in reflective discourse to better understand and improve their own teaching.

3.7 *Dissertation supervisors*

Each pair of student teachers is assigned to a university-based dissertation supervisor, drawn from an experienced course team, who provides both individual and group tutorials by arrangement and request. Channels of communication must be established to ensure that effective guidance and support structures are in place. Responsibility for securing effective communication channels resides with each student teacher.

The dissertation supervisor's key role is to guide student teachers throughout their action research project and encourage them to reflect on their experiences in a formative and systematic manner. To this end, they are provided with a wealth of literature, which informs them of the learning outcomes, course content and resource materials drawn upon in *The Reflective Teacher* module; and, those new to supervision are invited to attend the lead lectures and seminar workshops held for this module. Also, each dissertation supervisor receives an action research project module handbook (see extracts in Appendix D (i)), which provides guidance material they can work through with their student teachers, detailing the nature of the research project along with suggestions as to how the content of the report might be structured. A framework is provided to illustrate the concept of the

project as an integrated whole, which builds upon McKernan's model of action research student teachers are introduced to in *The Reflective Teacher* module. Thus, dissertation supervisors and student teachers should have a common understanding of key defining terms (see Appendix D (ii)), processes and expectations as they embark upon this journey.

In addition to these guidance principles, dissertation supervisors can draw upon a range of supervisory approaches to support student teachers as they study their own teaching. Korthagen and Vasolos (2005) designed a model of systematic reflection for school experience supervisors and mentors to guide student teachers' reflections which provides the type of model and series of questions dissertation supervisors can use to encourage student teachers to examine and challenge their reasoning and justifications for decision-making (see section 2.8). The types of reflection on practice advanced by Ghaye and Ghaye (1998) provide a further point of departure dissertation supervisors might draw upon (see section 2.2) to guide the reflective conversations of student teachers, encourage them to situate their research within the wide professional landscape, and stimulate them to analyse 'and see more critically their teaching performance and the classroom events' (Tsangaridou and Siedentop, 1995: 217). The framework designed for this study to investigate the development of student teachers' reflective practice within the context of action research (see section 4.6) also has potential for guidance purposes. It is important to note that dissertation supervisors and student teachers are not required to use guidance material prescriptively, rather a measure of autonomy can be exercised so as to tailor the approach to suit individual needs and situational contexts.

Another important aspect of the dissertation supervisor's role is to ensure that student teachers follow appropriate ethical guidelines, principles and procedures at all times and secure the necessary approval to undertake research with human participants.

When assigning dissertation supervisors to student teachers, care is taken to ensure they are not also designated as the student teachers' university-based link tutors. Further, although student teachers are encouraged to discuss their research with school-based mentors, the mentors are not directly involved with the student teachers' research enterprise. These are important considerations for several reasons. Dissertation supervisors can distance themselves from other aspects of student teachers' teaching and focus exclusively on their research. They are also better positioned to enable student teachers to consider a range of alternative teaching approaches used elsewhere (McIntyre, 1993) to inform the practice of their teaching. Further, dissertation supervisors can assume the roles of *critical friend* (Gore, 1990) and *dialogical other* (Pendlebury, 1995) to encourage student

teachers to express their own views and have their own voice. In some instances, particularly those in which student teachers might challenge the practice of mentors, or conversely, in which mentors might challenge the practice of student teachers, potential disagreements and tensions can be avoided.

3.8 *Summary of key points*

Several themes emerge from examining the context of research participants involved in this study:

- the course structure aims to empower student teachers to become increasingly sophisticated in their capacity to critically evaluate their own teaching and pupil learning and development, with a view to developing an authentic teaching style which fits their own philosophy, takes account of research and the wider socio-political context

- numerous strategies embedded within the course to develop reflective practice so as to enhance professional growth and development: self assessment, evaluation and target setting, peer discussion, mentor support from experienced teachers, microteaching, simulated seminar tasks, school-based curriculum enquiry

- prescribed performance expectations and Standards student teachers must work toward to demonstrate their effectiveness as teachers

- generation of documentary evidence to demonstrate student teachers' achievement of Standards

- partnership between university and school to support the development of student teachers provides opportunities for student teachers to engage in dialogue and reflective discourse with a range of professionals

- university-based modules explicitly linked to school-based teaching experience enabling student teachers to link theory with their own practice

- underpinning ideology that an enquiry orientation to study personal practice and effectiveness is an ongoing process progressively built upon throughout the course which culminates in the student teachers' action research experience

Chapter 4 Research methodology and design of study

4.1 Introduction

This chapter discusses the methodological assumptions upon which this study was based; explains how and why particular research techniques were selected, developed and implemented; and, provides a description of the data analysis.

Strauss and Corbin (1998: 3) define methodology as 'a way of thinking about and studying social reality' which supports the twin focus to educational research as: *attitudinal –* 'a distinctive way of thinking about educational phenomena' and *action –* 'a systematic means of investigating educational phenomena' proposed by Morrison (2002: 3). Decisions that guide the selection of research methodology, Bell (2005) argues, are dependent upon the nature of the enquiry and kind of information sought.

The purpose of this study was to better understand how reflective practice could be conceptualised and its development nurtured and captured within the context of action research. Although previous research has been undertaken to examine the development and reflective capacity of student teachers in a number of different ways (see sections 2.10.1 and 2.10.3), very few provide constructs that could be drawn upon to inform the direction of this research study. One goal of this study was to develop a framework, which could describe the nature of student teachers' reflective practice as they engaged in research to study their own teaching. Two research questions guided this study:

How can student teachers' develop reflective practice within the context of action research?

What qualitative distinctions in reflective practice can be drawn between student teachers?

A rationale for the selection of a qualitative case study approach to this research is outlined. It is an approach to educational research, which can be described both as interpretive and subjective; and, situated within the hermeneutic phenomenological approach to social science. As described by Max van Manen (1990: 1-2):

> When we raise questions, gather data, describe a phenomenon, and construct textual interpretations, we do so as researchers who stand in the world in a pedagogic way…pedagogy requires a phenomenological sensitivity to lived experience…a hermeneutic ability to make interpretive sense of the phenomena of the life world …[and]…play with language in order to allow the research process of textual reflection to contribute to one's pedagogical thoughtfulness and tact.

This signals the importance attached to recognising perceptions of reality and the way researchers' construct theories to explain those realities: issues that are explicitly addressed throughout this chapter, particularly in relation to the researcher's role as main research instrument [see Appendix E (i)].

Based upon the tradition of research techniques commonly used within educational research, to explore the nature of human experience and awareness in order to understand their conceptions of reality (Marton and Booth, 1997), this study makes use of questionnaires and semi-structured interviews so that research participants can externalise their perceptions and thinking about a range of situations in relation to the action research enterprise. The general goal was to develop an understanding of the range and frequency as well as the qualitatively different ways in which research participants' think about (conceptualise) the phenomenon of interest (reflective practice); which are often referred to as 'categories of description' (Marton, 1986; Marton *et al,* 1997). The scarcity of research studies, which have examined reflective practice within similar categories identified for this purpose, gives this study a degree of authenticity. This chapter is organised as follows:

- Approaches to research
- Qualitative case study approach
    - Conceptual framework of reflective practice
- Sampling
- Research techniques used in educational research
- Selection and design of research techniques used in this study
- Data analysis
- Summary

4.2 Approaches to research

Approaches to research fall within two major traditions which can be distinguished on the one hand, by differing viewpoints about the role and placement of theory, and on the other, by the relationship to, and sequence of, events and activities which are involved (Cohen, Manion and Morrison, 2000: Coleman and Briggs, 2002). One tradition proposes that all relevant data must be collected before the analysis begins whereas the other interweaves data collection with ongoing analysis. The former tradition includes approaches, which have variously been termed experimental, positivist, quantitative and scientific and those of the latter, as action research, case study, ethnography, interpretive, naturalist and qualitative. The key characteristics and assumptions underpinning each tradition are summarised in Table 4.1.

In essence, the positivist approach attempts to apply a theory to the research context and examine how applicable it is – to compare a model of reality (the theory) with reality (Burton, 2007). The relationship with an evidence base tends to link the positivist approach to quantitative research in that the research focus and measurement of variables are

concerned with the nature of causality. Also referred to as experimental design, this approach is concerned with trying out new ideas or techniques both to observe what

Table 4.1: *Key characteristics and assumptions underpinning positivist and interpretive approaches to research*

Positivist approach	*Interpretive approach*
Assumptions: • Social facts have an objective reality • Primacy of method • Variables can be identified and relationships measured • Etic (outsider's point of view) **Purpose:** • Generalizability • Prediction • Causal explanations **Approach:** • Begins with hypotheses and theories • Manipulation and control • Uses formal instruments • Experimentation • Deductive • Component analysis • Seeks consensus, the norm • Reduces data to numerical indices • Abstract language in write-up **Researcher role:** • Detachment and impartiality • Objective portrayal	**Assumptions:** • Reality is socially constructed • Primacy of subject matter • Variables are complex, interwoven and difficult to measure • Emic (insider's point of view) **Purpose:** • Contextualization • Interpretation • Understanding actor's perspectives **Approach:** • Ends with hypotheses and grounded theory • Emergence and portrayal • Researcher as instrument • Naturalistic • Inductive • Searches for patterns • Seeks pluralism, complexity • Makes minor use of numerical indices • Descriptive in write-up **Researcher role:** • Personal involvement and partiality • Emphatic understanding •

(adapted from Glesne and Peshkin, 1992: 7)

happens and gauge what effect, the impact might have on something else. Although different approaches to research can share the common goal of providing evidence about causal relationships, the scientific approach is frequently cited as the most appropriate for establishing *causal* relationships. Robson (2002: 78) for example, describes experimental research as:

- the assignment of subjects to different conditions;

- manipulation of one or more variables (called 'independent variables') by the experimenter;
- the measurement of the effects of this manipulation on one or more other variables (called 'dependent variables'); and
- the control of all other variables.

The extent to which this type of scientific approach is appropriate to the study of people in the social sciences, however, does need careful consideration. The key assumption in experimental research design is that factors operating under the 'closed system' of the study also operate in the 'open system' of nature (Bhaskar, 1978). Although Locke (1986) endorses this view and suggests that the generalisability of findings from laboratory to real world settings is considerable, Wilson (1979:22) challenges this stance and argues that social causes do not operate singly, rather the outcome [e.g. in reference to an examination of high IQ or low school achievement] is the product of multiple causes and:

> to isolate each cause requires a new experimental group each time and the length and difficulty of the experiment increases rapidly. It is possible to run an experiment in which several treatments are put into practice simultaneously but many groups must be available rather than just two … causes of social phenomena are usually multiple ones and an experiment to study them requires large numbers of people often for lengthy periods.

By contrast, the interpretive approach to research recognises the integration of research within the research environment and endeavours to 'explore the 'meanings' of events and phenomena from the subjects' perspectives' (Morrison, 2002:18). An important consideration for this study was that the process of interpretation must be made transparent 'in all statements concerning reality' (Spinelli, 2005: 7) as evidence collected by interpretive researchers is qualitative in nature and offers a rich, 'thick description' (Geertz, 1973) of the research environment as a unique context. Thus, 'the art of reading a text' within the hermeneutics, has implications both for the interpretation and representation of others' perceptions 'so that the intention and meaning behind appearances are fully understood' (Moustakas, 1994: 9).

While the positivist approach imposes a focus and direction on the research, the interpretive approach is driven by the research participants and thus it could be argued, adopts a more holistic perspective from which to examine complex phenomena. These distinctions however are based on certain assumptions: notably, that positivist researchers approach their task from a sound knowledge base and work with concepts already in existence whereas interpretive researchers embark upon a journey of exploration without a

knowledge base, from a *tabula rasa*. Robson (2002) reminds us that 'real world enquiry' is far from simplistic and suggests that our interpretation of these approaches require some rethinking. He endorses the view of Bryman (1993: 172) in that many differences between the two traditions reside more in the minds of theorists and philosophers than in the actual practice of researchers as:

> the suggestion that quantitative research is associated with the testing of theories, whilst qualitative research is associated with the generation of theories, can … be viewed as a convention that has little to do with either the practices of many researchers within the two traditions or the potential of the methods of data collection themselves.

Although some topics and situations can effectively be researched using a positivist or an interpretive approach, Bryman (1993; 173) suggests there are others, which 'will be even better served by a marriage of the two traditions'. Each tradition uses different methods of data collection: *quantitative* research for example is concerned with gathering facts and figures for the purpose of statistical analysis whereas *qualitative* research seeks to gain an understanding and insight into individuals' experiences or perceptions. Although both forms of data collection are used in this study, the latter approach to research captures the main purpose and direction of this study, for which a particular type of qualitative case study approach has been adopted.

4.3 Qualitative case study approach

Stake (1995) suggests a case study is not a methodology, but rather it is something to be studied. Although a case study is often associated with an in-depth empirical investigation of an individual person, in a particular timeframe and within a particular context, this study used the case study approach in a wider sense to investigate the research participants' perceptions of a specific group of student teachers' reflective practice. Yin (2003: 13) in part, defines a case study as an empirical study used to investigate 'contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'. In this study, the phenomenon under investigation was reflective practice and the context incorporated the student teachers' action research experiences. This study was therefore defined by a number of student teachers from one university degree programme and year group, who engaged in research with a number of pupils in classes in a number of schools. This, in turn, was defined by a number of dissertation supervisors and the groups of student teachers they had supervised.

Boundaries for this case study were thus realised in terms of the university, dissertation supervisors, student teachers, schools and pupils within specific classes.

Yin (2003: 14) suggests a case study benefits from 'prior development of theoretical propositions to guide data collection and analysis'. Similarly, Robson (2002: 150) proposes that a relatively structured conceptual framework aims to 'encourage you to be explicit about what you think you are doing. It also helps you to be selective, to decide which are the important features; which relationships are likely to be of importance or meaning; and hence, what data you are going to collect and analyse'. The review of literature in chapter 2 revealed that reflective practice is a complex, multi-faceted phenomenon, which for the purpose of this study has been defined as: *a disposition to enquiry incorporating the process through which student teachers' structure or restructure actions, knowledge, theories or beliefs that inform teaching for the purpose of personal professional development.* The review of literature also revealed that research studies, which sought to examine the development of student teachers' reflective practice within initial teacher education were extremely diverse, and within physical education teacher education were particularly scarce. What also became apparent, in order to address the questions, which underpin this research study, was the need to structure an appropriate conceptual framework, as nothing suitable was found.

4.3.1 Conceptual framework of reflective practice

Several stages were involved in designing the conceptual framework tailored specifically for this study. First, it was necessary to unpack salient features of each stage of the action research process, which could provide the focus and content of student teachers' reflective activity e.g. from justifying the purpose behind selecting a particular research topic to reflecting on the impact of a particular intervention strategy to inform future planning (as exemplified in McKernan's (1996) model of action research in section 3.6, also section 2.8).

Second, the attributes associated with reflective attitudes (Dewey, 1933), professional development (Day, 1999) and of becoming an extended professional, advanced by Eraut (1994) and Stenhouse (1975, 1983) in section 2.9, were particularly significant as these were found to have resonance with the salient features identified to characterise reflective practice within the action research paradigm, as student teachers' study their own teaching to improve the effectiveness of personal practice. To this, Stenhouse (1975) adds that the outstanding feature of extended professionals is their capacity and commitment to engage in autonomous self-development through systematic self-study.

From these points of departure, characteristic features of reflective practice, which could be manifested by student teachers within the context of action research as they strive toward becoming extended professionals were identified, unpacked and organised into nine categories. Specifically, these categories refer to the extent in which student teachers' can demonstrate the capacity and commitment to:

> study their own teaching for personal improvement;
> systematically evaluate their own teaching through classroom research procedures;
> link theory with their own practice;
> test a personal belief or theory;
> consider alternative perspectives and possibilities;
> try out new strategies and ideas;
> enhance the quality of pupil learning;
> critically reflect on their own teaching;
> continue to improve their own teaching.

These categories were situated within a framework, which serves to capture and illustrate the dimensions of reflective practice in which student teachers can demonstrate capacity and commitment as they engage in research to study their own teaching, as exemplified in Figure 4.1. Each dimension provides a specific focus for investigating research participants' perceptions of how student teachers' develop reflective practice within the context of action research. Although these dimensions might not appear to have well-defined boundaries given the complex, interdependent nature of variables, which abound in the context of *teacher as researcher* (Hopkins, 2002), they have been separated out to map their salient features in relation to the development of student teachers' reflective practice.

In order to address the second research question, which sought to examine what qualitative distinctions in reflective practice can be drawn between student teachers in relation to each dimension of reflective practice, a second frame of reference was necessary.

The review of literature in Chapter 2 (in addition to Table 2.1) reveals that a number of scholars, teacher educators and researchers (Baxter-Magolda, 1999; Carr and Kemmis, 1986; Ghaye and Ghaye, 1998; Grimmett *et al*, 1990; Hatton and Smith, 1995; Jay and Johnson, 2002; King and Kitchener, 1994; LaBoskey, 1993; Lee, 2005; McCormack, 2001; Moon, 2005; Valli, 1992; van Manen, 1977; Zeichner and Liston, 1996) propose the use of a range of models to distinguish between different forms and levels of reflection. A common thread found to run through the various models was that qualitative distinctions in reflective practice could be recognised in the types of discourse student teachers' engage in, dependent upon the focus and content of their reflective conversations. Most models

were found to divide the focus and content of reflective conversations into three categories: descriptive, comparative/interpretive and critical reflection.

Figure 4.1 *Dimensions of reflective practice in which student teachers can demonstrate capacity and commitment*

Consider alternative perspectives and possibilities

Test a personal belief or theory

Try out new strategies and ideas

Link theory with their own practice

Enhance the quality of pupil learning

Systematically evaluate own teaching through classroom research procedures

Critically reflect on their own teaching

Study their own teaching for personal improvement

Continue to improve their own teaching

Reflective practice is defined as a disposition to enquiry incorporating the process through which student teachers structure or restructure actions, knowledge, theories or beliefs that inform teaching for the purpose of personal professional development

1 2 3 4 5 6 7 8 9

DIMENSIONS OF REFLECTIVE PRACTICE

Underpinning the different types of discourse student teachers engage in were assumptions concerned with the process of knowing (view of knowledge) and of how that knowledge is acquired (justification of beliefs) as exemplified in King and Kitchener's (1994) model of reflective judgement in addition to Baxter Magolda's (1999) progressive stages of epistemological cognition, as student teachers' move from the dualist to relativist position of contextual knowing. Based upon these theoretical constructs and the typology of reflection advanced by Jay and Johnson (2002) in Table 2.3, a framework was devised to illustrate qualitative distinctions, which can be drawn between student teachers in relation to the types of question and reflective conversations they engage in.

Appendix E (ii) presents a frame of reference for drawing qualitative distinctions in, and between, student teachers' reflective conversations as they engage in discourse about their action research experiences, and identifies definitions and typical questions that can be aligned to each type of reflective conversation. It also provides an account of how the descriptive, comparative and critical reflective conversations were interpreted in this study and identifies where conceptual and theoretical underpinnings advanced by scholars, teacher educators and researchers discussed throughout chapter 2, have been situated.

When this framework is superimposed onto Figure 4.1, it gives rise to a nine by three matrix, which highlights qualitative distinctions that can be drawn between the types of reflective conversation used by student teachers within each dimension of reflective practice, as exemplified in Figure 4.2. This particular model has been constructed to examine interview transcripts derived from a sample of the student teachers and will be discussed further in the data analysis section.

During the process of designing and shaping this framework, the researcher held numerous discussions with two professional colleagues who had led the action research module in previous years and who assumed the role of dissertation supervisor for some of the student teachers featured within this study. Also, discussions were held with the researcher's own principle supervisor. This procedure was followed not only to derive insights advanced by professional colleagues who were knowledgeable and experienced within the field but also to ensure that the researcher's particular perspective and stance was open to scrutiny and challenge and not merely imposed onto the framework.

Figure 4.2 *Qualitative distinctions which can be drawn between types of reflective conversation used by student teachers*

Reflective practice is defined as a disposition to enquiry incorporating the process through which student teachers structure or restructure actions, knowledge, theories or beliefs that inform teaching for the purpose of personal professional development

DIMENSIONS OF REFLECTIVE PRACTICE
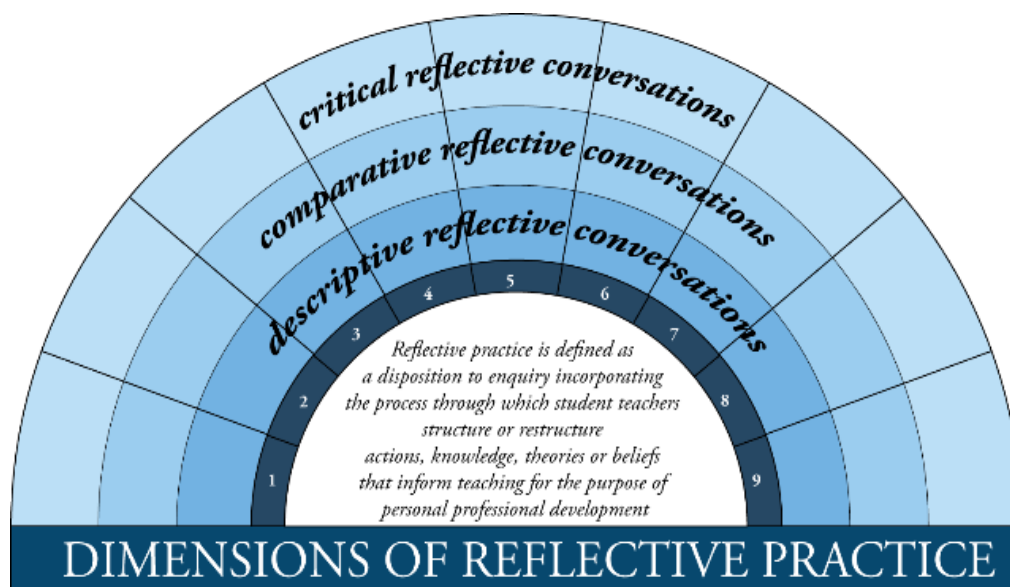
These frameworks also guided the construction of questionnaire and semi-structured interview questions which sought to investigate the development of student teachers' reflective practice within the context of action research. Thus, each dimension of reflective practice embedded within the framework along with the student teachers' descriptive, comparative and critical reflective conversations, provided the theoretical lens for this enquiry in the analysis of data (see section 4.7).

The design of research instruments generated both qualitative and quantitative data. This was an important consideration as one disadvantage of the positivist approach is that the researcher's categories can often be based on personal theories, which may not be the same, or effectively probe, the research participants' understandings. This adds importance of the need to record and interpret those understandings at a qualitative level. Therefore, explanations were sought from research participants on the questionnaires and during semi-structured interviews to elicit reasons behind judgements they had made to most questions. The few pre-coded questions enabled research participants to record levels of importance or influence about factors they perceived as relevant, or otherwise, to their own experiences and to include additional factors as appropriate. Piloting the research instruments was also an important part of the design process, which is discussed fully in section 4.6.

Miles and Huberman (1994: 46) suggest the effectiveness of a case study is highly dependent upon the trustworthiness of the human instrument and that one needs 'some familiarity with the phenomenon and the setting under study; strong conceptual interests; a multi-disciplinary approach…good investigative skills…the ability to draw people out, and the ability to ward off premature closure'. However, this particular view is controversial as lack of familiarity with the setting and the importance of a strong disciplinary stance are more commonly advocated (Robson, 2002). Miles and Huberman (1994: 230) further add that 'each [qualitative researcher] is a one-person research machine: defining the problem, doing the sampling, designing the instruments, collecting the information, reducing the information, analysing it, interpreting it, writing it up'. The researcher explicitly details procedures that were followed in the design, implementation and analysis of this study so as to establish the integrity and trustworthiness of the researcher's role as main research instrument as this chapter unfurls, for example, how colleagues and practising teachers who had followed a similar programme to that of the student teacher research participants were drawn upon in the development and piloting of research instruments is fully explained in section 4.6.

A number of criteria can be drawn upon to establish the trustworthiness of the human instrument in relation to the qualitative case study approach to research. These comprise: *credibility, transferability, dependability* and *confirmability* (Lincoln and Guba, 1985: 294-301). Table 4.3 summarises major constituent components aligned to each of these criteria, which were drawn upon to guide the development of this study so as to minimise the risk of bias and potential flaws associated with researcher subjectivity.

The role of the qualitative researcher must embrace subjectivity, which Janesick (2004: 107) suggests is:

> something to be acknowledged and understood. Without understanding where one is situated in the research act, it is impossible to claim consciousness and impossible to interpret one's data fully. Meaning is constructed in the ongoing social relationship between the researcher and the participants in the study.

Although Willig (2001: 53) argues few researchers would claim the ability to totally free themselves of all assumptions, biases and prejudices, she suggests the attempt to bracket personal assumptions, biases and prejudices 'allows the researcher to engage in a critical examination of …customary ways of knowing (about) it'. This aspect of the research process recognises the subjective-objective orientation to investigation within phenomenology. In relation to the analysis of open-ended textual data, Hycner (1985: 282)

Table 4.2 *Establishing the trustworthiness of the human instrument*

Criteria	Major constituent components
Credibility	• Mixed methods approach: evidence from different perspectives, different methods of collecting data (Creswell, 2003; Mason, 2002; Yin, 2003) • Peer debriefing – exposing the design, analysis and conclusions to a colleague as the research progresses • Negative case analysis – searching for rival explanations before drawing conclusions • Member checks – seeking verification with those from whom data were gathered
Transferability	• Thick description – detailing everything the reader needs to know in order to understand the findings (Geertz, 1973; Hitchcock and Hughes, 1995; van Maanen, 1988) • Relatable – to studies that exhibit similar characteristics (Bassey, 1981, 1999; Bryman, 1993; Silverman, 2001)
Dependability	• Fulfils criteria related to credibility • Presents an 'enquiry audit' that documents procedures followed clearly and systematically and provides safeguards against potential bias (Miles and Huberman, 1994)
Confirmability	• Presents an 'audit trail' to assess whether findings emerge from the data e.g. raw data; processed and analysed data; codes, themes and patterns presented in the final report that reflect data reconstruction and synthesis; notes on the procedures used to design the study; personal justification of purposes behind the study; discloses how research instruments were designed, piloted and further developed to gather information (Hitchcock and Hughes, 1995)

(adapted from Lincoln and Guba, 1985: 294-301)

describes bracketing and phenomenological reduction as 'suspending…the researcher's interpretation and meaning and entering into the world of the unique individual'. In other words, to understand the textual data and explore the meanings embedded within research participants' responses from their perspective rather than impose meaning onto the text.

Several hallmarks noted by Hitchcock and Hughes (1995: 317) are of value to the interpretive and subjective nature of the qualitative case study approach to educational research, particularly when the researcher has limited control over events, include its concern to provide:

• a rich and vivid description of events relevant to the case
• a chronological narrative of events relevant to the case
• a blend of the description of events with the analysis of them
• a focus on individual actors or groups of actors to seek an understanding of their perceptions
• highlights of specific events that are relevant to the case
• an attempt to portray the richness of the case in writing up the report

In this study, questions posed to student teachers, both on the questionnaire and in the interview schedule, traced the sequential nature of the action research process from the

inception of their research focus, design of research instruments, modification/s to plan of action, ongoing account of experience, changes perceived in relation to teaching and pupil learning through to retrospective accounts of how the research experience was perceived to have influenced the development of their capacity and commitment to engage in reflective practice. Also, narratives of experience were drawn upon to illustrate the richness and diversity of experiences as expressed by the participants themselves, relevant to the central focus of this study to better understand how student teachers' develop reflective practice and what qualitative distinctions in reflective practice could be evidenced from the types of reflective conversation they engaged in.

Yin (2003: 14) suggests case studies rely on 'multiple sources of evidence'. Sources of evidence for this study were derived from questionnaires administered to student teachers and dissertation supervisors and interview transcripts derived from a sample of student teachers. One advantage of using a mixed method approach to data collection and analysis, as Creswell (2003: 15) notes, is that 'all methods have limitations…researchers felt that biases inherent in any single method could neutralise or cancel the biases of other methods'. The advantages and disadvantages of using specific research instruments is explored in section 4.5 and the use of either quantitative or qualitative research data inevitably has limitations, which is one reason the mixed methods approach has been used in order to reduce data bias and distortions. However, there are some disadvantages with the mixed methods approach to research as a vast amount of data can be produced and findings can be confusing, particularly when they seem inexplicably 'to be pointing in different directions' (Mason, 2002: 190).

The mixed method approach used for this case study, realised by gathering evidence from different perspectives and using different research instruments, serve to enrich and deepen the understandings of the researcher in relation to the research questions (Nisbet and Watt, 1984) and, to secure the credibility of this research. In large measure, quantitative data were sought to provide a broad picture of how student teachers' develop reflective practice within the context of action research across the population and qualitative data were sought to provide rich, more in-depth information and explanations of this development from a representative sample of student teachers.

Case studies can be undertaken which allow the research participants' lived experiences of, feelings for and thoughts about, situations and events speak for themselves as compared to largely being evaluated, judged or interpreted by the researcher. This finds

synergy with John van Maanen's (1988: 48) perspective on *narratives of experience,* which can be drawn upon to explore:

1. Textual identity: the native's point of view – direct quotes and statements from those studied to acknowledge their perspectives
2. Fragmented knowledge: events and practices of those studied are placed into themes and categories devised by the author
3. Characterisation: the author uses techniques of the short story writer to personalise the characters featured

In this study, narratives of experience, particularly those gathered from the sample of student teachers interviewed, were drawn upon to exemplify themes which emerged within each dimension of reflective practice and thus portray their authentic lived experiences, as perceived by them.

One challenge which could be raised in relation to the *crisis of legitimation* (Denzin and Lincoln, 2002: 578) questions the authority of the text and:

> the claim any text makes to being accurate, true and complete. Is a text…faithful to the context and the individuals it is supposed to represent? Does the text have a right to assert that it is a report to the larger world that addresses not only the researcher's interests, but also the interests of those studied?

Such claims are based within its own epistemological validity or extent to which, within itself, a text has upheld certain rules and procedures. This, however, is not a simple straightforward matter as there are different kinds of rules and procedures dependent upon the approach to research and theoretical assumptions (see Table 4.2). One criticism of qualitative research is the 'problem of an anecdotal approach to the use of data in relation to conclusions or explanations…such as brief conversations used to provide evidence for one contention' (Bryman, 1993: 77). According to Denzin and Lincoln (2002: 579) this dilemma suggests:

> every text must be taken on its own terms…the desire to produce an authoritative (valid) text is renounced, for any text can be undone in terms of its internal structural logic. The unmasking of validity-as-authority now exposes the heart of the argument. If validity is gone, values and politics, not objective epistemology, govern science.

Solutions to address such challenges as the *crisis of legitimation* have been realised in several ways. First, it was important to ensure the text fulfilled the rules for epistemological validity within the parameters selected; for example, it needed to be scrutinized on the basis of certain questions: Does the evidence presented address the research questions? Does it provide sufficient, relevant grounds for the reported findings? Such questions have been addressed by ensuring an 'audit and enquiry trail' (see Table 4.3) is readily transparent and clearly documents the procedures followed in the selection, design and implementation of

research instruments and, in the analysis of data to secure the confirmability and dependability of the research. Further, patterns and themes that emerged from research participants' qualitative responses were explored through negative case analysis to search for alternative explanations before conclusions were drawn. Also, as noted earlier, exemplars of patterns and themes were presented through direct narratives of experience using the research participants' actual words and explanations.

It has been argued that case studies are unique (Sturman, 1999) which suggests research findings: are not suitable for normal generalisation; are not 'reproducible' (Stake, 1995); and, do not contribute to the development of theory (Bassey, 1999). In reference to the nature of qualitative data, Burke, Johnson and Onwuegbuzie (2004: 20) claim that 'knowledge produced may not generalize to other people or other settings, that is, findings may be unique to the relatively few people included in the research study'. Denscombe (2003) argues that the extent to which findings from a case study can be generalised is dependent upon how far the case study is similar to others of its type. Support for this viewpoint is provided by Bassey (1981: 85), who in reporting the case study of a small primary school, suggests that *relatability* or 'extent to which the details are sufficient and appropriate for a teacher working in a similar situation to relate his decision making to that described in the case study' rather than *generalisability* is more important when analysing and reporting on the outcomes of a case study. Silverman (2001) adds that provided other professionals could achieve similar results if they have experienced similar training and possess similar interpersonal skills in this type of study, practices can be generalised. These views would suggest that findings from this study could be related to subsequent cohorts of student teachers following the same course structure within the university and school-based environments and be drawn upon for evaluative and comparative purposes. Also, this horizon could be extended to other institutions which seek to develop reflective practice within the context of action research, which supports Lather's (1986) notion of *catalytic validity*, in that, research outcomes can be empowering for a community of learners.

The chapter now turns to an exploration of sampling and research techniques used in educational research, and provides the underlying rationale for the selection of those used in this study.

4.4 Sampling

The full cohort of year 4 student teachers (n=80) and their dissertation supervisors (n=13) were participants in this study (see chapter 3). For this case study, the population of student

teachers was too large to manage for interview purposes and thus, measures were taken to select a sample of student teachers, which could represent the perspectives of, and diversity within, the population as a whole.

Types of sampling are commonly based on *probability (random)* samples and *non-probability (purposive)* samples. The former type is often referred to as representative sampling and allows for statistical inferences about the population to be drawn from responses derived from the sample. In the latter type of sampling, where the probability of the selection of each participant is not known, statistical inferences are not appropriate. Although it might be possible to present some reasonable conclusions about the outcomes of a research study these will not be based on statistical grounds (Robson, 2002).

A range of sampling strategies identified by Burton (2007); Cohen *et al*, (2000); Creswell (2003); Denscombe (2003); Opie (2004); Robson (2002); and Silverman (2001) which can be drawn upon to guide the selection of a research sample are summarised as follows:

- A *probability* sample draws randomly from a wider population. If the whole population is known it might be possible to perform a systematic sample of every n'th person on a list. However, this does not ensure that the random sample is representative. It may be necessary to divide the population into subsets to ensure a full representation of the population within the sample *(stratified sampling)* e.g. age, gender, ethnic group. Where there are very large numbers that need to be reduced to a more manageable figure, this can be achieved by *multi-level sampling*. A random selection is made from a sample that has already been randomly selected. Where the selection criteria change at each stage of the research process it is known as *multi-phase sampling*.

- A *non-probability* sample is often more convenient and less difficult to arrange although it is unlikely that it will be rigorously representative of the population as a whole. The most straightforward type is *convenience sampling* where those who are most accessible or in close proximity to the researcher become the sample. Also referred to as *accidental sampling* this strategy includes those individuals who volunteer to become research participants. *Quota sampling* is the non-probability equivalent to a stratified sample where proportions in the sample e.g. age, gender, and ethnic group are the same as in the population as a whole. It may be possible to individually select a sample to represent the population *(purposive sampling)* by using criteria that reflects diversity evident within the population. Although this strategy has resonance with quota sampling it differs by seeking participants who exhibit unique or exceptional characteristics. Another

approach is known as *snowballing* where an initial small group of participants are invited to recommend other potential participants.

For this study twelve student teachers were selected from the population of student teachers (n=80) for interview purposes. This sample size was chosen for two reasons. First, this size was considered sufficient to arrive at a point where further interviews would cease to provide additional insights (National Centre for Social Science Research, 2005) and second, would be manageable for conducting interviews in the time frame allocated for this purpose.

Two non-probability sampling strategies were initially drawn upon to select the research sample. Purposive sampling was used to identify twelve student teachers whose action research projects were representative of the diverse range of research areas within the population; which represented the full range of data collection techniques used by student teachers; and, student teachers who had been guided by different dissertation supervisors. Quota sampling was used to identify six male and six female student teachers, which approximated gender balance within the population. However, convenience sampling also played a part in the selection procedure, as three of the twelve student teachers approached for interview purposes were unavailable during the interview period. Thus, although three of the twelve student teachers were volunteers, care was taken to ensure gender balance and, as far as possible, range of action research topics; data collection techniques and dissertation supervisors were represented.

These sampling strategies were based on the premise that responses derived from the sample were representative of the population as a whole and subsequent findings could be *generalised* across the whole population from which they had been drawn (Robson, 2002); and, *related* to other populations of similar background which engaged in similar experiences (Bassey, 1981). Table 4.4 provides a profile of each student teacher selected for interview purposes and thus who comprised the research sample. It also introduces the codes used throughout this study to identify student teachers, the sample of student teachers and the dissertation supervisors:

- st – student teacher within the whole student teacher population
- ssi – semi structured interview sample student teacher
- ds – dissertation supervisor

Table 4.3 Profile of student teachers selected for interview purposes who comprised the research sample

Interview sample	Student teacher	*Gender*	Action research topic, area of physical activity, pupil year-ability-gender groupings	Data techniques utilised	Dissertation supervisor
ssi1	st1	M	Formative assessment to promote pupil learning – football – year 7 - mixed ability - mixed gender	Pdi, Pint, Obsch,	ds6
ssi2	st2	F	Teacher feedback to enhance pupil performance – netball – year 7 - mixed ability – girls	Pqu, Obsch, Stj	ds12
ssi3	st5	M	Resource based learning to develop pupils' practical skills – rugby – year 7 - low ability – boys	Pev, Obsch, Stj	ds4
ssi4	st12	F	Grouping strategies to enhance pupils' self-esteem – gymnastics – year 8 - mixed ability - girls	Pint, Pqu, Obsch	ds8
ssi5	st17	M	Strategies to reduce low-level disruption to promote on task behaviour and pupil learning – rugby – year 7 – mixed ability – boys	Pqu, Fobs, Stj, Vcr	ds13
ssi6	st24	F	Motivating pupils to increase their participation – health related exercise – year 10 – low ability – girls	Pqu, Pdi, Pint, Obsch	ds7
ssi7	st25	F	Differentiation by teaching styles to promote pupil learning and performance – hockey – year 9 – gifted, able and talented – girls	Pqu, Obsch, Stj, Tqu	ds2
ssi8	st47	F	Teaching methods to increase pupils' physical activity time – netball – year 7 – mixed ability – girls	Pqu, Obsch, Stj	ds9
ssi9	st49	M	Positive feedback to increase pupils' performance – gymnastics – year 7 – mixed ability – mixed gender	Pqu, Obsch, Stj, Vcr	ds4
ssi10	st54	F	Resource based teaching to improve participation – netball – year 8 – ADHD and low ability – girls	Pqu, Pint, Fobs, Stj	ds13
ssi11	st63	M	Differentiation by task to increase pupil performance – rugby – year 9 – mixed ability – boys	Pqu, Obsch, Stj	ds1
ssi12	st71	M	ICT strategies to promote pupil learning – gymnastics – year 8 – mixed ability – mixed gender	Pqu, Tqu, Stj, Pev, Vcr	ds3

Key to data collection techniques:

- Pdi   pupil diaries   Obsch colleague/peer observation schedules   Stj student teacher personal journal or fieldnotes
- Pint pupil interviews   Fobs   colleague/peer focused lesson observations   Vcr videotape recording
- Pqu   pupil questionnaires   Tqu   colleague/peer questionnaire
- Pev   pupil evaluations

4.5 Research techniques used in educational research

To examine perceptions of the development of student teachers' reflective practice within the context of action research, a number of research technique options might seem to be open. Within educational research, the range of techniques commonly used for gathering qualitative and quantitative data includes: diaries, documentary analysis, interviews, observations and questionnaires (Bryman and Burgess, 1994; Cohen *et al*, 2000; Denscombe, 2003; Denzin and Lincoln, 2002; Mason, 2002; Opie, 2004; Robson, 2002; Silverman, 2001). This section provides an overview of characteristic features, advantages and disadvantages of these data collection techniques.

4.5.1 Diaries

Also referred to as personal journals and field notes, diaries can be used for several purposes: to record 'critical incidents' (Robson, 2002), personal thoughts, views, perceptions and feelings about specific issues, topics, areas of interest and to reflect upon these issues. However, where participants fill in personal journals or some other account for a specific research study which is amenable to content analysis it is not an unobtrusive technique and the fact that the participant is filling in a journal for research purposes may alter their behaviour in some way, thus, there can be a possible 'reactive effect' (Robson, 2002). McKernan (1996) distinguishes between three types of diary individuals can maintain in educational research and identified several advantages and disadvantages associated with using this technique as summarised below:

- Intimate journal – a personal diary to record events on a day-to-day basis
- Log book – used regularly to summarise key happenings and events
- Memoir – entries made infrequently which allows time to reflect on events and interpret them more objectively

Advantages

- Regular and systematic recording of events capture immediate thoughts, perceptions and feelings of individuals without distortion
- Regular entries reduce risk of forgetting information
- Enables researcher to access data which ordinarily reside in the private domain
- The researcher can monitor and refer back to personal thoughts, views, perceptions and feelings over a given time frame

Disadvantages

- Participants need to exercise a level of commitment to sustain entries during the research period
- Opportunities to generalise findings can be limited as entries reflect individual participants' perceptions and interpretations of events

- When recorded events are shared between research participants anonymity can be compromised

4.5.2 Documentary analysis

In educational research, documents are often used as a means of triangulating information from other sources and can be used to supplement information gathered by other research techniques when the reliability of data gathered from questionnaires or interviews is checked (Bell, 2005). Research participants, for example, can provide a perspective on what is happening, senior managers can provide a perspective on what they think is happening and the document (the policy) can provide information on what should be happening in specific circumstances. In this way, the document provides a perspective that acts as a 'base line' against which other perceptions can be compared (Burton, 2007; Cohen *et al*, 2000). Personal documents can also be used for wider theoretical purposes such as, the generation or verification of a theory (Cohen *et al*, 2000).

Documentary analysis is an indirect rather than a direct research technique and can be an unobtrusive measure, as the nature of the document is not affected by the fact that it is being used. Documents provide two types of information: witting and unwitting. Witting evidence is information the author intended to convey whereas unwitting evidence is information, which can be gleaned from the document due to the use of language, omission or style the author had not necessarily intended to convey (Burton, 2007; Robson, 2002). The advantages and disadvantages of documentary analysis can be summarised as:

Advantages

- Documentation within educational establishments is usually abundant, informative and easily accessible
- Information can be gathered retrospectively
- Data gathered can be more reliable than data gathered using other research techniques

Disadvantages

- Analysis of data can be time consuming
- The document was created for a specific purpose and not structured with the needs of the researcher in mind
- Information can be biased and inaccuracies might be prevalent
- Confidentiality of information can be compromised

4.5.3 Interviews

Interviews can be conducted face-to-face or by some form of communication technology such as a telephone, web 'chat room' or video conferencing (Burton, 2007) and is one

survey technique that can 'play a vital part in the systematic practice of finding out or researching information and exploring many aspects of the social world' (Allison, 1999: 100). Interviews can be used to explore how individuals construct their views of the world, make sense of their experiences (Brown and Dowling, 1998) and explore their thinking (Cohen and Manion, 1994). An interview is a type of conversation 'initiated by the interviewer for the specific purpose of obtaining research-relevant information and focused by him on content specified by research objectives of systematic description, prediction or explanation' (*ibid:* 307). There are three main types of interview: structured, semi-structured and unstructured which can be summarised as:

Structured interviews allow the interviewer to work through an interview schedule usually composed of closed questions, which limit response options of the interviewee. The interviewing process ensures full completion of responses and allows the interviewer to work through a large schedule on a 'critical path' basis (Burton, 2007; Powney and Watts, 1987; Radnor, 1994; Robson, 2002). One disadvantage of this approach is, with such limited flexibility, data may lack evidence which is pivotal to the research and questions asked may not offer a sufficient range of responses to gain a fully comprehensive overview of the topic (Denscombe, 2003; Wragg, 1978).

Semi-structured interviews offer a more flexible style, which can be used to collect information equivalent to that of structured interviews. The researcher usually begins by identifying a number of key questions that not only elicit specific types of response, but also act as prompts. Further probing can be used to ensure the interviewee understands the questions. 'Prompts enable the interviewer to clarify topics or questions, whilst probes enable the interviewer to ask respondents to extend, elaborate, add to, provide detail for, clarify or qualify their response' (Cohen *et al*, 2000: 278) and thus contribute toward the 'richness, depth of response, comprehensiveness and honesty that are some of the hallmarks of successful interviewing' (*ibid*). A technique described by Oppenheim (1992: 111) as 'funnelling questions' helps to gain greater information about an area of interest by pursuing further questions around the same subject area or theme.

Unstructured interviews are the most flexible style and can allow the researcher to gather complementary evidence. This approach is generally used to explore an area in preliminary research, for people with access to specialised information or those able to provide a unique perspective on an issue (Burton, 2007; Robson, 2002). As the success of such interviews depends heavily on the dexterity and expertise of the interviewer it is important the interviewer has extensive knowledge of the subject area. This can be demonstrated

when the interviewer poses informed questions and adapts to the situation by reacting perceptively to new leads as they arise during the interview. The role of the researcher can be described as that of 'an active listener…rather than that of an interlocutor with a set of predetermined questions' (Denscombe, 2003: 114). In general, the main advantages and disadvantages of interviews can be summarised as:

Advantages

- Have potential to clarify questions, responses and misconceptions should they arise
- Can be a flexible, adaptable and spontaneous way of gathering information which enables the researcher to probe issues more deeply to provide rich, highly illuminating material or develop a particular line of enquiry that arose during the interview
- The interviewer controls the agenda and the time
- High response rate due to the presence of the researcher
- Non-verbal cues can convey messages which help in understanding the verbal response
- Data can be used to test a hypothesis, suggest new ones and identify variables and relationships for explanatory purposes

Disadvantages

- Lack of standardisation in the skill and experience of the interviewer can influence reliability and bias the results
- They are time consuming which can reduce the number of participants that, in turn, can bias the sample – further, time needs to be allocated for preparation, arrangements to visit, secure permission, confirm arrangements, reschedule, transcription, writing up notes and the subsequent analysis
- Interviewee is not anonymous
- Power relations between interviewer and interviewee can bias responses
- Can temporarily 'lift the respondent out of his own social context…so that he talks to, interacts with the interviewer in an unnatural manner' (Kerlinger, 1986: 387)

Although interviews are usually undertaken on a one-to-one basis research participants can be interviewed in groups. The main advantage of group interviews is they can elicit rich data as participants listen to one another talk. Further benefits identified by Cohen *et al* (2000) include: people are often less intimidated, feel more at ease and can freely engage in discussion; they are less time consuming than individual interviews; subsequent individual interviews can explore issues which arose from the group interview. Major disadvantages include: the 'results cannot be generalised, the emerging group culture may interfere with individual expression…the group may be dominated by one person and 'groupthink' is a possible outcome' (Fontana and Frey, 2000: 652).

4.5.4 Observations

An observation has been defined by Mason (2002: 60) as a research technique to generate data which involves 'the researcher immersing herself or himself in the research setting, and systematically observing dimensions of that setting, interactions, relationships, action events…within it'. Observations provide the researcher with first-hand data, as the researcher is working in the field and able to interpret evidence directly. The researcher can design proformas, which specifically outline what should be observed and how it should be categorised and recorded. This can however be influenced by 'the way people perceive what is being said or done' (Bell, 2005: 184). Observations can be undertaken overtly or covertly and the researcher can assume the role of a participant or non-participant observer (Robson, 2002). Mason's definition in part, characterises the role of the participant observer which is a research technique commonly used in ethnography. By contrast, the non-participant role is characterised by the researcher's detachment from those being observed. Observations can be video recorded to provide a permanent visual record of the phenomenon being observed (Cohen *et al*, 2000). The main advantages and disadvantages of observations can be summarised as:

Advantages

- They occur in natural settings and provide a range of rich contextual and situational information
- Social interactions and non-verbal behaviour can be recorded
- When video recorded the permanent record can be revisited in the researcher's own time and repeated viewings can lead to new insights
- A range of research questions can be addressed

Disadvantages

- Difficult to ensure objectivity when dealing with individual perceptions as the researcher's subjectivity can lead to variance when gathering data which can influence consistency of recorded information
- The behaviour of those being observed can give rise to atypical behaviour known as the 'Hawthorn Effect' particularly when using the video recorder brings another individual into the research environment
- When the observer is not known by research participants they can be intrusive
- Covert observations have ethical implications
- Can be time consuming which has human resource and funding implications
- Access and permission to observe can be a problem in light of child protection issues and privacy of information

4.5.5 Questionnaires

Oppenheim (1992) suggests questionnaires have probably been the most frequently used research technique for exploring opinions and views in educational research. As a type of survey, Bryman (1993: 104) describes the questionnaire as a means of gathering data 'in respect of a number of variables which are then examined to discern patterns and associations'. Surveys can be used for *descriptive* purposes to provide information about the occurrence and distribution of a wide range of 'people characteristics' and, *interpretive* purposes to provide suggestions and possible explanations to clarify what has been described (Robson, 2002).

The way questions are constructed is of considerable importance to the effectiveness of a questionnaire (Oppenheim, 1992). In formulating questions, for example, Burton (2007: 153) suggests the researcher must ensure they are:

- *clear* – questions are constructed simply and combining questions must be avoided

- *concise* – to minimise ambiguity and avoid information overload

- *accessible* – the language must be appropriate for participants and complicated grammar such as double-negatives should be avoided

- *unbiased* – questions must be structured impartially and leading questions that can bias responses must be avoided. Where possible, denotative rather than connotative language should be used

Several types of question can be incorporated into the questionnaire, which provide varying degrees of information (Bell, 2005; Burton, 2007; Cohen *et al,* 2000; Denscombe, 2003; McKernan, 1996; Oppenheim, 1992; Powney and Watts, 1987; Radnor, 1994; Robson, 2002; Silverman, 2001; Wragg, 1978). These are summarised as:

Closed questions give the participant definitive choices and limit responses to a 'yes' and 'no' format. Although these are very quick to answer and collate, they may not provide the full range of answers needed in some situations.

Multiple-choice questions offer a range of possible responses and are relatively quick to complete as the participant can tick an option rather than spend time writing. This method allows for a coherent collation of responses and can serve as a means for gauging the participants' *level* of agreement with a certain statement for example, *strongly agree – agree – disagree - strongly disagree*. This Likert scale approach has the advantage of enabling research participants not only to endorse certain statements but also can reflect the strength with which they hold a particular viewpoint or opinion. Multiple-choice questions however, may not offer essential nuances as the questions may not provide adequately comprehensive responses nor address reasons *why* participants have selected a given option.

Ranking questions require participants to place a list of alternatives in order of importance or preference. As with multiple-choice questions, these are relatively quick to answer and allow the researcher to gauge degrees by providing a frame of reference. However, answers may prove misleading as many choices may not apply to all participants yet will be included due to the ranking nature. One solution to this problem can be to include a 'check all that apply in order of importance/preference' (Burton, 2007) clause to minimise misleading data.

Open-ended questions allow the greatest degree of flexibility with responses as questions can be phrased in a way that enables participants to answer in their own words. Of all the types of question, open-ended questions allow for the greatest depth of response and quotations can be selected within data analysis for exemplification purposes to emphasise points. A note of caution however is open-ended questions might be too time consuming to be realistically manageable and too unstructured to gather consistent and coherent data.

When constructing the questionnaire and choosing types of question, Burton (2007: 154) suggests consideration should be given to the following:

- ease and speed of completion
- depth of response required
- nature and number of respondents
- nature of required information (factual - perceptions)
- ease of analysis (comparability and categorisation of the different responses)

In some cases, the questionnaire might not elicit all information the participant is able to provide, as it does not ask the right questions. Thus, it can be useful to ask the participant at the end for additional information they might offer on the subject, which has not been requested elsewhere.

A pilot study can be undertaken to measure validity and reliability of the questionnaire with a population that exhibits similar characteristics to those for whom the questionnaire is intended. This is one means through which occurrence of possible ambiguity between the researcher's interpretation of each question and those perceived by others can be checked to secure internal reliability and validity (Cohen *et al,* 2000; Denscombe, 2003; Hopkins, 2002) as 'what seems straightforward to the researcher may be baffling to another person not truly in the picture' (Wragg, 1978: 15). This is to ensure the questionnaire is 'fit for purpose': measures what it purports to measure and the extent to which results obtained can be repeated (Bell, 2005; Opie, 2004; Oppenheim, 1992).

Questionnaires can be administered in a number of ways. Postal questionnaires sent to participants for completion and return can be distributed to large populations, which provides opportunity for generalisations to be made. However, this type of survey: can be expensive which has implications for the size of the sample; can be influenced when the return rate is low; and, questions can be misinterpreted or not completed fully (Cohen *et al*, 2000; Hopkins, 2002; Opie, 2004; Oppenheim, 1992; Somekh and Lewin, 2005). Questionnaires can be administered to research participants' collectively or individually and the researcher can be present or absent for this purpose. The advantages of administering questionnaires to a large population when the researcher is present include: ease of distribution, completion at one time, high return rate, clarification of queries which might arise. Disadvantages associated with this type of administration include: participants can copy or be influenced by the answers of others, when present the researcher can potentially lead participants to respond to questions in a particular way (Bell, 2005; Cohen *et al*, 2000; Hopkins, 2002; Opie, 2004; Oppenheim, 1992; Somekh and Lewin, 2005). The main advantages and disadvantages of questionnaires can be summarised as:

Advantages

- a range of factual and attitudinal information can be gathered and analysed using basic or sophisticated statistical or qualitative analysis

- a large amount of information can be gathered in a short period of time

- relatively easy to administer, low cost and data can be gathered from a large number of people

- direct responses to direct questions can be obtained

- when anonymous participants can respond without fear of embarrassment or power relations

Disadvantages

- can generate large amounts of data which takes time to collate and analyse

- frequent low response rate and consequent bias

- lack of opportunity to correct misunderstandings or further probe responses

- where previously constructed questionnaires are not available they can be difficult to design, take time to pilot and similar populations for piloting purposes might be limited

4.5.6 Ethical issues in research with human participants

Ethical issues arise in research undertaken with human participants when the conduct of the researcher involves the interests and rights of others. By its very nature, research in the social sciences involves studying peoples' activities in one way or another. Research involving interviews or observations, particularly where veridical records are kept, on audio or video tape for example, may impinge on the confidentiality, privacy, convenience, comfort or safety of others. Such threats constitute ethical problems.

Many professions which undertake research with human participants have devised an ethical code of practice or set of principles, such as: the Revised Ethical Guidelines for Educational Research of the British Educational Research Association (BERA, 2004) and, the Code of Conduct, Ethical Principles and Guidelines of the British Psychological Society (BPS, 1997). These provide important benchmarks and reference sources in coming to recognise the researchers' responsibilities to protect the well being of research participants. For example, BERA (2004) provide guidance in relation to: Voluntary Informed Consent; Deception; Right to Withdraw; Children, Vulnerable Young People and Vulnerable Adults; Incentives; Detriment Arising from Participation in Research; Privacy; and, Disclosure. In support of these guidelines educational establishments will have ethical principles and procedures in place, for undertaking research with human participants in specific contexts.

Principles and procedures followed in the design and implementation of this study were those recommended by BERA (2004). Permission to undertake the research study with student teachers was sought from, and approved by, the university research ethics committee well in advance of engaging in any research activity. In the interests of anonymity, this documentation has not been included but is available by request.

Due to the nature of this study, it was necessary to identify key players throughout the data collection process, thus the origin of questionnaires and semi-structured interviews were not anonymous. Although this has potential to influence the way questions in the questionnaires and semi-structured interviews were answered (Bryman and Burgess, 1994; Cohen *et al,* 2000; Elliott, 2005; Hopkins, 2002; Miles and Huberman, 1994), a number of measures were put in place to minimise the risk of bias.

All research participants were informed about the purpose and direction of this study and given the opportunity not to be involved, not to disclose their identity and, that they could withdraw from the study at any time. They were assured that pseudonyms and codes would be used throughout the study to secure anonymity and confidentiality and that all data gathered for the study would be stored securely and not held in the public domain. Also, they were assured that their decision to participate or not participate in this study

would in no way influence the assessment of their action research report or relationship with the researcher. These were important considerations, particularly in terms of the influence that power relations and coercion can often impose upon research partcipants. As a consequence, all student teachers agreed to participate in this study in terms of the purposes for which it was intended and appropriate permission was secured well in advance, in accordance with appropriate ethical procedures and protocols (BERA, 2004). A similar approach was followed with dissertation supervisors and consent was sought from and secured by all those who had guided the student teachers' research experiences.

4.6 Selection and design of research techniques used in this study

This section discusses the research techniques chosen for use in this study and justifies why those selected were considered the most suitable in order to answer the research questions.

Substantive research studies in the area of reflective practice in initial teacher education, particularly within the field of student teacher physical education, are extremely scarce. The purpose of this study was to investigate the development of student teachers' reflective practice within the context of action research and reflective practice was defined as: *a disposition to enquiry incorporating the process through which student teachers structure or restructure actions, knowledge, theories or beliefs that inform teaching for the purpose of personal professional development.* Data were sought in relation to a number of dimensions, which have explicitly been linked to reflective practice (see section 4.2) in order to respond to the following research questions:

- *How can student teachers' develop reflective practice within the context of action research?*
- *What qualitative distinctions in reflective practice can be drawn between student teachers?*

As one goal of this study was to gather data, in relation to perceptions of the development of student teachers' reflective practice, from a substantial number of research participants and within a number of dimensions of reflective practice, questionnaires were considered the most appropriate research technique to use for part of the study. Although this technique limits the depth of response that can be realised, careful construction of questions and selection of question types was undertaken to provide information pertinent to the research questions. In seeking the research participants' perceptions of the extent to which certain reasons and factors might have influenced decision making and the ongoing development of research, rating scales and multiple choice questions were constructed. Also, open-ended questions were used which enabled participants to provide explanations in support of their responses. This gave rise to in-depth contextual information, which

could be used to exemplify why some aspects within the dimensions of reflective practice were more prevalent than others.

Although qualitative responses derived from questionnaires can yield some evidence and explanations in support of responses made to open-ended questions, they do not necessarily provide participants with an opportunity to explain all possible reasons behind a given response. To gain further depth behind the questionnaire responses, interviews were selected as a research technique and undertaken with a sample of student teachers. As noted in section 4.5.3, some advantages of interviews are that they provide a flexible and adaptable way to gather information, which allows the interviewer to probe issues more deeply to provide rich, illuminating material and develop a particular line of enquiry, which might have arisen during the interview. The most appropriate style of interview to realise this aim was the semi-structured interview as by 'funnelling questions' (Oppenheim, 1992) it was possible to pursue an area of interest by asking additional questions around the same theme. Through such discourse, the narratives of experience of those interviewed were captured and both the contextual and situational facets of their experiences could be better understood (Elliott, 2005).

Another feature of semi-structured interviews, which supports the purpose behind this study, was that key questions were constructed and backed up by prompts to steer the line of enquiry and complement questions featured on the questionnaire. Thus, in order to achieve consistency between questions asked on the student teacher questionnaire and those asked on the interview schedule, in addition to providing the sample of student teachers with an opportunity to explain more fully the reasons behind their responses, semi-structured interviews were selected. As noted in section 4.4, the sample was selected on the basis of specific criteria that were identified in the student teachers' questionnaire responses. Therefore, for the purpose of this study questionnaires were not anonymous and the potential this has to bias research findings is considerable. Measures taken to reduce and minimise this risk are fully explained in subsequent sections.

Thus, in order to realise the purpose of this study, questionnaires and semi-structured interviews were constructed to generate both quantitative and qualitative data, although an emphasis was placed on a more qualitative approach to this enquiry. Data were gathered from all year 4 student teachers that had engaged in action research to study their own teaching and a sample of student teachers from this population. Data were also gathered from all dissertation supervisors who had guided the year 4 student teachers through their research. The following instruments were designed for the research participants:

- Questionnaire 1 - student teachers (n=80)
- Semi-structured interviews - sample of student teachers (n=12)
- Questionnaire 2 - dissertation supervisors (n=13)

Table 4.4 illustrates the stages, which were involved in the collection of research data.

Table 4.4 **Stages and timing of data collection**

Stage One: Questionnaire 1 – Appendix F

| Student teachers | (n=80) | March 2005 |

Stage Two: Semi-structured interviews – Appendix G

| Sample of student teachers | (n=12) | April 2005 |

Stage Three: Questionnaire 2 – Appendix I

| Dissertation supervisors | (n=13) | June 2005 |

4.6.1 Stage One: Questionnaire 1

The purpose of this study was to investigate the development of student teachers' reflective practiced within the context of action research; as no existing questionnaires appropriate to the focus of this study were found it was necessary to design one. The review of literature (see chapter 2) revealed that reflective practice is a complex multi-dimensional phenomenon and section 4.2 explains how reflective practice was defined and captured within a framework designed for this study.

Underpinning the dimensions of the reflective practice framework is the link that can be drawn between student teachers researching their own teaching and striving to develop the attributes that characterise extended professionals (Eraut, 1994; Stenhouse, 1975). Therefore, a number of questions were constructed which sought to capture the thinking which guided the student teachers' decision making, reasoning and professional judgements during each stage of the research process: from selecting their research area, designing and

implementing their study to evaluating the outcomes of their own research experiences. Ten standardised questions were developed for this purpose, which trace stages of the research process. These are summarised as:

1. What was the focus of your research?
2. What reasons influenced your decision to focus on this particular area?
3. What data collection methods did you select, for what purpose and why?
4. What factors influenced the ongoing development of your research?
5. Will you be a more effective teacher in the area researched?
6. Can you apply the process of reflecting on one aspect of your teaching to other areas?
7. Are there areas of teaching you would be interested to research further by reflecting on practice?
8. Has reflecting on practice influenced your teaching; pupil learning; motivation to search for, and ability to critically reflect upon, reasons behind the outcomes of your teaching?
9. What aspects of the action research experience have been valuable and would you have liked this experience earlier in the degree course?
10. Has your research made an impact on staff within your placement school?

From this springboard, a first draft questionnaire was designed following discussions with professional colleagues and piloted before converging on the final version.

The questionnaire designed and used for student teachers is presented in Appendix F. The range of question types included: closed, multiple choice, ranking and open-ended. Closed questions were based on a 4-point Likert scale, phrased as either *yes (all) – yes (some) – not sure – no (none)* or *definitely yes – probably yes – probably no – definitely no*. Multiple-choice questions included the column 'tick if applicable'. Ranking questions were used to gauge either the order of importance or level of influence, for example, from *high* (5) to *low* (1). Other than questions 1, 2 and 4 open-ended responses were sought from questions 3, 5, 6, 7, 8, 9 and 10 in addition to their sub-divisions, for explanatory purposes.

The range of question types therefore generated both quantitative and qualitative data for analysis.

4.6.1.1 Pilot study of questionnaire 1

The questions featured on questionnaire 1 evolved over several months (September 2004 through February 2005) and were preceded by two earlier versions, which had been piloted with fifteen people. Twelve of these were newly qualified teachers who had graduated from the same university course in the previous year and had themselves undertaken an action research project under circumstances similar to those of the student teachers involved in this study. The other three were university colleagues who had direct involvement in the action research project within their role as dissertation supervisors to a number of the

student teachers. Two of these lecturers have led this particular action research module in previous years.

For each pilot phase, feedback about the clarity and appropriateness of each question in terms of its focus, use of language, style of question, relevance and internal coherence was sought. Feedback was also requested in relation to whether the questions selected were accessible to research participants and the language used and sequential ordering did not lead student teachers in any way. Piloting this instrument provided opportunity to gauge the extent of responsiveness to questions within the questionnaire and ensure that the final layout was clear. Exemplars of refinements made to earlier versions of Questionnaire 1 in response to feedback received include:

- the addition of several factors to question 4
- deletion of the neutral cell from questions 5 through 10: from a 5 to a 4 point Likert rating scale to avoid neutrality
- the division of question 8 into four discrete sub-sections

This procedure was followed to establish 'fitness for purpose' and minimise the risk of researcher bias.

4.6.1.2 Administration of questionnaire 1

Data collected from student teachers were undertaken after they had completed an extended 14-week final school teaching placement. It was their final semester of initial teacher education and hallmarked by major and minor practical and theory module options along with a compulsory professional studies module, which was delivered to the whole year group and designed to prepare them for entry into the profession (see Appendix B (i)). Due to the competing pressures and priorities of student teachers, not only of their university commitments, but also of their growing concern to search and apply for jobs, the preparation for and planning of data collection was 'time sensitive'.

Questionnaire 1 was completed by student teachers during scheduled lecture/seminar hours (March 2005) and no time restrictions were imposed. The purpose of the study and BERA's (2004) guidelines pertaining to confidentiality of data, informed consent and the right to withdraw were clearly explained to student teachers. As one purpose of this questionnaire was the need to select a sample of student teachers for semi-structured interviews, they were asked to include their names so that they could be identified and subsequent anonymity was assured. This session was undertaken two weeks prior to the submission of their written action research report and thus was considered opportune in

terms of one of the student teachers more immediate priorities. They were assured that this research study was totally independent from the internal process of assessing their written report and that personal grades would not be influenced in any way. This clarification was important in order to reduce the risk of student teachers feeling coerced to participate in this study or that power relations might be used in someway to influence the grade of their own research – factors which have potential to bias and distort their responses.

A quiet and controlled environment was established to encourage student teachers to take time to deliberate over their respective responses. Seven student teachers were absent from this session; each was traced and completed the questionnaire during the following week under similar conditions, which secured a 100 percent response rate. The completion and return of questionnaires was based on the mutual understanding that data provided were to be used for the purpose of this study and possible future publications. Also, that by using codes and pseudonyms throughout each stage of this study, the researcher observed the protocols of privacy and confidentiality.

4.6.2 Stage Two: Semi-structured interviews

Semi-structured interviews were undertaken with a sample of student teachers to provide greater clarity and depth to responses received from the student teachers' questionnaires. Questions were designed to complement those featured on questionnaire 1 and their development was informed by several discussions the researcher held with professional colleagues in the draft stages. The questions are summarised as:

1. What area did you wish to investigate?
2. Why did you wish to investigate this particular area?
3. What did you think you could do about it?
4. What did you do?
5. Did you modify your practice?
6. What evidence did you produce to show your actions and their impact?
7. What conclusions did you draw from your evidence?
8. How could you judge your own effectiveness?
9. Were your judgements reasonably fair and accurate?
10. Do you believe this research experience has extended you professionally?
11. Do you believe the action research experience is valuable in helping student teachers to become more effective practitioners?

The interview schedule designed and used for the sample of student teachers is presented in Appendix G. Each question was open-ended and prompts, which could be drawn upon as, and when, required are detailed.

4.6.2.1 Pilot study of semi-structured interview schedule

Piloting questions to be used for semi-structured interviews was undertaken in three phases (November 2004 through March 2005). Phase one involved the distribution of draft questions to the same people who piloted the student teacher questionnaires (Questionnaire 1). Following the 100 percent return rate from these individuals and refining questions in light of feedback received, a second version was distributed to the same individuals. Two of the original newly qualified teachers failed to respond to the second version thus reducing feedback received from phase two to 87 percent. Phase three of the pilot study involved conducting an interview with a student teacher from the population, who was not part of the sample selected for interview purposes. The interview lasted 42 minutes and was followed by a debrief session. Feedback was sought in relation to: how she felt in the interview situation, the relevance and clarity of questions asked, use of language, sequential order of questions, whether areas discussed were perceived as relevant to her research experiences and whether further questions should be included. Exemplars of refinements made to earlier versions of the interview schedule in response to feedback received include:

- the addition of prompts for questions 5, 8 and 9
- the addition of question 11
- use of terminology: 'think' replaced 'believe' in question 3 and 'modify' replaced 'change' in question 5

This procedure was followed to establish 'fitness for purpose' and minimise the risk of researcher bias.

4.6.2.2 Undertaking the semi-structured interviews

All twelve interviews were undertaken during the week immediately following submission of the student teachers' dissertations that preceded a three-week vacation from university. The researcher conducted all interviews (April 2005) to establish a degree of internal consistency and continuity of approach. Several measures were put in place to minimise the risk that power relations might influence and bias the interviewees' responses.

In all instances, interviews opened with an introduction and explanation of the purpose behind the interview. It was important to establish a positive rapport, confirm confidentiality of data, explain how data would be used and provide an opportunity for each participant to ask questions: BERA's (2004) guidelines were rigorously adhered to. Each student teacher signed a consent form to confirm agreement to be interviewed, for their subsequent (anonymous) transcripts to be used for the purpose of this study and

contribute to possible future publications. A copy of the informed consent form is presented in appendix H.

A relaxed and purposeful environment was created in which student teachers were encouraged to respond openly and freely to each question posed. This usually began with an exclamation or expression of sheer exhilaration and relief that the submission deadline had been accomplished. Interviews were relatively informal and provided the researcher with sufficient flexibility to guide the conversation toward the focus of questions being investigated. Student teachers were able to shift back and forth to clarify, emphasise and contextualise their thoughts and the responses they made often led to the exchange of more in-depth information. Cues, such as 'nodding', 'smiling' and saying 'yes', 'right' and 'can you explain what you mean by …' were actively used to encourage student teachers to further engage in reflective dialogue, to probe more deeply for reasons behind their decision making and judgements, and recognise factors that were more or less influential to the ongoing development of their research and personal professional development.

During each interview, the student teacher's original completed questionnaire was to hand and could be referred to at any time. Interview questions provided student teachers with a direction, the opportunity to express their views and opinions and, to review experiences without constraint. Student teachers were actively encouraged to clarify the 'why' for the 'what' and 'how' in relation to their decision-making and various influences on their professional development. Prompts to questions were drawn upon as the need arose. In most cases, questions were adhered to systematically as they occur on the interview schedule but in some cases, student teachers provided a very extensive response to a question, which embraced wholly, or in part, information sought from other questions.

Interviews ranged in length from between 30 to 54 minutes and were held in a quiet, private room away from potential external distractions. Each interview was audio-recorded, and subsequently transcribed word for word. Transcriptions were double checked for accuracy by an impartial person. Although several months lapsed between conducting the interviews and typing up transcripts, verification of the accuracy of interview transcripts was secured by student teachers prior to data analysis. This procedure was followed to establish the 'credibility' of interview transcripts through respondent validation.

4.6.3 Stage Three: Questionnaire 2

The aim of this questionnaire was to gather information from all dissertation supervisors who had guided student teachers through their action research experiences to help validate

the data gathered from student teachers in stages one and two of this study. Thirteen dissertation supervisors guided student teachers from the inception of their research enterprise to the submission of their final reports. Seven were full-time university lecturers and six were part-time visiting lecturers: each supervisor was responsible for between three and eight student teachers. Members of the dissertation supervisory team had a range of previous experience within this role; some had guided student teachers for three years whereas others had more than twelve years of experience. Section 3.7 describes how the dissertation supervisors are prepared for undertaking this role to ensure a common understanding of action research methodology, key defining terms and expectations.

Questions constructed for questionnaire 2 focused on gathering the views and perceptions of dissertation supervisors as to the impact the action research experience had on developing their student teachers' ability and commitment to engage in reflective practice. Questions probed whether this experience had influenced their student teachers' capacity to become more effective teachers and take ownership of personal professional development. Further questions sought their views on aspects of the research experience they perceived to be important, how they guided student teachers through their action research experiences and whether they had further comments in relation to student teachers' experiences. These questions are summarised as:

1. What is the most important aspect of the student teachers' action research experience?
2. How do you guide dissertation students on their project focus and the design and methods they use?
3. Has the action research experience made an impact on student teachers in relation to: an assessment of their current practice; their justification of good practice; an improvement in the quality of their teaching; an improvement in their ability to maximise learning opportunities for pupils; an ability to reflect on their own practice; how they think, make decisions and solve problems; increasing their confidence; gaining an understanding of the 'rationale of change'; taking ownership of personal professional development?
4. What evidence do you look for to substantiate judgements made in relation to items detailed in question 3?
5. How well do you think your dissertation students engaged in the process of reflecting on their own practice?
6. What evidence do you look for to substantiate judgements made to question 5?
7. Is the action research experience valuable in terms of helping student teachers to become more effective practitioners?
8. Do you have any further comments about the student teachers' action research experiences?

The questionnaire designed and used for dissertation supervisors is presented in Appendix I. The range of question types included closed and open-ended. Closed questions based on a 4-point Likert scale were used for each item within question 3 and for

options provided in question 5 in terms of *yes (all) – yes (most) – yes (some) – no (none);* and, a 2-point positive/negative scale of *yes-no* for part of question 7. Other than questions 3 and 5 open-ended responses were sought from questions 1, 2, 4, 6, 7 and 8 for explanatory purposes. In designing this questionnaire a number of measures were put in place to minimise the risk of researcher bias, as explained below.

4.6.3.1 Piloting questionnaire 2

Questionnaire 2 was designed for dissertation supervisors and evolved over a period of several months following two draft phases (March 2005 through June 2005). Designing and piloting this questionnaire was a problem as those colleagues from whom feedback could be most fruitfully sought, in terms of gauging perceptions of student teachers' action research experiences, were those for whom this questionnaire was designed. However, questions have undergone development and been refined and clarified in light of feedback received from five colleagues who work in the School of Education on two separate occasions. These colleagues are experienced supervisors who guide and support primary student teachers on a four-year initial teacher education course through their special study (dissertation). Although the primary student teachers' research method was not action research *per se,* their supervisors were familiar with research methodology and the pedagogical processes of teaching and learning.

As with questionnaire 1, in each pilot phase, feedback as to the clarity and appropriateness of each question in terms of focus, use of language, style of question, relevance, accessibility to student teachers, sequential ordering and internal coherence was sought. Exemplars of refinements made to earlier versions of Questionnaire 2 in response to feedback received include:

- re-ordering some questions;
- the addition of a further cell in questions 3 and 5: from a 3 to a 4 point Likert rating scale;
- the addition of question 8, which is open-ended, to invite further comment about student teachers' action research experiences.

This procedure was followed to establish 'fitness for purpose' and reduce the risk of researcher bias.

4.6.3.2 Administration of questionnaire 2

Questionnaires were distributed to dissertation supervisors in June 2005 with a cover letter explaining the purpose behind the study, requesting their participation and for completion

and return of questionnaires by July 2005. Following two reminder letters to four dissertation supervisors, all questionnaires were fully completed and returned by September 2005, which secured a 100 percent response rate. Although returns were not anonymous, in that origins were easily traceable, a number of measures were put in place to encourage the dissertation supervisors to respond honestly, fully and openly to each question and reduce the risk of data bias or distortion. For example, they were assured of anonymity and confidentiality of data and that protocols according to BERA's (2004) guidelines would be adhered to. The completion and return of questionnaires was based on the mutual understanding that data provided was to be used for the purpose of this study and possible subsequent publication.

The timing for gathering feedback from dissertation supervisors was considered opportune in that all procedures regarding the assessment of their student teachers' final written reports had been accomplished and therefore they had time to reflect on each of the questions posed without external pressures. As the researcher was also one of the dissertation supervisors, a strategy used to minimise the potential risk of influence or bias from others on personal perceptions and responses to each question, was to complete questionnaire 2 before reading through and analysing any of the questionnaires, which had been completed by and returned from other dissertation supervisors.

4.7 Data analysis

Research instruments designed for use in this study generated a combination of quantitative and qualitative data. The following sections describe how data derived from questions on the two questionnaires and interview schedule were coded and categorised to help facilitate subsequent analysis. Kerlinger (1986) describes coding as the translation of respondent information and question responses to specific categories for the purpose of analysis.

4.7.1 Quantitative data analysis of questionnaires

Evidence derived from closed, ranking and multiple-choice questions on the questionnaires was analysed using statistical procedures. Frequency of occurrence in mutually exclusive categorical data sets such as *definitely yes – probably yes – probably no – definitely no* were counted and the percentage across the population who selected each response was calculated for comparative purposes.

Ranking and multiple choice questions provided two types of evidence. First, the column 'tick all that apply' on questionnaire 1 enabled student teachers to select more than one response, for reasons in question 2 and factors in question 4. Frequency of occurrence in those who selected each reason or factor was counted and the percentage across the population who selected these options was calculated for comparative purposes.

Second, the same two questions enabled student teachers to indicate the order of importance and level of influence they attached to each reason or factor they had ticked. Student teachers identified from between 3 and 8 reasons for question 2 and ranked these in order of importance, which gave rise to a rating scale of 1 through 8 for question 2. A rating scale of 1 through 5 was pre-coded for question 4 which allowed student teachers to indicate the level of influence each factor selected had made to the ongoing development of their research. Again, frequencies for each option selected were counted and the percentage across the population aligned to each option was calculated. Thus, for analysis purposes, each discrete reason or factor was reported in terms of frequency and percentage along with the extent to which these reasons or factors were perceived by student teachers as important or influential.

The researcher checked that all quantitative data extracted from the questionnaires was accurately recorded, calculated and reported by working through this procedure on two separate occasions and also by endorsing the assistance of a professional colleague. Therefore, the frequencies and percentages reported have been checked three times to ensure that they are an accurate record.

4.7.2 Qualitative data analysis of questionnaires

Explanations to support reasons for responses made in mutually exclusive categorical data sets such as *definitely yes – probably yes – probably no – definitely no* and open-ended responses made to questions on the questionnaires, provided textual data which was amenable to content analysis. Each question on the questionnaires was taken in turn, across the population from which they had derived, and all reasons cited within explanations were recorded. Each question provided the focus or frame of reference for categorising qualitative responses.

Content analysis of open-ended textual data for responses gathered from each question was undertaken in three stages: breaking the textual data into units; organising those units into categories of relevant meaning; categorising those units into themes which informed the focus and direction of each question (Bryman and Burgess, 1994; Cohen *et al,* 2000;

Denscombe, 2003; Denzin and Lincoln, 2002; Hycner, 1985; Miles and Huberman, 1994; Radnor, 1994). Units of relevant meaning were found by isolating 'those words, phrases…which express a unique and coherent meaning clearly differentiated from that which preceded and follows' (Hycner, 1985: 282). It was clearly understood that deciding upon which sections of open-ended textual data had 'relevant' meaning was a matter of interpretation and that some ambiguity, unless certain measures were put into place, could become prevalent. To reduce the possibility of ambiguity, a unit of relevant meaning was defined as a single idea expressed by the research participant which served to 'crystallise and condense what the participant has said while still using as much as possible the literal words of the participant' (*ibid*). Holstein and Gubrium (2000: 58) suggest 'coherent, meaningful configurations emerge through patterned narrative linkages' which provide 'horizons of meaning'. It was these linkages, which provided the key to the meaning behind textual data. In describing the content analysis of qualitative enquiry Smith and Sparkes (2005: 215) suggest the focus should be on what is said in and outside the stories, in relation to separate sections of the narratives expressed. Thus, all possible units of relevant meaning were created from open-ended textual data and decisions made as to those which informed the purpose and direction of each question. These discrete units of relevant meaning were grouped into categories and then clustered together to identify common themes embedded within the textual data. Themes were identified of recurrent ideas, statements and topics, which emerged a number of times in the analysis of open-ended textual data. Thus, a set of themes and sub-themes into which the research participants' qualitative responses could be meaningfully grouped were developed for each question that sought explanations.

An exemplar of categorising student teachers' responses to part of question 8 from questionnaire 1 illustrates this process. Part (ii) of question 8 asked student teachers whether, and how, they perceived reflecting on practice had influenced pupil learning and development. All qualitative responses advanced by student teachers were written out in full on size A3 paper and codes were used alongside each response so the origins could be traced. Three broad themes were found by reducing the student teachers' narratives using the stages of content analysis outlined above, and between two and six sub-themes were found, which exemplified particular characteristics of each theme. Table 4.5 shows the precise qualitative responses of student teachers, which led to the emergence of Theme 3 entitled 'enhanced knowledge of pupils'.

This process, in part, had the effect of turning many qualitative responses to open-ended questions into a defined set of standard responses or themes, which could be reported in quantifiable form using statistical procedures. Thus, frequency of occurrence for each theme found was counted and the percentage across the population whose responses were categorised in each theme was calculated for comparative purposes.

To minimise the risk of imposing the researcher's interpretation onto the open-ended textual data and reinforce the credibility of the human instrument (Lincoln and Guba, 1985), a professional colleague assisted in the identification of units of relevant meaning, development of sub-themes and subsequent clustering of themes. Both individuals worked on creating units of relevant meaning from the same sample of qualitative questionnaire responses independently, and then compared their work. Upon comparison, differences that emerged were discussed and agreement reached as to what textual data had relevant

Table 4.5: Theme 3 - enhanced knowledge of pupils

Student teacher	Units extracted from narrative responses	Categories of relevant meaning	
		Ability levels	Specific learning needs
9	Made me *more aware of pupils' levels* and understanding	X	
14	I can match tasks to suit *each learner's needs* more effectively		X
20	It's allowed me to change my delivery of learning outcomes dependent and *suited to differing pupils*		X
25	By altering teaching styles within the lesson the pupils were *learning the same skill in different ways* and this effected what they learnt and how much development was made		X
29	Because I can adapt activities to *suit all ability levels*	X	
38	It has made me *more aware of pupil needs* and through differentiation pupils have achieved more		X
40	Looking at *what affects their achievement* so that I can get the most out of them	X	
51	Looked more at *the way individuals' learn* and enhanced my knowledge of individuals' abilities, strengths and weaknesses		X
54	Because it has shown me *what ADHD pupils' need* to work more efficiently		X
57	All pupils *working at the correct level* for them	X	
63	By differentiating pupils' perform with their own *ability level groups* and thus improve own learning	X	
65	Surprised by results of data and *how different pupils* liked to be taught		X
78	I learned how much pupils get out when they are allowed to *learn in their ability range* and within set criteria, on what they want. Also, understanding if pupils don't feel they are improving they get bored	X	

meaning. The criterion for agreement was not that units of relevant meaning were phrased in exactly the same way, rather that they conveyed the same information.

In addition to establishing clarity and trying to reduce the possibility of ambiguity in creating units of relevant meaning, using a colleague for verification purposes (*ibid*) had the added advantage of contributions made to the identification of themes and sub-themes. It also supported the quest to ensure that anything relevant to each question was captured, not lost, and everything relevant to each question was categorised in one particular way and no other (Denscombe, 2003; Denzin and Lincoln, 2002; Miles and Huberman, 1994).

Several procedural decisions were made to assist in the development of themes. First, in order for themes to be understood it was often necessary to add context to a unit of relevant meaning. How much context to add was largely a matter of finding the balance between retaining enough of the context to ensure the theme could be fully understood yet not having so much context that themes became unduly repetitive or overly long. Units of relevant meaning thus ranged in size from short phrases to more complex sets that combined several sentences. Second, creating themes involved a degree of interpretation. To minimise the risk of altering the meaning embedded within research participants' qualitative responses it was decided that all themes, as and where possible, would be created by using original words derived from open-ended textual data. The words selected for this purpose were those most frequently used by research participants. Codes of individual research participants were aligned to each theme so that the origin of textual data could be traced for reference purposes, as exemplified in Table 4.5.

To analyse the quantitative and qualitative data generated from responses to questionnaire 1 and questionnaire 2, each question or sub-section within questions, was situated within the dimensions of reflective practice framework (see section 4.2) designed for this study. Table 4.6 shows where evidence was drawn from both questionnaires in order to investigate the development of student teachers' reflective practice.

Table 4.6 Sources of evidence drawn from questionnaires to inform each dimension of reflective practice

	Dimension of reflective practice	Questionnaire 1	Questionnaire 2
1	*Study their own teaching for personal improvement?*	Question 1 Question 2: items 1, 2, 3, 4, 5, 6, 7 Question 4: factor 22	Question 2
2	*Systematically evaluate their own teaching through classroom research procedures?*	Question 3(a), 3(b), 3(c) Question 4: factors 5, 6, 7, 10, 14, 16, 17, 18	Question 2 Question 3: item 1
3	*Link theory with their own practice?*	Question 4: factors 1, 2, 3, 4, 24	Questions 2 and 4
4	*Test a belief or theory?*	Question 4: factor 13	Question 1
5	*Consider alternative perspectives and possibilities?*	Question 3(a) Question 4: factors 4, 5, 6, 8, 9, 15, 16, 23 Question 10	
6	*Try out new strategies and ideas?*	Question 4: factors 11, 12	Question 3: items 6, 8
7	*Enhance the quality of pupil learning?*	Question 4: factor 21 Question 8 (ii)	Question 3: item 4
8	*Critically reflect on their own teaching?*	Question 8(i), 8(iii), 8(iv)	Questions 1 and 2, Question 3: items 2, 3, 5, 7 Questions 4, 5 and 6
9	*Continue to improve their own teaching?*	Questions 6 and 7	Question 3: item 9

4.7.3 Qualitative data analysis of interview transcripts

Interview transcripts derived from the sample of student teachers served two major purposes:

1 - To select excerpts of student teachers' narratives of experience illustrative of themes and sub-themes found from the analysis of questionnaire 1. As interview questions complemented those featured on questionnaire 1, finding appropriate excerpts was relatively straightforward. This process involved reading through all narratives to each question, highlighting parts of text illustrative of each theme and sub-theme, and grouping these together for subsequent selection.

In selecting exemplars from interview transcripts, Cohen *et al* (2002) note tension in data analysis between maintaining 'a sense of holism of the interview' and tendency for analysis to 'atomise and fragment the data – to separate them into constituent elements, thereby losing the synergy of the whole'.

Three principle factors guided decisions during the selection of interview excerpts. First, narratives of experience were sought which portrayed richness, depth and insights into the worldviews, theories, beliefs, passions and aspirations behind the ideas and issues expressed within the themes and sub themes identified (Connelly and Clandinin, 1990; Hiebert *et al*, 2002; Holstein and Gubrium, 2000; Usher, 1998; van Maanen, 1988). Second, excerpts were selected to provide enough primary source data to ensure the meaning behind each narrative of experience could be clearly understood. Third, narratives of experience were selected from a range of student teachers to ensure they were representative of the population as a whole (Denscombe, 2003; Opie, 2004; Robson, 2002; Silverman, 2001). This procedure also enabled the researcher to search for additional themes, which had not surfaced during the analysis of questionnaire 1.

Exemplars of student teachers' narratives of experience drawn upon to illustrate the themes and sub-themes found in questionnaire 1 permeate throughout the next chapter, which presents the findings of this research study.

2 - To identify qualitative distinctions in the types of descriptive, comparative and critical reflective conversations identified in Figure 4.2. To aid this process, a simple framework was devised to serve as a key referent in the analysis of interview transcripts. Embedded within this frame of reference were theories advanced by Jay and Johnson (2002), Baxter Magolda (1999) and King and Kitchener (1994) as shown in Table 4.7.

Table 4.7 Frame of reference for the analysis of interview transcripts

Reflective conversations	Types of reflection – Jay and Johnson (2002) (see page 27)	Epistemological cognition – Baxter Magolda (1999) (see page 24)	Reflective judgement – King and Kitchener (1994) (see page 22)
Descriptive	*Descriptive* - describe the matter for reflection	*Absolute knowing* – knowledge is absolute or certain	*Pre-reflective reasoning* – representing stages 1-3. Belief that there are right and wrong answers and only authorities know the right answers
Comparative	*Comparative* – reframe the matter for reflection in light of alternative views, others' perspectives, research etc…	*Transitional knowing* – knowledge is partially certain and partially uncertain *Independent knowing* – knowledge is certain, everyone has own beliefs	*Quasi-reflective reasoning* – representing stages 4 and 5. Begin to question previously held assumptions and realise that authorities can be wrong or biased. Realise that there can be more than one 'correct' answer to the problem
Critical	*Critical* – having considered the implications of the matter, establish a renewed perspective	*Contextual knowing* – knowledge is contextual, judge on the basis of evidence	*Reflective reasoning* – representing stages 6 and 7. Belief that 'knowledge must be understood in relationship to the context in which it was generated' (*ibid*: 17)

The interview transcripts were analysed systematically, one question at a time, for evidence of each type of reflective conversation. Sentences were deconstructed and separated out into units of relevant meaning, in the same way as that adopted for the open-ended textual data of questionnaires, as explained in section 4.7.2. The units of relevant meaning were created to inform one of the nine dimensions of reflective practice.

The number of times reflective conversations were detected in each question was recorded and entered onto the nine by three matrix shown in Figure 4.2. This procedure was followed in the analysis of all interview transcripts, which generated 12 individual profiles; 2 composite gender profiles; and 1 composite profile across the whole sample. This information was used to identify patterns and trends in the types of reflective conversation found in the sample student teachers' narratives of experience for comparative purposes.

To minimise risk of imposing the researcher's interpretation onto open-ended textual data and reinforce the credibility of the human instrument (Lincoln and Guba, 1985), a professional colleague assisted in the analysis of interview transcripts. This colleague was used for verification purposes to establish accuracy and clarity, and to reduce the possibility of ambiguity in coding the student teachers' interview transcripts (Denscombe, 2003; Denzin and Lincoln, 2002; Miles and Huberman, 1994).

Both individuals ensured they fully understood the theoretical principles which underpinned the frame of reference used for this analysis and familiarised themselves with interview transcripts by reading each one through several times before commencing the analysis process. Both individuals worked on identifying and coding descriptive, comparative and critical units of relevant meaning pertinent to each dimension of reflective practice independently and then compared work. Upon comparison, differences were discussed and agreement reached as to what textual data exemplified each type of reflective conversation within each dimension of reflective practice.

This was by no means a straightforward, linear process as reflective conversations pertinent to more than one dimension of reflective practice were often detected in the student teachers' responses to a single question. There were also instances when both individuals were at variance in relation to interpreting units of relevant meaning and deciding upon where best to situate some of the textual data. One example of this can be found in the final unit in section P9 on Table 4.9. The researchers' disagreed as to which dimension the phrase '*If you didn't tell them what to do with [the rugby ball], they had this object in their environment but it had no purpose*' was best suited within its context as 3 viable candidates

emerged. On the one hand, student teacher ssi5 was "critically reflecting on his own teaching"(dimension 8). On the other, his insight arose from both "testing a personal belief or theory" (dimension 4) and then "trying out new strategies and ideas" (dimension 6). Subsequently, the unit could have convincingly fallen under any of the proposed categories. The colleagues ultimately determined that dimension 6 was most fitting. However, this conclusion, along with many others, was only reached following extensive investigation into the data's context and nuances. Therefore, converging on the final version of analysed interview transcripts was an iterative process involving several draft versions and, in a few cases, considerable debate.

Table 4.8 provides an extract from one student teacher's (ssi5) interview transcript prior to analysis and Table 4.9 illustrates how this was broken down and coded into units of relevant meaning. Abbreviations used in these tables denote:

P   paragraph

Reflective conversations:

1   descriptive

2   comparative

3   critical

Following this stage of the analysis process, an individual profile was created for each interview transcript which recorded frequency of occurrence within each cell of the nine by three matrix developed for this purpose, as shown in Table 4.10.

Table 4.8 Extract from one student teacher's (ssi5) interview transcript

NARRATIVE ACCOUNT	P
Researcher*: Why did you wish to investigate this particular area?* **Interviewee:** The psychology of it interested me, what actually – you know, you put something in the pupils' environment and that can suddenly trigger them to go off and do some completely random things. So, I found it very interesting, the – what, how pupils' think and why certain things would trigger certain behaviours.	*1*
Researcher*: Right. In your research did you want to bring about some form of change?* **Interviewee:** Yes, definitely, I wanted to because low-level disruption in my lessons tended to be, particularly amongst certain pupils, quite high. So, the change I was hoping to bring about was to bring it down to a much lower level to enhance the learning in the lessons.	*2*
Researcher: *So, what is your perception of what a good situation in a lesson would be, with respect to low-level disruption?* **Interviewee:** Well, certainly 'low-level' disruption implies there's a negative effect from it on, not just on one pupil, but on others around them. So, the ideal situation is no low-level disruption, but at the same time you don't want a boring class that – they sit there, you say something, and they do it, you say the next thing, and they do it – and no one's got any character. So, I would still like character to be in the lesson, but the ideal lesson was everyone, when asked, were on task most of the time and I would say, above 90% which is high.	*3*
Researcher: *Right. What has led you to think this? Have you been guided in your reading, at all? In your own experience?* **Interviewee:** Certainly, from the experience of other teachers I've seen that I thought were good teachers – they could encourage pupils to still be themselves, still have fun, but stay on task and not drift off task and start disrupting other pupils.	*4*
Researcher: *At the outset of your research what did you think you could do about it?* **Interviewee:** Certainly the first and foremost thing I thought at the start was 'change my teaching style' to affect pupils, but as I looked at my research, certainly going into socio-psychological theories, they split it down into more areas. The big one I looked at was Bandura's who took in, rather than just the teaching, as a whole school environment, which teaching was just one part of… there's the whole pupil. So, all the psychological aspects of the pupil and then there was all of the environment around them and, I mean, the environment	*5*

can be literally anything to the ball they're holding, to the weather, to noises in their environment, anything. So, at first, it was just me – I thought I could change just me – but then as I started doing my research, I thought 'right, I can change how the pupil thinks, I can change me, and I can manipulate their environment.'

Researcher: *Right. So did you discuss your ideas and thoughts with anyone else?*

6

Interviewee: Yes, my head of department was really helpful actually and so was – we had one other male PE teacher – and since the girls' and boys' PE was quite separate, most of my discussion was with my head of department, the other male PE teacher, my parents who are both teachers, and Sonia who I was working with, and one of the female teachers.

Researcher: *So you talked about it with quite a few people!*

7

Interviewee: Yes. And obviously I had one meeting with you beforehand as well.

Researcher: *Well, did they provide any suggestions?*

8

Interviewee: Mark, the head of department, did within the actual teaching and structuring of how it would be done. One of the girls recently –well, I say recently, it was about 10 years ago, graduated from this university, so she talked to us about dissertations and…she'd done an action research project, as well. And sort of how to get started, because my problem with these sorts of things is always… once I'm going, I'm going – but I look at it as such a huge daunting task. And once I got going, I really got into it. My mum and dad, obviously they graduated and did their – well, my dad's been doing similar things for quite some time. He's gotten a doctorate and is a university lecturer now. My mum helps me more. She tends to help me with spelling, grammar, and wording and sort of, right 'if you're going to structure this questionnaire you might want to move around this way' and gives me little pointers here and there. So, I get sort of different – at the school I get the school-based advice. My mum and dad help me with sort of English and structuring. And other people help me with sort of 'this is how you approach the research'.

Researcher: *Good. Okay. So, let's have a look at what solutions you decided to try out. From your discussions and the suggestions received from others, what were some of the solutions you tried to look for?*

9

Interviewee: Basically, I identified a whole load of environmental factors, which could be in the pupils' environment at any one time. It was based on a rugby unit. So, one of the big ones was 'have they got a rugby ball?' Now, if they've got a rugby ball, that is an instant trigger to an awful lot of children to say 'I'm going to kick this, I'm going to throw it, I'm going to throw it at my friend's head'… something that they should not be doing. And I came to the conclusion at the end, that if you gave a ball purpose – so, this ball has to be moving this

direction, it has to touch that line, come back, touch that line. Well, when you bring them in, you say 'put the ball between your knees and kneel on it.' Then, with most of the pupils, it lowered low-level disruption. They would just leave the ball, because it had a purpose. It had to be set between the knees. If you didn't tell them what to do with it, they had this object in their environment, but it had no purpose.

Researcher: *Okay. So, managing a ball is one of the things you looked at…*

10

Interviewee: One of the, I said this in my research, that the weather is possibly an influence. Now, it's teacher folklore, if there is such a thing, but if it's windy the pupils will go off on one. And I had one windy lesson when the pupils did go off on one, which I expected just from the folklore, but to confirm that I'd obviously want to do some more research with different groups…because most of the time all of the other lessons were pretty sort of …well, okay

Researcher: *Could you explain what you mean by 'go off on one'*

11

Interviewee: Running around like nutters, rolling around on the floor, pushing, shoving, balls getting kicked everywhere, screaming, shouting…a bit of everything really

Table 4.9: Units of relevant meaning created from interview transcript (ssi5) extract

P	Unit of Relevant Meaning	Dimension	Reflective Conversations		
			1	2	3
1	"The psychology of it interested me	1	X		
	What actually, you know, you put something in the pupils' environment and that can trigger them to go off and do some completely random things	3	X		
	So, I found it very interesting, the, what, how pupils' think,	5	X		
	And why certain things would trigger certain behaviours"	3		X	
2	"Yes, definitely, I wanted to because low-level disruption in my lesson, tended to be	8	X		
	Particularly amongst certain pupils	8		X	
	Quite high	8		X	
	So, the change I was hoping to bring about was to bring it down to a much lower level	1	X		
	To enhance the learning in the lessons"	7	X		
3	"Well, certainly, low-level disruption implies there's a negative effect from it on	4	X		
	Not just on one pupil but on others around them	4		X	
	So, the ideal situation is no low-level disruption,	1	X		
	But at the same time you don't want a boring class that they sit there, you say something and they do it, you say the next thing, and they do it and no one's got any character	5	X		
	So, I would still like character to be in the lesson - but, the ideal lesson, was everyone, when asked, were on task most of the time and	1	X		
	I would say above 90% which is high"	8		X	
4	"Certainly, from the experience of other teachers I've seen	5	X		
	That I thought were good teachers	5		X	
	They could encourage pupils to still be themselves, still have fun, but stay on task and not drift off task and start disrupting other pupils"	5		X	
5	"Certainly, the first and foremost thing I thought at the start was change my teaching style to affect pupils.	1	X		

	But as I looked at my research, certainly going into socio-psychological theories, they split it down into more areas	3		X	
	The big one I looked at was Bandura's who took in rather than just the teaching as a whole school environment, Which teaching was just one part of –there's the whole pupil	3			X
	So all the psychological aspects of the pupil	7		X	
	And then there was all of the environment around them, and I mean the environment can be literally anything	3			X
	To the ball they're holding, to the weather, to noises in their environment, anything	3		X	
	So, at first, it was just me, I thought - I could change just me But then as I started doing my research I thought right	1	X		
	I can change how the pupils' think - I can change me and I can manipulate their environment"	2		X	
6	"Yes, my head of department was really helpful actually	5	X		
	And so was, we had one other male PE teacher and	5	X		
	Since the girls and boys' PE was quite separate, most of my discussion was with my head of department, the other male PE teacher	5	X		
	My parents who are both teachers, and Sonia who I was working with, and one of the female teachers"	5	X		
7	"Yes, and obviously, I had one meeting with you beforehand as well"	5	X		
8	"Mark, the head of department, did –within the actual teaching and structuring of how it would be done	5	X		
	One of the girls recently, well I say recently, it was about 10 years ago, graduated from this university -so she talked to us about dissertations and she'd done an action research project as well…and sort of how to get started	5	X		
	Because my problem with these sorts of things is always once I'm going, I'm going…but I look at it as such a daunting task. And once I got going I really got into it	8	X		
	My mum and dad, obviously they graduated and did their –well my dad's been doing similar things for quite some time. He's gotten a doctorate and is a university lecturer now. My mum helps me more. She tends to help me with spelling, grammar and wording and sort of, right if you're going to structure this questionnaire you might want to move it around this way and gives me little pointers here and there	5		X	
	So I get sort of different, at school I get the school-based advice. My mum and dad help me with sort of English and structuring and other people help me with sort of 'This is how you approach the research'."	5		X	

9	"Basically, I identified a whole load of environmental factors which could be in the pupils' environment at any one time.	2	X		
	It was based on a single rugby unit. So, one of the big ones was - Have they got a rugby ball? Now, if they've got a rugby ball, that is an instant trigger to an awful lot of children to say - I'm going to kick this, I'm going to throw it, I'm going to throw it at my friend's head -something that they should not be doing	4	X		
	And I came to the conclusion at the end that if you gave a ball purpose -	6		X	
	So, this ball has to be moving in this direction, it has to touch that line, come back, touch that line - Well, when you bring them in -You say, 'put the ball between your knees and kneel on it'	6	X		
	Then, with most of the pupils, it lowered low-level disruption	8		X	
	They would just leave the ball, because it had a purpose -It had to be set between their knees	8		X	
	If you didn't tell them what to do with it, they had this object in their environment but it had no purpose"	6	X		
10	"One of the, I said this in my research, that the weather is possibly an influence.	3	X		
	Now, it's teacher's folklore, if there is such a thing, but if it's windy the pupils will go off on one	3		X	
	And I had one windy lesson when the pupils did go off on one, which I expected just from the folklore	3	X		
	But to confirm that I'd obviously want to do some more research	9	X		
	With different groups	9		X	
	Because most of the time, all of the other lessons were pretty sort of…well, okay"	8		X	
11	"Running around like nutters - rolling around on the floor, pushing, shoving, balls getting kicked everywhere, screaming, shouting - A bit of everything really…"	8	X		

Table 4.10 Profile of one student teacher's (ssi5) analysed interview transcript

Dimensions of reflective practice	Types of reflective conversations			Totals (%)
	Descriptive	Comparative	Critical	
1	25	14	7	46 (11.3)
2	31	31	8	70 (17.2)
3	30	16	15	61 (15)
4	6	4	1	11 (2.7)
5	12	25	5	42 (10.3)
6	12	2	3	17 (4.2)
7	16	10	6	32 (7.9)
8	63	23	29	115 (28.2)
9	5	4	4	13 (3.2)
Totals (%)	200 (49.1)	129 (31.7)	78 (19.2)	407 (100)

4.7.4 Quantitative analysis of interview transcripts

Evidence derived from the number of times each type of reflective conversation was recorded in each dimension of reflective practice was analysed using statistical procedures. Individual student teacher profiles were placed in gender groups (6 male and 6 female), the frequency of occurrence was counted and percentage calculated of each type of reflective conversation used within each dimension of reflective practice.

The mean value or average score was calculated for each type of reflective conversation used in each dimension of reflective practice to identify the measure of central tendency across the sample of male and female student teachers. The standard deviation was also calculated to identify the measure of dispersion, or spread of scores, across the sample in relation to the mean value. These measures were calculated for the purpose of describing both the average score of types of reflective conversation used within each dimension of reflective practice and of describing how varied the actual scores were in relation to this average. Table 4.11 presents the composite profile of qualitative distinctions for male (Part A) and female (Part B) student teachers, which emerged from this process, in relation to the types of reflective conversations extracted from interview transcripts.

Table 4.11 Qualitative distinctions between student teachers' reflective conversations in the dimensions of reflective practice

Part A: Male student teachers

	Dimensions of reflective practice	Types of reflective conversation									Total number (%)
		Descriptive			Comparative			Critical			
		Sum	Mean	Standard deviation	Sum	Mean	Standard deviation	Sum	Mean	Standard deviation	
1	*Study their own teaching for personal improvement*	107	17.83	3.71	58	9.66	5.46	17	2.83	2.4	182 (7.7)
2	*Systematically evaluate own teaching through classroom research procedures*	197	32.83	12.05	158	26.33	9.02	48	8	3.89	403 (17)
3	*Link theory with their own practice*	122	20.33	9.17	86	14.33	6.08	42	7	7.82	250 (10.6)
4	*Test a personal belief or theory*	65	10.83	3.97	35	5.83	3.76	20	3.33	2.93	120 (5.1)
5	*Consider alternative perspectives and possibilities*	71	11.83	1.94	150	25	4.33	19	3.16	1.72	240 (10.2)
6	*Try out new strategies and ideas*	107	17.83	8.81	57	9.5	6.53	21	3.5	1.37	185 (7.8)
7	*Enhance the quality of pupil learning*	103	17.16	2.78	87	14.5	6.22	36	6	3.63	226 (9.6)
8	*Critically reflect on their own teaching*	333	55.5	16.5	129	21.5	10.31	157	26.16	13.55	619 (26.2)
9	*Commitment to continue to improve their own teaching*	66	11	5.47	46	7.66	3.82	27	4.5	1.64	139 (5.8)
	Total number (%)	1171 (49.5)			806 (34.1)			387 (16.4)			2364 (100)

Part B: Female student teachers

Dimensions of reflective practice		Types of reflective conversation									Total number (%)
		Descriptive			Comparative			Critical			
		Sum	Mean	Standard deviation	Sum	Mean	Standard deviation	Sum	Mean	Standard deviation	
1	*Study their own teaching for personal improvement*	91	15.16	5.07	53	8.83	2.13	23	3.83	2.22	167 (6.9)
2	*Systematically evaluate own teaching through classroom research procedures*	167	27.83	14.13	180	30	14.35	44	7.33	3.82	391 (16.2)
3	*Link theory with their own practice*	115	19.16	8.75	80	13.33	3.93	52	8.66	3.72	247 (10.3)
4	*Test a personal belief or theory*	32	5.33	2.73	21	3.5	1.87	15.	2.5	2.07	68 (2.8)
5	*Consider alternative perspectives and possibilities*	46	7.66	5.81	154	25.66	10.15	35	5.83	3.97	235 (9.8)
6	*Try out new strategies and ideas*	74	12.33	6.65	71	11.83	4.53	26	4.33	2.06	171 (7.1)
7	*Enhance the quality of pupil learning*	100	16.66	6.86	99	16.5	9.5	32	5.33	2.73	231 (9.6)
8	*Critically reflect on their own teaching*	403	67.16	25.94	184	30.66	16.05	192	32	16.28	779 (32.4)
9	*Commitment to continue to improve their own teaching*	52	8.66	3.26	31	5.16	1.32	34	5.66	4.45	117 (4.9)
Total number (%)		1080 (44.9)			873 (36.3)			453 (18.8)			2406 (100)

4.8 Summary

Within education a range of approaches to research, data collection and its subsequent analysis can be drawn upon, dependent upon the purpose and nature of the research enquiry. The purpose of this chapter was to provide an overview of methodological approaches to research, which underpin the design and implementation of this study and establish their appropriateness for the purpose of this study. The qualitative case study approach lies at the heart of this enterprise and was selected to examine research participants' perceptions of the development of student teachers' reflective practice within the context of action research.

The framework designed to capture these perceptions across nine dimensions of reflective practice and to gauge qualitative distinctions in reflective practice between student teachers was introduced, and how data gathered from two questionnaires and an interview schedule were designed and analysed to provide quantitative and qualitative data to inform each dimension has been described.

Limitations, which could arise from the research methodology and design of this study were identified along with the measures taken and procedures followed so as to minimise risk of ambiguity, researcher bias and power relations from distorting the outcomes of this study. These permeate throughout the chapter in order to establish the trustworthiness of the human instrument in relation to credibility, transferability, dependability and confirmability.

The next chapter presents the research findings.

Chapter 5: Research findings

5.1 Introduction

The purpose of this study was to investigate the development of student teachers' reflective practice within the context of action research. Reflective practice has been defined as: *a disposition to enquiry incorporating the process through which student teachers structure or restructure actions, knowledge, theories or beliefs that inform teaching for the purpose of personal professional development.* Two research questions guided this study:

How can student teachers' develop reflective practice within the context of action research?

What qualitative distinctions in reflective practice can be drawn between student teachers?

Informed by the review of literature (see chapter 2), the dimensions of reflective practice framework presented in Figure 4.1 and qualitative distinctions between types of reflective conversation in the dimensions of reflective practice presented in Figure 4.2 were designed for the purpose of addressing the research questions.

Each dimension of reflective practice provided a focal point for analysing evidence gathered from student teachers' questionnaires (n=80), dissertation supervisors' questionnaires (n=13) and a sample of student teachers' interview transcripts (n=12). Narratives from interview transcripts were drawn upon to illustrate themes emanating from questionnaire responses, and to identify qualitative distinctions between types of reflective conversation in each dimension of reflective practice, across the sample of male (n=6) and female (n=6) student teachers.

Statistical procedures used in the analysis of data and drawn upon to present research findings include: frequency of occurrence and percentage, arithmetic mean (M) and standard deviation (SD). Such terms as he, she, his and hers are used throughout this section to sustain fluency and not interrupt the flow of student teachers' narratives of experience. These words 'are to be read as neutral in their reference' and are not intended to 'convey gender bias' (Capel and Moss, 2005: 437).

Research findings have been organised within dimensions of reflective practice in which student teachers can demonstrate capacity and commitment to:

Study their own teaching for personal improvement: *dimension 1*

Systematically evaluate their own teaching through classroom research procedures: *dimension 2*

Link theory with their own practice: *dimension 3*

Test a personal belief or theory: *dimension 4*

Consider alternative perspectives and possibilities: *dimension 5*

Try out new strategies and ideas: *dimension 6*

Enhance the quality of pupil learning*: dimension 7*

Critically reflect on their own teaching: *dimension 8*

Continue to improve their own teaching: *dimension 9*

Evidence to inform both research questions is embedded within each section and a sub-section entitled *Types of reflective conversation* within each section, presents data predominantly pertinent to question 2. The main research findings of this study are drawn together in a summary, which concludes the chapter. Appendices, which contain raw data to support the research findings include:

Appendix J: Factors which influenced student teachers' decision to select research focus

Appendix K: Characteristics of student teachers' research areas

Appendix L: Factors which influenced the ongoing development of student teachers' research

Appendix M: Student teachers' perceptions of how their research influenced personal development and pupil learning

Appendix N: Dissertation supervisors' perceptions of important aspects of student teachers' research experiences

Appendix O: Dissertation supervisors' guidance to student teachers for gaining clarity in their research focus and design

Appendix P: Dissertation supervisors' perceptions of how the research experience influenced student teachers' personal development

5.2 Study their own teaching for personal improvement: *dimension 1*

As student teachers' reflect upon what aspect of teaching to research reasons, the reasons guiding their decision illuminate the commitment to study their own teaching for personal improvement as shown in Table 5.1. All reasons that can influence student teachers' decisions to select a particular research focus are detailed in Appendix J.

Table 5.1: *Reasons guiding decision to select research focus for personal improvement in rank order of frequency, percentage and occurrence within the highest two cells of importance*

Item	Reasons that influenced decision	n=80	100%	n=80 highest 2 cells of importance
2	To improve the quality of their own teaching	73	91.25	52
3	To enhance the quality of pupil learning	73	91.25	51
4	Personal interest of an aspect of teaching	61	76.25	23
5	Personal interest of an aspect of pupil learning	53	66.25	12
7	Limited subject knowledge in the area	23	28.75	5
1	Personal audit of QTS Standards	11	13.75	2

(extracted from Appendix J)

Student teachers' reported three main reasons for selecting a research focus: to improve the quality of their own teaching; to enhance the quality of pupil learning; and, personal interest, either of an aspect of teaching or of pupils learning. Different factors and reasons were behind these selections. However, as shown below, these three are not always entirely separate.

Table 5.1 shows *To improve the quality of an aspect of their own teaching* was reported by 73 (91.25%) student teachers as one reason for selecting their research focus: 52 (65%) ranked this within the highest two cells of importance. This finding reveals that at this stage of their professional development, these student teachers' recognise areas of teaching, which would benefit from further development and indicate such development was important to them. *Limited subject knowledge in the area* was reported by 23 (28.75%) student teachers to have guided their decision and an *Audit of progress toward meeting QTS Standards* reported by 11 (13.75%) to have been influential. The following narrative exemplifies descriptive discourse as the student teacher contemplates an aspect of personal practice in need of attention, and comparative discourse as he searches through literature to consider alternative perspectives:

> *I looked at formative assessment…on my 3rd year final report (it was) mentioned that I hadn't a lot of experience on assessment. I've been aware of assessment for learning…but didn't really know what it was…so, that was something I decided to try to find out more about…I jotted down around 20 questions …possible ways that I would go about looking at assessment…and with the articles I was reading (decided) to look at formative assessment (ssi1)*

Four (30.7%) dissertation supervisors' reported discussing developmental needs *in relation to school experience and subject knowledge (ds7)* was one means by which they guided

student teachers to select and refine their research area (see Appendix O). However, another dissertation supervisor stated *I think initially the self-reflection to come up with the topic is very poor…they just base it on a few lines from a mentor's comment (ds5).* This appears to challenge the use of mentor feedback as a viable springboard for selecting a research focus. Yet, as the above narrative indicates, developmental targets identified by mentors can signal aspects of pedagogy, which would benefit from more experience and provide the impetus for student teachers to reflect on how they can enhance future practice.

Table 5.1 shows *To enhance the quality of pupil learning* was reported by 73 (91.25%) student teachers as one reason for selecting their research focus: 51 (63.75%) ranked this within the highest two cells of importance. This finding shows these student teachers, at this stage of their professional development, recognise their ability to promote pupil learning would benefit from further development and indicate such development was important to them. In the following narrative, as the student teacher describes her reasoning behind selecting a research topic, she reflects on personal educational goals and values, and positions them in the wider professional landscape by considering the impact she could have on pupils' attitudes toward physical activity in the future. She recognises potential benefits to pupils if she changes her teaching approach:

> *the emphasis of my action research project was the health of pupils…so, motivating them [Key Stage 4 girls] to perform sufficient amounts of physical activity so that it would have an influence on them to perform physical activity in the future…I wanted to think about what I could do within my own teaching to cut down the amount of instructions and the amount of time I was wasting in lessons…allowing pupils to take responsibility and make more choices over what they were doing in lessons…maybe to perform activity independently so they'd become intrinsically motivated…at the beginning it was a battle really to get them to do anything, let alone get them to do adequate amounts of physical activity…I also found that there were things I would have to change to my teaching to also have an impact, such as positive reinforcement (ssi6)*

Having reflected on data collected during the first lesson in terms of the amount of physical activity pupils were performing she continues:

> *I thought 'I've really, really got to do something about that!' – it was about 18 to 20 minutes of a lesson at the beginning! So, I think that really highlighted weaknesses and areas I could improve…it took an awful long time to do it [evaluate each lesson] but I think the things I got out of it were very worthwhile (ssi6)*

This highlights commitment both to study and improve an area of her teaching so as to influence the physical activity and motivational levels of Key Stage 4 girls.

Table 5.1 shows *Personal interest of an aspect of teaching* was reported by 61 (76.25%) student teachers to have guided their decision to research a particular area and *Personal interest of an aspect of pupil learning* by 53 (66.25%) to have been influential. Implicit within the decision to research an area of personal interest is that these student teachers' seek to gain more

knowledge and understanding in a particular area and as a consequence, draw upon that knowledge and understanding to improve their own teaching. The following narrative illustrates how personal interest in a specific aspect of pupil learning stemmed from the student teacher's awareness and recognition of the need to improve an aspect of his teaching:

> *low level disruption in my lessons tended to be, particularly amongst certain pupils, quite high. Over the previous years I've always said that's an area I should look at and the psychology of it interested me, what actually…you put something in the pupils' environment and that can suddenly trigger them to go off and do some completely random things…so, I found it very interesting…what, how pupils' think and why certain things would trigger certain behaviours…low level disruption implies there's a negative effect from it… not just one pupil but on the others around them…so, the ideal situation is no low level disruption, but at the same time you don't want a boring class…they sit there, you say something and they do it, you say the next thing and they do it…and no one's got any character…so, I would still like character to be in the lesson, but the ideal lesson was everyone…when asked…were on task most of the time and I would say…[for my research group]…above 90% which is high (ssi5)*

Through descriptive and comparative reflective discourse the student teacher raises a series of questions to examine how factors that trigger low-level disruption can influence pupil learning and development. Moreover, he demonstrates commitment to research that area for personal improvement.

Ten (76.9%) dissertation supervisors' reported (see Appendix O) discussing areas of personal interest was one avenue through which they guided student teachers in selecting a research focus:

> *I try to guide dissertation students from 'behind' as I believe that all the important ideas and decisions need to come from them. After listening to the students' individual ideas, area of personal interest and answers to my pragmatic questions, working parameters are established by the student, which help mould/direct the subsequent project focus (ds9)*

Although most student teachers [73 (91.25%)] expressed commitment to study their own teaching for personal improvement, not all appear to have done so for that purpose:

> *some people (without mentioning any names) do pick things that are easier to go look at…such as feedback or motivation…which lots of people have previously done, so there's lots of guidance…because some people are just seeing it as what mark is going to effect their degree rather than actually something that you are going to be able to use to make you a more effective teacher (ssi1)*

Two (15.4%) dissertation supervisors voiced similar concerns and when it comes to selecting research topics one stated:

> *they play safe rather than wanting to promote change…I do try to encourage 'unique' foci rather than yet another one on 'motivation' or 'teaching styles' (ds5)*

These two excerpts suggest decisions made by some student teachers have more to do with such extrinsic factors as securing a high grade for their research report rather than intrinsic

factors such as wanting to improve the quality of their own teaching. Partial support for this view is that 14 (17.5%) student teachers' reported *Sound subject knowledge in the area* influenced their decision to select a particular research focus (see Appendix J). Another concern raised by 2 (15.4%) dissertation supervisors was that some school staff appeared to both guide the project focus and direct the student teachers research. As one stated, in some cases *early lessons seemed to follow a pre-determined schedule laid down by the mentor/school at the conception of the module (ds9)*. This finding suggests some student teachers have little or no opportunity to select their own research area with a specific group of pupils.

Sixty-six (82.5%) student teachers' reported *Personal commitment and enthusiasm* influenced the ongoing development of their research: 45 (56.25%) ranked this within the highest two cells of influence (see Appendix L). This finding suggests these student teachers studied their own teaching in a wholehearted way for personal improvement.

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 1 of reflective practice was descriptive (n=198: 56.7%) followed by comparative (n=111: 31.8%) and then critical (n=40: 11.5%). This trend was the same for both genders although critical reflective conversations were marginally higher in female than male student teachers. The range between the mean value of student teachers' descriptive (M=16.5) and critical reflective conversations (M=3.33) was notable; this trend was found in both genders. The measure of dispersion for comparative reflective conversations was higher in male (SD=5.46) than female (SD=2.13) student teachers. These results are shown in Figure 5.1.

Figure 5.1 *Distribution of types of reflective conversation in dimension 1 of reflective practice, extracted from interview transcripts*

Study their own teaching for personal improvement	Types of reflective conversation									Total number (%)
	Descriptive			Comparative			Critical			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	(%)
Male	107	17.83	3.71	58	9.66	5.46	17	2.83	2.4	182 (52.1)
Female	91	15.16	5.07	53	8.83	2.13	23	3.83	2.22	167 (47.9)
Total (%)	198 (56.7)	16.5	4.46	111 (31.8)	9.25	3.98	40 (11.5)	3.33	2.26	349 (100)

5.3 Systematically evaluate their own teaching through classroom research procedures: *dimension 2*

To evaluate their own teaching systematically, student teachers are encouraged to gather evidence, on a lesson-by-lesson basis, from a range of sources and perspectives as they conduct their research and reflect on that evidence to inform future planning. 75 (93.75%) student teachers' reported gathering evidence for research from three sources, 3 (3.75%) from four sources, and 2 (2.5%) from two sources. Thus, 78 (97.5%) indicated evidence derived from three or more sources guided the development of their teaching.

The range of data collection techniques student teachers' used for gathering evidence and purposes they identified for using each technique are presented in Table 5.2.

Section 5.3.1 examines purposes student teachers' identified for gathering evidence of their own teaching and section 5.3.2 examines evidence used to evaluate and reflect on practice so as to inform future planning.

Table 5.2: Purposes student teachers' identified for using specific data collection techniques

Data collection techniques	Number (%) of student teachers' reporting the purposes for using data collection techniques [Key to each number is detailed below]																Total n=80 (%)
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	
Pupil																	
• Questionnaires	52 (65)	12 (15)						10 (12.5)									**74 (92.5)**
• Interviews	18 (22.5)						13 (16.25)						2 (2.5)				**33 (41.25)**
• Evaluations	3 (3.75)	4 (5)									3 (3.75)						**10 (12.5)**
• Diaries	1 (1.25)	3 (3.75)													1 (1.25)		**5 (6.25)**
Colleague/peer																	
• Observation schedules		20 (25)		11 (13.75)	9 (11.25)	7 (8.75)									1 (1.25)		**48 (60)**
• Focused lesson observations		3 (3.75)			6 (7.5)	4 (5)			2 (2.5)								**15 (18.75)**
• Questionnaires		2 (2.5)				3 (3.75)		2 (2.5)									**7 (8.75)**
Student teacher																	
• Journal and/or field notes			24 (30)						9 (11.25)	6 (7.5)		5 (6.25)					**44 (55)**
Recording																	
• Videotape		6 (7.5)		5 (6.25)	1 (1.25)						2 (2.5)			2 (2.5)			**16 (20)**
Total per column: n=80 (%)	**74 (92.5)**	**50 (62.5)**	**24 (30)**	**16 (20)**	**16 (20)**	**14 (17.5)**	**13 (16.25)**	**12 (15)**	**11 (13.75)**	**6 (7.5)**	**5 (6.25)**	**5 (6.25)**	**2 (2.5)**	**2 (2.5)**	**1 (1.25)**	**1 (1.25)**	

Key to columns in Table 5.2:

1	Pupils' perceptions, opinions, thoughts and points of view
2	Monitoring pupil learning
3	Recording personal thoughts, observations and key events
4	Monitoring teacher behaviour
5	Monitoring both pupil and teacher behaviour
6	To gain an outsider's perspective, opinion or viewpoint
7	In-depth questions to pupils on a one-to-one basis
8	Information about the teaching group
9	Ongoing account, modification to plan – to inform future planning
10	Reflecting on the effectiveness of the strategy
11	Feedback to pupils to promote their learning
12	To gather qualitative research data
13	In-depth questions to small groups of pupils
14	To cross reference with other sources of research data
15	Disseminate subject knowledge and information to pupils
16	To gather quantitative research data

5.3.1 Purposes for gathering evidence of their own teaching

Table 5.2 clearly shows that the evidence prioritised by most student teachers to guide the development of their research was feedback derived from pupils, followed by feedback from colleagues and peers, followed by information documented in personal field notes and journals.

The most common purpose reported by 74 (92.5%) student teachers for using pupil questionnaires, interviews, evaluations or diaries was to gather *pupils' perceptions, opinions, thoughts and points of view*. Justifications provided to substantiate this purpose are summarised as:

- *pupils' views are important, they should have an opportunity to voice and express their own opinions*
- *pupils' perceptions and viewpoints can be compared with each other*
- *the student teacher can compare personal perceptions with those of pupils*

This finding strongly suggests the perspectives of pupils were a key factor in developing an aspect of teaching for these student teachers: pupils' perspectives were valued and recognition given to the notion that different pupils could have different perspectives and further, pupils' perspectives might be different from their own.

The next most common purpose reported by 50 (62.5%) student teachers for gathering research data from pupils, colleagues and peers, or videotape recordings, was to *monitor pupil learning*. Justifications provided to substantiate this purpose are summarised as:

- *assess what pupils have learned when the student teacher uses different teaching approaches and strategies*
- *recognise differences between pupils to gain greater knowledge about pupil understanding*
- *gain insights into the effects of lesson adaptations and learn what went well and what didn't*

This finding suggests these student teachers, in part, judged the effectiveness of their teaching by focusing on how their teaching influenced pupil learning, particularly in relation to using different approaches and strategies. Student teachers' indicated their knowledge of pupil understanding, could be enhanced by monitoring differences between them. This particular purpose was informed by evidence gathered from the widest range of data collection techniques, as detailed in column 2.

Table 5.2 shows 44 (55%) student teachers' reported keeping personal field notes or journals for four purposes: to record *personal thoughts, observations and key events* [24 (30%)]; to keep an *ongoing account of modifications to their plan* to inform future planning [9 (11.25%)]; to *reflect on the effectiveness of their strategy* [6 (7.5%)]; or, to *gather qualitative research data* [5 (6.25%)]. Justifications provided to substantiate these purposes are summarised as:

- *monitor pupils' learning each lesson and note progressions within class*
- *ensure information was recorded and nothing forgotten*
- *it could be done immediately after the lesson*
- *look back on them for reference at a later date*

This finding suggests these student teachers' recorded personal thoughts, perceptions and modifications to their plan of action in a systematic way not only to guide development of their research but also to keep a diary of events for reference purposes and ensure information was not forgotten.

11 (84.5%) dissertation supervisors' reported (see Appendix O) that advising student teachers to keep personal field notes and journals was one means by which they guided student teachers to devise a plan of action, which allowed for adjustment as their teaching progressed: one elaborated further and encouraged student teachers to *present weekly results in the 'account of experience' as evidence on which to base changes in teaching (ds11).*

Table 5.2 shows 16 (20%) student teachers' reported gathering data from colleagues and peers or videotape recordings for the purpose of *monitoring teacher behaviour* and, 16 (20%) gathered data from the same sources to *monitor both pupil and teacher behaviour.* Justifications provided to substantiate these purposes are summarised as:

- *identify pupil improvement, motivation, participation and developmental needs*
- *monitor and record the effectiveness of teaching strategies*
- *look back on different teaching episodes as it provides a diary of events taking place*
- *it was fun for pupils to observe themselves and develops their evaluating skills*

This finding suggests these student teachers, in part, gathered evidence concerning the effectiveness of their teaching in terms of changes noted either to their own or their pupils' behavioural patterns. Those who used videotape recordings indicated repeated viewings could give rise to further insights about their teaching and when used as a tool to develop pupils' evaluative skills was an *effective strategy to promote pupil learning, understanding and dialogue (st78).* Further, by reflecting on specific lesson episodes one reported he was able *to link events and make more sense of what was happening in the teaching environment (ssi5).*

Ten (76.9%) dissertation supervisors' reported (see Appendix O) discussing the proposed research design was one means by which they guided student teachers to consider the appropriateness of their data collection techniques for gathering evidence and several reported encouraging student teachers to review their research instruments prior to use. For example, one explained she *asks the students to bring any questionnaires to her to look at before they use them; we discuss them and other methods (ds2)* and another *asks students how they are*

going to collect evidence: what sources. Direct them to others if insufficient; guide them to 'Bell' if they're struggling. Get them to produce a tool and review it – pilot it if they can (ds8)

5.3.2 Evaluating and reflecting upon evidence to inform future planning

A range of factors can influence the ongoing development of student teachers' action research experiences. Those pertinent to evaluating and reflecting upon evidence gathered of their teaching to inform future planning are presented in Table 5.3. All factors, which can influence the ongoing development of student teachers research, are detailed in Appendix L.

Table 5.3 Evidence used in evaluating and reflecting on practice to inform future planning in rank order of frequency, percentage and occurrence within the highest two cells of influence

Factor	Description	n=80	100%	n=80 highest 2 cells of influence
6	Data collected from pupils	67	83.75	60
7	Data collected from personal field notes	67	83.75	55
5	Data collected by observers (peer/mentor)	65	81.25	51
17	Reflecting on pupil behaviours	62	77.5	51
16	Reflecting on written feedback received from others	52	65	35
18	Reflecting on your own practice	41	51.25	34
10	Monitoring your own practice	41	51.25	23
14	Regular and systematic evaluation of research evidence	34	42.5	19

(extracted from Appendix L)

There were three major sources of evidence that student teachers' reported using to inform the ongoing development of their research: data collected from pupils, personal field notes and by observers.

Table 5.3 shows *Data collected from pupils* influenced the ongoing development of 67 (83.75%) student teachers research: 60 (75%) ranked this within the highest two cells of influence. This finding suggests these student teachers' evaluated and reflected upon evidence gathered from pupils to inform future planning, as exemplified in the following narrative:

> *it started out as something to increase attainment by pupils, so I could see what the pupils did know, but it was also used as a teaching tool to understand what they didn't know and what I could do the next lesson to adjust that…all of a sudden it was something along the lines related to learning*

outcomes…so, I could see…these are the learning outcomes they have done, these are the ones they haven't and then look at specific pupils, and address that as well (ssi3)

However, a measure of incongruence is noted in student teachers' questionnaire responses, in that, Table 5.2 shows 74 (92.5%) student teachers' reported gathering pupils' perceptions, opinions, thoughts and points of view to inform their research. This finding suggests not all data gathered from pupils was used to move their research enterprise forward. This anomaly can, in part, be understood when student teachers' perceptions as to the effectiveness of their data collection techniques are examined. For example, 30 (37.5%) reported all data collection techniques they designed and used were successful, 47 (58.75%) reported some were successful, and 3 (3.7%) were unsure. Those who questioned data gathered from pupils raised the following concerns:

- *difficulties with pupil literacy*
- *pupils copied answers from their friends*
- *pupils might not answer honestly, fill in forms accurately or be specific*
- *pupils were nervous and struggled to communicate ideas in the interview situation*

These issues are consistent with limitations recognised by researchers (Bell, 2005; Hopkins, 2002) concerning potential disadvantages of using particular research instruments. The 50 (62.5%) student teachers who raised these and similar concerns reported some pupils might feel intimidated when questioned by people they perceived to exert a measure of power over them and demonstrated a cautious, thoughtful and questioning approach to the possible meanings embedded within their research data. The following narrative exemplifies reflecting on the effectiveness of a pupil questionnaire designed for a specific purpose:

I used two sets of questionnaires over two lessons…one set for the first and then I developed it for the next…I wanted to find out what the pupils were thinking and how they felt…looking back now I would have changed the way I'd done the questionnaires…they might have been a little wordy and some of the language used was not really appropriate for year 7's (ssi8)

This suggests the student teacher struggled to design an appropriate research instrument due to her inexperience of designing and implementing research investigations.

Table 5.3 shows *Data collected from personal field notes* influenced the ongoing development of 67 (83.75%) student teachers research: 55 (68.75%) ranked this within the highest two cells of influence. This finding suggests these student teachers' evaluated and reflected upon evidence they themselves had gathered and recorded to inform future planning. Recording personal thoughts of the effectiveness of a particular strategy, immediately after

the lesson while events were still fresh in the mind, enabled the following student teacher to establish improvement targets for his subsequent lesson:

before the lesson I just roughly identified everything that I wanted to happen in the lesson and what I was expecting…then later, when I wrote up the lesson, I wrote what happened and how I thought it had gone and what I wanted to improve for the next week…I didn't use any set questions…I just wrote what I was thinking at the time and once I had finished…and read back through it…I tried to put it into targets and categories…I was keeping track, making it a habit to keep track of things …because my lesson was on Friday in the afternoon I would find a moment to go and write it up, while I was thinking of what had gone on during the lesson…and then I had Friday evening…so, I had the time available to do it, close to it as well…I think it was because there were things…you know…when I look back, I would have forgotten or couldn't remember (ssi12)

There is however a measure of incongruence in student teachers' questionnaire responses, in that, Table 5.2 shows *Data collected from personal field notes and journals* was reported by 44 (55%) student teachers to have informed their research. It can be argued, as student teachers got underway with their research, at least 23 (28.75%) decided to keep personal journals or field notes even though this form of data collection had not been incorporated in their original plan. Alternatively, as described in the following narrative, lesson-by-lesson evaluations assumed greater significance as the research evolved and were translated into a more focused, in-depth means for recording personal thoughts and note key events:

I used a multi-format, and in column four [evaluation of learning outcomes] I would note the significance of the lesson episode, the learning outcomes and see how the pupils responded and maybe one or two notes about teaching style used because everything was differentiated by teaching style…then on page four [overall evaluation of the lesson] I would go into more detail about how successful the pupils were in terms of achieving the learning outcomes in a particular episode and throughout the whole lesson…in my notes I would then go back, using the [university] format, and I would look at time spent on task and maybe if I noted that I had to go and help pupils with a particular task…make a note of that…and I could then use that to inform the planning and design of a sheet later on, questions and future lessons (ssi7)

Table 5.3 shows *Data collected by observers* influenced the ongoing development of 65 (81.25%) student teachers' research: 51 (63.75%) ranked this within the highest two cells of influence. This finding suggests these student teachers' evaluated and reflected on evidence gathered from 'informed' others to guide future planning. Justifications student teachers' provided for gathering data from colleagues and peers are summarised as:

- *having another person looking at my teaching and pupil learning*
- *pick up on what I had not seen*
- *ascertain whether they found the same results as me and if other suggestions provide any more information*
- *assist in evaluating the outcomes of a lesson*

These reasons suggest that student teachers sought feedback, guidance and suggestions from 'informed' others so as to compare personal perceptions and findings with those of

others. In so doing, comparative reflective conversations are evident. Student teachers' reported the value of having their lesson observed by others in terms of: gathering information about events and situations they themselves might not have noticed, helping them judge whether their lesson was effective and receiving suggestions about alternative strategies and approaches they might try in their teaching.

However, Table 5.3 also shows *Reflecting on written feedback received from others* influenced the ongoing development of 52 (65%) student teachers research. This finding suggests not all data gathered from colleagues and peers was evaluated and reflected upon in order to drive their research forward, nor in some cases, deemed to be particularly valuable:

> *I don't think it [observation schedule] was as successful as it could have been because I would say, a lot of it was missed…the observer couldn't always hear everything, especially outside when the wind was blowing and I was over the other side and my observer was sitting in a nice warm coat…right at the edge of the courts (ssi2)*

Two issues arise from the above excerpt. First, the student teacher does not appear to have been wholly supported by school staff in terms of gathering meaningful data for her research and one concern, which emerged from those who questioned the success of data they collected, was observers were not always accurate or consistent (st68). Partial support for this concern, raised by 2 (15.4%) dissertation supervisors, was that the teacher often wanted to do other things with their time which is a shame but understandable (ds9), as well as observing the student teacher in the manner necessary for the study. Second, as noted earlier, the student teacher might have struggled to design a research instrument fit for purpose or to provide appropriate guidelines for the observer in relation to specificity of the data sought.

Table 5.3 shows *Reflecting on pupil behaviour* influenced the ongoing development of 62 (77.5%) student teachers research: 51 (63.75%) ranked this within the highest two cells of influence. This finding suggests these student teachers' evaluated and reflected on evidence, which monitored pupil behaviour to inform future planning. However, Table 5.2 shows only 16 (20%) reported gathering feedback from colleagues and peers or videotape recordings for the purpose of monitoring both teacher and pupil behaviour. Thus, it would be reasonable to suggest student teachers' interpreted the term behaviour broadly to encompass pupil learning.

Table 5.3 shows that *Reflecting on your own practice* and *Monitoring your own practice* were each reported by 41 (51.25%) student teachers as factors which influenced the ongoing development of their research. These findings suggest just over half the student teachers evaluated and reflected systematically on evidence of developments within their teaching

during the research enterprise to inform future planning. It is not readily apparent why 39 (48.75%) student teachers did not report reflecting on and monitoring their own practice as influential factors in the ongoing development of their research, particularly in light of some findings reported in this section. For example, 67 (83.75%) reported reflecting on and evaluating data gathered from personal field notes was influential to the ongoing development of their research. Thus, it would be reasonable to suggest some student teachers' interpreted these two factors solely in terms of what they themselves were doing in their own teaching.

Table 5.3 shows *Regular and systematic evaluation of research evidence* influenced the ongoing development of 34 (42.5%) student teachers research. This finding suggests these student teachers' evaluated and reflected upon all research evidence they gathered systematically and formatively to guide development of their teaching. The following narrative exemplifies how reflecting on evidence, gathered in relation to a particular aspect of teaching, influenced one student teacher's approach to evaluation:

> *I think I was just more aware of what I was doing in my lessons and more aware of what I could change…I found that in my first three teaching practices, when I was writing my lesson evaluations, I was almost writing them for the sake of writing them because they had to be in our file. Then I got to my action research project in year 4, and even when I wasn't focusing upon this group, when I was writing my lesson evaluations and unit evaluations, I was really thinking about the things that I've done and the things that I could change in the future and I just found that whole process a lot more realistic and a lot more relevant to what I was doing…so, I think it has definitely given me more ability to evaluate what I've done and look for ways of improving it…when you go through the whole process from working out something you want to improve and then doing it and then constantly reflecting…it's just like when you become a teacher…each group is going to be different and if you can't change things and you can't evaluate what you've done, you're never going to further the learning experience for the pupils and I just feel that through doing this project, I've been given the opportunity to have to look at myself and examine what I've done and it has, it's been really, really…I feel it's been really beneficial…and really improved my teaching personally, particularly of Key Stage 4 groups because that's where I had problems in my teaching before (ssi6)*

Several improvements to personal practice are signalled in the above narrative, which the student teacher attributed to her experience of having engaged in the cyclical process of reflecting on practice through action research. She indicated her ability to systematically evaluate and search for reasons behind the outcomes of her teaching had improved, not only in relation to lessons with her research group, but moreover in lessons and units of work with other groups of pupils. As a consequence, areas of teaching in which she had previously encountered problems subsequently improved through her increased awareness of how she could change aspects of personal practice. Her reference to being *given the opportunity to have to look at myself and examine what I've done* is noteworthy, as it implies placing herself under the microscope, for in-depth scrutiny and analysis about the outcomes of her

teaching, was somehow different to the way she had previously evaluated her effectiveness as a teacher.

It is not readily apparent why 46 (57.5%) student teachers did not report that regular and systematic evaluation of research evidence was influential in the ongoing development of their research. This finding requires further exploration.

Ten (76.9%) dissertation supervisors' reported the action research experience had influenced the development of *all* or *most* student teachers to assess their current practice whereas 3 (23.1%) reported the experience had only influenced the development of *some* student teachers in this area (see Appendix P).

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 2 of reflective practice was descriptive (n=364: 45.8%) followed by comparative (n=338: 42.6%) and then critical (n=92: 11.6%). This trend was the same for male but not female student teachers who differed in the rank order of frequency between descriptive and comparative reflective conversations. The range between the mean value of student teachers' descriptive (M=30.33) and critical (M=7.66) reflective conversations was notable; this trend was the same for both genders. The measure of dispersion for comparative reflective conversations was higher in female (SD=14.35) than male (SD=9.02) student teachers. These results are shown in Figure 5.2.

Figure 5.2 *Distribution of types of reflective conversation in dimension 2 of reflective practice, extracted from interview transcripts*

Systematically evaluate teaching through classroom procedures	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	197	32.83	12.05	158	26.33	9.02	48	8	3.89	403 (50.8)
Female	167	27.83	14.13	180	30	14.35	44	7.33	3.82	391 (49.2)
Total (%)	364 (45.8)	30.33	12.79	338 (42.6)	28.16	11.59	92 (11.6)	7.66	3.7	794 (100)

5.4 Link theory with their own practice: *dimension 3*

One key feature of reflective practice as student teachers' study their teaching is the capacity and commitment to link theoretical principles underpinning aspects of pedagogy with their own practice (Eraut, 1994; Stenhouse, 1975, 1983). Student teachers can draw on knowledge from a range of sources as they seek to improve their teaching. Sources of knowledge reported to have influenced the ongoing development of research are presented in Table 5.4.

Table 5.4 Sources of knowledge which influenced the ongoing development of student teachers' research in rank order of frequency, percentage and occurrence within the highest two cells of influence

Factor	Description	n=80	100%	n=80 highest 2 cells of influence
4	Knowledge gained from a personal search of literature	56	70	37
3	Knowledge gained from professional studies modules	45	56.25	26
1	Knowledge gained from previous school experiences	39	48.75	26
2	Knowledge gained from practical PE modules	28	35	16
24	Knowledge gained from a course outside the university	1	1.25	1

(extracted from Appendix L)

Table 5.4 shows *Knowledge gained from a personal search of literature* influenced the ongoing development of 56 (70%) student teachers' research: 37 (46.25%) ranked this within the higher two cells of influence. 22 (27.5%) student teachers' reported *Reading about the research of others* had inspired them to select a particular research focus (see Appendix J). Reflecting on theoretical principles underpinning an aspect of pedagogy and seeking to link those principles to personal practice, informed by a personal search of literature is exemplified in the following narrative:

> *once I got into reading of it (the effect of feedback on performance) I questioned 'is feedback the reason why pupils' performance improves or, are there a number of reasons?' Pupils do respond to 'well done, good and excellent'…and they do respond and think 'yes, I'm doing something right'…but they might not be quite sure what they have done right. So, they need something else…so, I started to go through some of my readings looking at knowledge of performance and looking at giving them something that they did well. So, if you are doing gymnastics 'well done, you pointed your toes there, now let's try to think about fluency when you go into the next stage'. So, they have something to improve on, and know what they have done well and their knowledge of performance is improving (ssi9).*

This illustrates how a potential solution to questions raised about factors which might improve pupils' performance, was informed by the student teachers' readings related to knowledge of performance. Through descriptive and comparative reflective conversations the commitment to act upon insights gained and enhance the effectiveness of his future teaching is demonstrated.

Eight (61.5%) dissertation supervisors' reported (see Appendix O) that one of the principles they used to guide student teachers was to encourage them to undertake a personal search of literature *to find out what others have done in similar related studies (ds9).* It is noteworthy that one dissertation supervisor remarked *it does make them read (ds8).*

Table 5.4 shows *Knowledge gained from professional studies modules* influenced the ongoing development of 45 (56.25%) student teachers' research: 26 (32.5%) ranked this within the higher two cells of influence. An example of reflecting on theoretical principles of pedagogy introduced during a university-based module and linking those principles to school-based practice to realise a specific goal with a specific group of pupils is:

> *I wanted to look at whether there was a correlation between using the gifted and talented register and being able to highlight how pupils learn…it came about because of one particular group (high ratio of gifted and talented) that had a lot of variety, as far as PE was concerned and for their own particular strengths in other areas of the national curriculum…it was a large group so it became a way of seeing how I could deliver material to them most effectively, as individuals and as a group…by differentiating my lessons through teaching styles (self-check, reciprocal and guided discovery)…in three ways…it taught me a lot about managing my teaching environment…to have three groups of pupils, each doing three activities in three different places…and knowing that I needed to see all of them and provide feedback to them…whether it was to the performer, or observer or participant…it taught me a lot about time management within that…and…'letting go' to a certain extent…to let the pupils have more responsibility for their own learning (ssi7)*

This exemplifies how the student teacher approached teaching a specific group of pupils in an exploratory way as she questioned how particular teaching styles might promote independent learning. Although an understanding of how some teaching styles encourage pupils to take responsibility for their own learning is implicit within her lesson design, she questions whether pupils identified as gifted and talented in different areas of the curriculum would respond in the same or different ways to differentiating lessons through three specific teaching styles. Her approach follows the guidance principle reported by 5 (38.45%) dissertation supervisors (see Appendix O) in terms of ensuring the research context and setting was taken into consideration: notably, *the individuality of pupils, the circumstances of the school, and the climate of the department (ds10).*

Table 5.4 shows *Knowledge gained from previous school experiences* influenced the ongoing development of 39 (48.75%) student teachers' research: 26 (32.5%) ranked this within the

higher two cells of influence. It is unclear whether these responses relate to knowledge gained about personal developmental needs, as in, *Personal audit of QTS Standards* and *Limited subject knowledge in an area* (see Table 5.1) or aspects of teaching and learning they had been introduced to and learned about from past school experiences.

Table 5.4 shows *Knowledge gained from practical physical education modules* influenced the ongoing development of 28 (35%) student teachers' research. Reflecting on theoretical principles underpinning an area of physical activity to guide personal teaching is exemplified in the following narrative:

> *we did a really good health module…that emphasised how important health is in PE and that it's our responsibility to put that across to pupils…also, with a lot of things that are going on within the curriculum to do with the way we're teaching…it's an area that has been really flagged-up in the media as well…which is an area of interest to me…health and activity…and the lack of activity that young people engage in (ssi6)*

This illustrates how the student teacher situated her research in an aspect of teaching within the wider professional landscape by referring to initiatives in the school curriculum, which mirror public interest concerning the health and activity of young people. The catalyst for her research area can be traced to knowledge gained from a university-based taught module as, through critical reflective discourse, she questions how to promote health and activity through her teaching and demonstrates commitment to link theory with her own practice.

When student teachers' compare, contrast and evaluate theoretical principles underpinning knowledge gained from university experiences, school experiences and personal search of literature and endeavour to link that knowledge to a specific context, they can disclose anomalies between epistemological assumptions underpinning that knowledge. An example of reflecting upon theoretical principles underpinning a particular aspect of pedagogy derived from multiple perspectives and linking those principles to personal practice is:

> *in gymnastics you're on show a lot of the time…it's usually a very skilful activity, and if you don't feel good about yourself…I think it can be quite detrimental to you and it can mould your feelings about PE in general…I hoped that I could use the mix of the class to perhaps influence the less able pupils who turned out to be the pupils with low self-esteem…to help them develop…and keep anxiety levels to a minimum…other researchers had found that in schools with mixed ability teaching a lot of it was very random and there was no real purpose to the way the pupils were grouped…all the things you're told at university…you know, quick ways of grouping, and on previous teaching experiences…just line them up in height order and group them…1, 2, 3, 4…there's not a lot of thought gone into that other than how quickly you can get them into groups and sometimes you just need to take a bit more consideration and time to think…'right, what's actually going to happen when they go into these groups?'…I found that as the tasks got more challenging, the similar ability groups were less effective, that pupils came off task quite quickly because they found the activities too challenging…things like body tension and their ability*

to support others wasn't there and I think pupils became quite frustrated…and I found mixed ability grouping…having someone that was more able than them in the group worked better with more challenging tasks…because their expectations were higher I think they tried to pull the less able pupils up with them (ssi4)

This exemplifies how the student teacher challenged and questioned theoretical principles underpinning knowledge she had acquired from university and previous school experiences. Inspired by her search of literature and personal research findings, she concluded that more thought needed to be given to the purposes behind grouping pupils in a particular way as she found this particular aspect of teaching can influence pupils' self esteem and approach to tasks they perceive as challenging. Her narrative suggests she has both the commitment and ability to link theory derived from multiple perspectives to her own practice. Also, within her discourse, and reported by one (7.7%) dissertation supervisor as characteristic of the more perceptive student teachers are indications that *a philosophy of education was starting to emerge…they are producing their own criteria…they 'own' their teaching…not just the development of their pedagogic expertise (ds10).*

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 3 of reflective practice was descriptive (n=237: 47.7%), followed by comparative (n=166: 33.4%) and then critical (n=94: 18.9%). This trend was the same for both genders. The range between the mean value of student teachers descriptive (M=19.75) and critical (M=7.83) reflective conversations was notable; this trend was the same for both genders. The measure of dispersion for comparative reflective conversations was higher in male (SD=6.08) than female (SD=3.93) student teachers, as was the dispersion in critical reflective conversations (male SD=7.82: female SD=3.72). These results are shown in Figure 5.3.

Figure 5.3 *Distribution of types of reflective conversation in dimension 3 of reflective practice, extracted from interview transcripts*

Link theory with their own practice	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	122	20.33	9.17	86	14.33	6.08	42	7	7.82	250 (50.3)
Female	115	19.16	8.75	80	13.33	3.93	52	8.66	3.72	247 (49.7)
Total (%)	237 (47.7)	19.75	8.57	166 (33.4)	13.83	4.91	94 (18.9)	7.83	5.9	497 (100)

5.5 Test a personal belief or theory: *dimension 4*

Another key feature of reflective practice is the student teachers' capacity and commitment to question epistemological assumptions underpinning personal beliefs and theories they might hold about particular aspects of teaching and learning. *Testing a belief or theory* was reported by 30 (37.5%) student teachers to have influenced the ongoing development of their research: 13 (16.25%) ranked this within the higher two cells of influence (see Appendix L). For these student teachers, the action research enterprise provided a vehicle to challenge and question the epistemological assumptions upon which their personal beliefs and theories were based and to scrutinise why they think about teaching and learning in a particular way. Reflecting on a personal belief in relation to a particular aspect of pedagogy and questioning the epistemological assumptions upon which it was based is shown in the following narrative:

> *I have always thought that pupils who struggle physically won't get the best attainment grade if they can't have their evaluating and knowledge of health related fitness assessed…I wanted to give a better picture at the end of the unit of how well the pupils are doing across the knowledge, skills and understanding…that was my philosophy…that assessment in PE was all very skill observation and these two strands were undernourished…are these pupils' low ability purely because they are assessed on physical competence or are they actually better than their grades indicate but haven't got an opportunity to show it? Now I am more aware of the way different pupils learn…not all pupils will learn by practice-practice-practice because if they don't understand they will spend hours doing it and they still wont' do it right my previous assumption was they are not coordinated or they haven't got the motor skills and I would presume it was purely a lack of physical competence…now it's increased my awareness and questioning of 'why' aren't they doing it? Are they doing it wrong because they don't understand or because they can't? Pupils' lack of performance is not always because they physically can't…it can often be because they don't understand…and that's in all that I teach now (ssi3)*

This illustrates commitment by the student teacher to test a personal belief by studying specific aspects of pupils' knowledge, skills and understanding. As he questioned the focus and purpose behind traditional forms of assessment in physical education, and challenged his previously held assumptions about the significance behind assessment grades, insights gained from his research served both to consolidate and reshape his belief about the interrelationship between pupils' levels of performance and levels of understanding. It is noteworthy that in so doing he remarked *I had to tread carefully and not say…I think a lot of your assessment is two-stranded and not a four-stranded approach (ssi3).* This statement indicates not only that the student teacher was testing a personal belief, but moreover through critical discourse he demonstrated confidence and integrity to challenge the way assessment was approached in his school.

Six (46.15%) dissertation supervisors' indicated testing a theory or teaching strategy was an important aspect of the student teachers' action research experience (see Appendix N). Concern was raised that student teachers often model their behaviour on that of teachers they had once experienced while they were pupils, which can result in a style of teaching that is *inappropriate in a changed context (ds13).* Engaging in action research was considered to be a vehicle, which could *open their eyes (ds12)* to alternative approaches and the realisation of how their actions as teachers impact on the learning experiences of pupils. The suggestion was made that testing a theory or strategy was implicit within the nature of the task itself, as student teachers are encouraged to *consider-apply-endorse-reject theoretical standpoints and, to justify the stances/methods chosen (ds6).* Having the opportunity to test a theory before full-time work was considered important as it enabled student teachers to *gain a better insight into teaching (ds4)* from the experience.

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 4 of reflective practice was descriptive (n=97: 51.6%), followed by comparative (n=56: 29.8%) and then critical (n=35: 18.6%). This trend was the same for both genders. Of the total number of reflective conversations (n=188: 100%) almost two thirds originated from male (n=120: 63.8%) as compared to female (n=68: 36.2%) student teachers' transcripts. The mean value of student teachers' descriptive reflective conversations (M=8.08) was almost three times that of critical reflective conversations (M=2.91) and this trend was the same for male student teachers. Female student teachers

differed in that descriptive reflective conversations (M=5.33) were just over twice that of critical reflective conversations (M=2.5). These results are shown in Figure 5.4.

Figure 5.4 *Distribution of types of reflective conversation in dimension 4 of reflective practice, extracted from interview transcripts*

Test a personal belief or theory	Types of reflective conversation									Total number (%)
	Descriptive			Comparative			Critical			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	65	10.83	3.97	35	5.83	3.76	20	3.33	3.93	120 (63.8)
Female	32	5.33	2.73	21	3.5	1.87	15	2.5	2.07	68 (36.2)
Total (%)	97 (51.6)	8.08	4.33	56 (29.8)	4.66	3.08	35 (18.6)	2.91	3.02	188 (100)

5.6 Consider alternative perspectives and possibilities: *dimension 5*

In order to gain further understanding or challenge and question personal assumptions, beliefs and theories in their teaching, student teachers are encouraged to consider a range of alternative perspectives and possibilities. The capacity and commitment to do this are key features of reflective practice. Perspectives student teachers can draw upon incorporate those derived from: pupils, peers, school-based staff, university-based staff, dissertation supervisors, theoretical literature and findings from research studies. In the following narrative, the student teacher reflects on how she compared and contrasted views from multiple perspectives to guide the focus and direction of her research:

> *I looked through a lot of literature and came across a self-determination approach, in particular for those pupils…how you could promote PE and physical activity in the future…my dissertation supervisor helped me to narrow the topic down because I had it as a whole area of the amount of physical activity that the pupils performed, but we needed to put that into context of how I could improve my teaching so it was something we narrowly targeted…my mentor gave me some really useful ideas and things that she thought, from her point of view, could be changed…as well as reflecting myself she was able to reflect and help me make decisions…written feedback from my mentor after each lesson was really useful because I could see in the first lesson that I wasn't giving enough feedback to pupils…'through your classroom managing, if you feedback in the next lesson, that could improve their motivation' (ssi5)*

This illustrates how, in receiving guidance and advice from alternative perspectives, the student teacher demonstrated an appreciation of *the value of discussing aspects of teaching with colleagues (ds11).*

As noted in Table 5.2, *Pupils' perceptions, opinions, thoughts and points of view* were gathered by 74 (92.5%) student teachers to support their research. 15 (18.75%) conducted pupil interviews, either individually or in small groups, to ask more probing, in-depth questions related to their study. Table 5.3 shows 67 (88.75%) student teachers' reported that *Data collected from pupils* influenced the ongoing development of their research. These findings suggest these student teachers sought pupils' perspectives to gain further understanding or challenge and question assumptions, beliefs and personal theories they held about their teaching.

As noted in Table 5.4, *Knowledge gained from a personal search of literature* was reported by 56 (70%) student teachers to have influenced the ongoing development of their research. This finding suggests that these student teachers sought the perspectives of others by consulting theoretical literature or research studies undertaken by others to gain further understanding or challenge assumptions, beliefs and personal theories about their teaching.

As noted in Table 5.3, 65 (81.25%) student teachers' reported that *Data collected by observers* and 52 (65%) reported that *Reflecting on written feedback received from others* influenced the development of their research. In addition to written evidence, student teachers can gain advice, guidance and suggestions about alternative possibilities from the perspectives of peers and colleagues through discussion and verbal feedback, as shown in Table 5.5.

Table 5.5 Peers and colleagues perspectives which influenced the development of research in rank order of frequency, percentage and occurrence within the highest two cells of influence

Factor	Description	n=80	100%	n=80 highest 2 cells of influence
8	Discussions with others	54	67.5	37
15	Reflecting on verbal feedback received from others	42	52.5	32
9	Suggestions from others	42	52.5	29

(extracted from Appendix L)

One noteworthy finding is that 42 (52.5%) student teachers' reported *Reflecting on verbal feedback received from others* (see Table 5.5) and 52 (65%) reported *Reflecting on written feedback received from others* (see Table 5.3) were influential in the development of their research. This finding suggests written feedback was perceived to be of more value than verbal feedback by some student teachers.

Table 5.5 shows 54 (67.5%) student teachers' reported *Discussions with others* was one factor which influenced the ongoing development of their research: 37 (46.25%) ranked

this within the highest two cells of influence: and, 42 (52.5%) reported *Suggestions from others* influenced the ongoing development of their research: 29 (36.25%) ranked this within the higher two cells of influence. These findings indicate discussions with peers and colleagues guided the development of more student teachers' research than did acting upon the suggestions they had made.

It is not readily apparent why 26 (32.5%) student teachers did not report discussions with others, nor 38 (47.5%) that suggestions from others had influenced the ongoing development of their research. Only 14 (17.5%) student teachers' reported selecting a research area in which they perceived themselves to have sound subject knowledge (see Appendix L). These findings can, in part, be understood when student teachers' perceptions as to whether their research had made an impact on staff in their school are examined (see Appendix M). Reasons provided by 46 (57.5%) student teachers who reported their research probably had not, or definitely had not, made an impact on staff were grouped into six broad themes as shown in Table 5.6.

Table 5.6 Student teachers' perceptions as to why their research probably had not, or definitely had not, made an impact on staff in their school

Reasons	n=80	100%
Knowledge and expertise	13	(16.25)
Disinterest and lack of support	12	(15)
Lack of awareness or involvement	8	(10)
Set in their ways	7	(8.75)
School wide issues	6	(7.5)
Research outcomes not shared	3	(3.75)
Total number of response items	49	

There were three main reasons, which affected whether student teachers acted upon suggestions made by colleagues through discussions with them:

- Twelve (15%) student teachers made reference to a *lack of support* and in some cases *disinterest* shown by school staff in what they were doing. One stated that, although school teachers were cooperative and completed observation schedules, *they never asked about the findings or how the study was developing (st8)* and another disclosed his mentor *was not present for most research lessons (st48)*

- Eight (10%) student teachers made reference to school staffs' *lack of awareness* or *lack of involvement* in their research due to their own tendency not to want to involve others

- Seven (8.75%) student teachers made reference to school staff being *set in their ways,* having personal teaching styles and methods of delivery they would *stick to, as they know what works best (st77)*

These views partially explain why 47 (59.75%) student teachers did not report *Support, commitment and enthusiasm of others* had influenced the ongoing development of their research (see Appendix L). This finding however, is incongruent with student teachers' responses noted earlier, in that, 54 (67.5%) reported *Discussions with others* had influenced the development of their research (see Table 5.5).

Dissertation supervisors add another variable. Five (38.45%) indicated that some student teachers' failed to seek advice, guidance and support through one-to-one discussions and tutorials with them. One remarked *those who sought tutorials with me faired better than those who failed to seek support (ds7)* and another reported *those who are good are very, very good; those who don't see you can sometimes miss the point (ds8).* This finding suggests these dissertation supervisors' considered some student teachers were disadvantaged when they did not seek support through discussions and tutorials with them. Another concern raised by dissertation supervisors was that the current structure of school experience (in school 5 days a week teaching as opposed to the former pattern of 4 days a week teaching and 1 day back in university) reduced *the amount of face-to-face tutorials (ds12)* which could be undertaken with student teachers even though other channels of communication, such as *telephone, texting and email contact can partially compensate for this (ds12).* The opportunity to guide and give feedback to student teachers was thus perceived to be *more at arm's length (ds4)* than it had been in the former course structure. One further challenge noted was student teachers not having *one day a week to visit the library…and take time to focus solely on their research (ds11).*

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 5 of reflective practice was comparative (n=304: 64%), followed by descriptive (n=117: 24.6%) and then critical (n=54: 11.4%). This trend was the same for both genders. The range between the number of descriptive and critical reflective conversations was higher in male (descriptive 71% - critical 19%) than female (descriptive 46% - critical 35%) student teachers. The range between the mean value of student teachers' comparative (M=25.33) and critical (M=4.5) reflective conversations was notable; this trend was the same for both genders. The measure of dispersion in comparative reflective conversations

is higher in female (SD=10.15) than male (SD=4.33) student teachers. These results are shown in Figure 5.5.

Figure 5.5 *Distribution of types of reflective conversation in dimension 5 of reflective practice, extracted from interview transcripts*

Consider alternative perspectives and possibilities	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	71	11.83	1.94	150	25	4.33	19	3.16	1.72	240 (50.5)
Female	46	7.66	5.81	154	25.66	10.15	35	5.83	3.97	235 (49.5)
Total (%)	117 (24.6)	9.75	4.67	304 (64)	25.33	7.45	54 (11.4)	4.5	3.23	475 (100)

5.7 Try out new strategies and ideas: *dimension 6*

Having considered alternative perspectives and possibilities from a range of sources, as detailed in section 5.6, student teachers are encouraged to try out new ideas and strategies in their teaching for personal growth and improvement. The capacity and commitment to do this is another key feature of reflective practice (Eraut, 1994; Stenhouse, 1975, 1983) and numerous variables can drive this forward: limited subject knowledge in a particular area, inspired by the research of others, supporting a school-wide initiative (see Appendix J).

Fifty four (67.5%) student teachers' reported *Trying out new strategies and/or ideas* influenced the ongoing development of their research: 43 (53.75%) ranked this within the highest two cells of influence (see Appendix L). This finding shows these student teachers' embraced the research enterprise in an exploratory manner to further their knowledge, skills and understanding of complexities inherent within teaching by trying new approaches and ideas to ascertain which strategies and approaches might be most effective to realise specific goals.

By contrast, 26 (32.5%) student teachers did not report *Trying out new strategies and/or ideas* influenced the ongoing development of their research. It is reasonable to suggest these student teachers' approached their research by drawing from, or building upon, strategies and approaches, which already existed in their pedagogical repertoire. The following

narrative exemplifies how, experimenting with the use of a software package [ICT Dartfish] recently introduced into the school, informed the student teacher of new ways to promote pupil learning:

> *if I was to see a good model of one or two pupils' performing I could then get them to do a demonstration where I could video it and then replay the demonstration back in slow motion or pause it…focus on particular areas and give them cues and teaching points e.g. if I wanted them to look at body tension or composition then I would say…I want to show that again and this is what we focus on…watch the feet, can anyone tell me about the feet during the performance…which seemed to help them…the groups would stand round and…it was very good for the pupils that were actually performing the demonstration but I also think it aided the other pupils…I feel now that I have got a basis for taking ICT into my teaching…so, I feel more confident and comfortable and I've got a greater understanding of what does and doesn't work and what will help pupils to learn and what might get in the way of pupils' learning …so, in the future I think, if I decide there are certain lessons I want to use ICT to help, if it can help the lesson, I will be able to do so. So, if I'm going to teach a gym lesson and I think that using Dart fish is going to increase their learning and increase their understanding I am now at a point where I'll be able to do it, whereas before the action research…I would have been a bit unsure about it (ssi12)*

Through reflecting on the effectiveness of different approaches using Dartfish to enhance pupil learning and development, the student teacher reported gaining greater awareness and understanding of approaches that worked effectively and importantly, of those which might hinder pupil learning. His confidence to use the software package and further develop his teaching had grown as a result of trying it out with a particular group of pupils in a particular context. Further, he demonstrates capacity and commitment to use this approach along with insights gained in other areas of teaching if, as he perceives, it can increase pupil learning and understanding.

Three (23.1%) dissertation supervisors reported the action research experience had influenced development of *most* student teachers' understanding of the 'rationale of change' whereas 10 (76.9%) reported the experience influenced development of *some* student teachers' understanding in this area (see Appendix P). One proposed *like any significant experience…the impact of the dissertation process is probably not understood completely until some time after (ds10)*. Dissertation supervisors' indicated that their support for judgements made of student teachers' understanding of the rationale of change stemmed, in part, from examining the ongoing account of experience in the final written report. Reference was made to seeking evidence of the degree to which student teachers were *willing/able to modify or revise the plan of action for the subsequent lesson (ds9)* and their ability to be *innovative in planning project 'steps' and willingness to try different approaches (ds11)*. Reference was also made to searching for student teachers' acknowledgement of endeavours to *correct an undesirable situation by taking notice of pupils' and observers' views (ds9)* followed by making the necessary change and adjustments to their own teaching.

When problems are encountered with particular aspects of teaching or with particular teaching groups student teachers can experiment with new strategies and ideas to search for ways of resolving those problems. *Seeking solutions to a problem* was reported by 26 (32.5%) student teachers to have influenced the ongoing development of their research: 19 (23.75%) ranked this within the highest two cells of influence (see Appendix L). Seeking solutions to a problem indicates on the one hand, student teachers have recognised it as a problem and on the other, demonstrate commitment to find ways of resolving the problem. As he reflects on a series of triggers, which might influence the behaviour of a particular teaching group, the following discourse exemplifies a sequential pattern of thinking used by the student teacher to deliberate over strategies he might put in place to prevent such problems from arising in the first instance:

> *The weather is possibly an influence…I had one windy lesson when the pupils did go off on one…running around like nutters, rolling about on the ground, pushing, shoving, balls getting kicked everywhere, screaming, shouting…a bit of everything really!*
> *I identified environmental factors which could be in the pupils' environment at any one time…one of the big ones was 'have they got a rugby ball?'…if they've got a rugby ball that is an instant trigger to an awful lot of children to say 'I'm going to kick this, I'm going to throw it, I'm going to throw it at my friend's head'…I came to the conclusion that if you gave a ball purpose…so, this ball has to be moving this direction, it has to touch that line, come back, touch that line…when you bring them in, you say 'put the ball between your knees and kneel on it'…with most pupils it reduced low level disruption…they would just leave the ball because it had purpose. Where the rugby balls are placed in the environment…can the pupils see the bag of rugby balls? - the side of the hockey goal they are not seen by the pupils and they don't interfere with them…*
> *Pupils in the environment…one pupil could look at three different pupils…one could be significant in his environment – he's a friend, he bothers what he thinks of him…(another)…doesn't know him – not really a friend, doesn't care…(another)…they hate each other and will do anything to disrupt each other…they've all got different perceptions…if you try and understand the perceptions of a child – who they look at, who they find significant, you can swap these around to try and get your best working groups.*
> *The perceived control of the teacher by the distance in the environment…if I was at any point not in the pupils direct environment (although there was no definite line drawn) at a certain distance the pupil would perceive you as being out of their environment and they would just not see you and at that point, low level disruption started to trigger off…pupils' kicking balls again, rolling around in the mud…but…if you split the pupils into very small groups and make sure you're either in their eye-line, which puts you in their environment, or close enough that you're considered in their environment…by them…the low level disruption tended to decrease.*
> *Establishing personal boundaries…they might deviate from it by about a metre or so but they'd immediately turn around and go back into the area they were supposed to be working in…it was quite interesting to watch [video excerpt] because it seemed to all be subconscious…I worked out that grids would be the best because each pupil had their own little area, so they couldn't go wandering off…if there were no explicit boundary line…as on the very first lesson…they went for miles and would run as far as they possibly could (ssi5)*

This illustrates logical reasoning as the student teacher engages in the process of problem identification, means-ends analysis and generalisation (LaBoskey, 1993). He describes what

factors in the environment have potential to trigger low-level disruption when teaching rugby 'outside' to a particularly lively group of year 8 boys and considers what consequences might prevail if he fails to incorporate certain strategies within his lesson design. Through seeking solutions to a potential problem, he found ways to minimise incidents of low-level disruption: giving the rugby ball purpose, establishing pupil boundaries, grouping pupils in specific ways, being mindful of personal proximity as perceived by his pupils. The narrative exemplifies the cyclical process of action research as the student teacher systematically analyses, evaluates and reflects on the outcomes of implementing particular approaches and strategies and uses insights gained formatively to modify his plan of action for future lessons.

The ongoing process of formative evaluation, which gives rise to modified practice through systematic, self-reflective enquiry is brought about when student teachers' retain teaching approaches and strategies which worked effectively and discard or further refine those found less effective. In this way, student teachers ground theory in their own teaching and build a repertoire of exemplars, images and metaphors they draw upon to frame each unique teaching situation (Schon 1983, 1987). Personal theories regarding approaches and strategies, which might work effectively in particular contexts, are thus formulated:

> *I did feel that the approaches that I used, the self-determination approach, really did effect the levels of motivation and really improved the attitude of pupils from the feedback that I got from them and from the kind of data that I'd collected throughout my study…but…I still maintain that it's really difficult in the situation that we're in to have a real lifelong impact…I thought what would work…really it didn't…and I think that was quite surprising…that things you really would flag up as having an effect didn't…and it was the small things…just like giving them a little bit of choice of activities for a warm-up out of say three set activities…they were all involved and they all participated and appeared to really enjoy it…things that I found successful I tried to use with other groups…so, letting them choose their own groups and letting them choose activities, like warm-up activities…I still wouldn't bring all the changes in with some Key Stage 3 groups…particularly with year 7 and 8…just because I think that they need…sometimes…a little more structure and they need to be told almost that 'you are getting in those groups'…because it would be chaos otherwise…but…particularly with year 9 and 10…some of the aspects that worked with my dissertation group were kind of universal…and did really, really work (ssi6)*

This narrative demonstrates how understanding the appropriateness of particular teaching strategies enabled the student teacher to frame different situations, as she exercised discernment and professional judgement of strategies and approaches which might work effectively, with pupils of different ages across the Key Stages. In so doing, she describes how attention to detail, awareness of the *small things* in the teaching context, assumed increased significance.

Seven (53.8%) dissertation supervisors' reported that the action research experience had influenced *most* student teachers' in terms of how they think, make decisions and solve problems whereas 6 (46.2%) reported the experience had influenced the personal development of *some* student teachers in those areas (see Appendix P). The opportunity to engage in self-reflective enquiry was perceived to encourage student to further develop their *higher order thinking skills of analysis, synthesis and evaluation (ds13), to think more laterally (ds8)* and engage in *reasoned argument on a specific point (ds10).*

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 6 of reflective practice was descriptive (n=181: 50.8%), followed by comparative (n=128: 36%) and then critical (n=47: 13.2%). This trend was the same for both genders. The range between the number of descriptive and comparative reflective conversations was higher in male (descriptive n=107: comparative n=21) than female (descriptive n=74: comparative n=71) student teachers. The range between the mean value of student teachers' descriptive (M=15.08) and critical (M=3.91) reflective conversations was notable. Although this trend was the same for both genders, the range was higher in male than female student teachers. These results are shown in Figure 5.6.

Figure 5.6 *Distribution of types of reflective conversation in dimension 6 of reflective practice, extracted from interview transcripts*

Try out new strategies and ideas	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	107	17.83	8.81	57	9.5	6.53	21	3.5	1.37	185 (52)
Female	74	12.33	6.65	71	11.83	4.53	26	4.33	2.06	171 (48)
Total (%)	181 (50.8)	15.08	7.98	128 (36)	10.66	5.49	47 (13.2)	3.91	1.72	356 (100)

5.8 Enhance the quality of pupil learning: *dimension 7*

A fundamental feature of reflective practice is the student teachers' capacity and commitment to focus on the needs and interests of pupils in order to enhance the quality

of their learning experiences. Seventy-five (93.75%) student teachers indicated that they had influenced pupil learning and development by reflecting on practice during their research: 37 (46.25%) reported definitely, and 38 (47.5%) probably, they had influenced pupil learning and development (see Appendix M). By contrast, 4 (6.25%) student teachers reported reflecting on practice probably had not influenced pupil learning and development (see Appendix M) and one stated his research:

> *was not specifically designed for pupil learning…more to enhance motivation and get them involved in doing PE and enjoy – some of the low achievers didn't gain anything or respond (st8)*

This suggests pupil learning had been interpreted in a very distinct way by the student teacher and did not embrace learning, which can emanate from changing the pupils' affective state.

Areas in which student teachers perceived they had influenced pupil learning and development were grouped into five broad interrelated themes as shown in Table 5.7.

Table 5.7 Areas in which student teachers' perceived they had influenced pupil learning and development

Area of pupil learning and development	N=80	100%
Enhancing pupil progress and achievement:		
• Improved physical performance	(22)	(27.5)
• Improved physical performance and acquisition of new knowledge, skills and understanding	(15)	(18.75)
• Acquisition of new knowledge, skills and understanding	(6)	(7.5)
• Achievement of lessons' learning outcomes	(6)	(7.5)
Total:	49	
Changing pupils' behaviour patterns:		
• Increased participation, engagement, effort or academic learning time	(27)	(33.75)
• Greater responsibility for their own learning through self assessment, peer assessment, independent learning	(17)	(21.25)
Total:	44	
Changing pupils' affective state:		
• Increased motivation, enthusiasm, enjoyment or interest	31	38.75
Enhancing pupils' perceptions of self:		
• Self efficacy, self esteem, perceived competence	14	17.5
Increasing pupils' social awareness:		
• Communication and cooperative learning skills, roles and responsibilities within group processes	13	16.25

(extracted from Appendix K)

There were three main areas in which student teachers' reported they had influenced pupil learning and development. Table 5.7 shows the most common area was enhancing pupil progress and achievement in several areas: improved physical performance; improved physical performance and acquisition of new knowledge, skills and understanding; acquisition of new knowledge, skills and understanding; or, achievement of lesson learning outcomes. The next most common area was changing pupils' behaviour patterns in terms of: increased participation, engagement, effort or academic learning time; or, assuming greater responsibility for their own learning through self assessment, peer assessment and independent learning. The third most common area of pupil learning and development was changing pupils' affective state in relation to: increased motivation, enthusiasm, enjoyment or interest.

Clearly, these findings indicate some student teachers' perceived they had influenced pupil learning and development in more than one area and that these areas are not always separate. From the initial concern to change pupils' behaviour patterns in relation to physical activity time, the following narrative exemplifies how reflecting on practice guided the student teacher to refine her research focus and consider other factors, which influence pupil learning and development:

> *at the beginning…all I wanted to do was to increase activity time and then look at different factors that might have influenced that…they were only active for something like 18 minutes [60 minute lesson]…I was horrified! When you start this action research…it's like an explosion of stuff because…just looking at your teaching…but then it's all these other things that come in as well…it's just massive…I could have done it for a whole year I think! The first lesson we did they were really slow and sluggish…so, the next week I looked at motivation and giving verbal feedback whilst they were working, which seemed to motivate them…but, rather than increasing activity time it increased the intensity of activity time…so, then I had heart rate monitors…I didn't think I was going to necessarily look at the intensity but it was relevant…I looked at target zones and one pupil had only worked for one minute in her target zone, so she was only above 145 beats for one minute…I thought that was just awful for a lesson…so, the next lesson I used a 'games for understanding' approach…they were really working so hard…more than 30 minutes of activity and the pupils that were wearing the heart monitors, it showed the intensity was right up there…but at the end of that lesson I looked at how much they'd actually learned…and they hadn't really learned anything…so that was a big question mark for me…do you teach them or just let them get on and be active? (ssi8)*

This illustrates both the complexity and interrelationship of numerous variables, which influence pupil learning and development. By refining the focus of her research in light of lesson-by-lesson analysis and evaluation of what was happening in the environment, she exercises discernment and professional judgement so that modifications to her plan of action can lead to more effective outcomes in the interests and needs of her pupils. As she reflects upon the outcomes of pupil learning and development each lesson, she raises

searching ethical and moral questions as to what the predominant focus of her pupil learning and development experiences should be.

Thirty eight (47.5%) student teachers' reported *Refining the focus* of their investigation influenced the ongoing development of their research: 25 (31.25%) ranked this within the highest two cells of influence (see Appendix L). This finding suggests these student teachers' endeavoured to accommodate the interests and needs of pupils by adopting a flexible, adaptable and questioning approach to their research as it progressed. Findings reported in section 5.3 support the view that pupils' voices were considered an important and integral part of student teachers' endeavours to focus on their respective needs and interests, so as to enhance the quality of their learning experiences.

It is noteworthy that in reporting on how they perceived they had influenced pupil learning and development many student teachers made reference to areas of personal development, which enabled them to accomplish this. References made to areas of personal development were grouped into three broad interrelated themes as detailed in Table 5.8.

Table 5.8 Areas in which personal development was perceived to have influenced pupil learning and development

Area of personal development	N=80	100%
Greater understanding, insight and awareness of:		
• How to promote pupil understanding	17	21.25
• How to accommodate individual pupils	14	17.5
• How to evaluate pupil learning	12	15
• How I teach	11	13.75
• What I can do to improve	8	10
• How to provide/receive focused pupil feedback	5	6.25
Total:	67	
Thinking more about:		
• What teaching approaches and strategies promote pupil learning	18	22.5
• How to plan future lessons	15	18.75
• How I evaluate my own practice	12	15
• The implications of my research findings	8	10
Total:	45	
Enhanced knowledge of pupils:		
• ability levels	21	26.25
• specific learning needs	19	23.75
Total:	40	

There were three main areas in which student teachers' reported personal development had influenced pupil learning and development. Table 5.8 shows the primary area was *greater understanding, insight and awareness* of specific aspects of pedagogy. Within this theme, the most commonly cited areas of personal development include: how to promote pupil understanding, accommodate individual pupils and evaluate pupil learning.

The next most common area in personal development reported by student teachers was *thinking more* about specific aspects of teaching and research. Within this theme the most commonly cited areas include: what teaching approaches and strategies promote pupil learning and development. The most commonly cited principle concerned what teaching approaches and strategies would promote pupil learning, how to plan future lessons and how the student teachers evaluated their own practice.

The third area of personal development reported by student teachers was *enhanced knowledge of pupils*. This theme incorporates enhanced knowledge of pupils' ability levels and specific learning needs. Reflecting on the needs of a particular group of pupils to enhance their learning and development is exemplified in the following narrative, which features descriptive, comparative and critical types of reflective discourse:

> *there was a lot of ADHD [Attention Deficit Hyperactivity Disorder] and it didn't seem to be approached very well…when I was researching I found so many things about it…is ADHD a real thing? Is it an excuse for bad behaviour, bad diet? On the medical side there's a lot about the effects of vitamins, arguments…but there wasn't much on developing learning, developing participation, using ICT, using different methods. So, the one thing I've learned…is that we don't know much about it at all in the teaching profession. How to incorporate ADHD pupils? How to improve them and develop them in PE and other subjects? It seems to be a bit of a blank area…what I've found is the pupils want to learn…they do want to learn…it's just getting them into a state of mind where they'll do what they're supposed to do…there were loads of little challenges…instances of pupils running off in the rain, and stomping through the sandpit on the field…pupils climbing up wall bars and refusing to come down…throwing things, breaking things…some of the pupils' patience was so short…they'd be getting on fine with their partner and then it just seemed that they'd spark off and would be attacking each other…for no apparent reason…!*
> *I think I've learned a lot from it…I mean my teaching hasn't changed…it's the way I approach it…it's focusing on the pupil learning and seeing what's worked, what hasn't…and I think sometimes people forget that they are there to teach pupils…they kind of forget the final transition bit of actually making sure pupils have learned something…for example, doing a closure or question and answer session at the end of the lesson to stop and actually find out what has been learned and what they need to do in the next week (ssi10)*

This narrative recounts personal experiences with a particularly challenging group of pupils who exhibited a complex range of characteristics associated with ADHD. In her quest to find possible reasons which might cause them to 'spark off' or 'climb up wall bars' and 'refuse to come down', she demonstrates commitment by focusing on how to engage them

and promote learning by addressing their specific needs. Further, she demonstrates commitment to evaluate what pupils have learned and use insights gained to inform future planning. This student teacher was one of 23 (28.75%) who reported *A need identified in relation to a specific teaching group* influenced their decision to select a particular research focus (see Appendix J). Another reason that guided her decision was that she found the *Area had not been researched a great deal before* (see Appendix J).

Six (46.15%) dissertation supervisors' reported the action research experience had improved *most* student teachers' ability to maximise learning opportunities for pupils and a further 6 (46.15%) reported the experience had influenced the personal development of *some* student teachers in this area (see Appendix P). Three (23.1%) dissertation supervisors made reference to student teachers' increased knowledge and understanding of how pupils learn, how pupils differ and how they recognised the need to *tailor lessons according to the age, ability, culture and gender (ds13)* of pupils. In so doing, student teachers' gained increased understanding of how to *differentiate their own teaching to accommodate difference and diversity (ds13)*. One stated student teachers find it necessary to *observe children more closely and to draw conclusions based upon those observations (ds4)* and another reported:

> a pupil doesn't necessarily learn just because they attend the lesson; thorough preparation and careful execution doesn't guarantee a positive learning situation for all; a good lesson doesn't always 'travel' from one group to another without some adjustments; different personalities give rise to different learning styles which in turn require different teaching styles; whilst striving for perfection, even a good lesson can usually be improved; student teachers become acquainted with a more flexible approach, such that all pupils in their charge may benefit simultaneously (ds9)

This finding appears to be incongruent with the 75 (93.75%) student teachers who reported they had influenced pupil learning and development. The anomaly can, in part, be understood by distinguishing between the ability to *influence* pupil learning and development and the ability to *maximise* learning opportunities for pupils.

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 7 of reflective practice was descriptive (n=203: 44.4%), followed by comparative (n=186: 40.7%) and then critical (n=68: 14.9%). This trend was the same for both genders. The range between the mean value of student teachers' descriptive (M=16.91) and comparative (M=15.5) reflective conversations was very small as compared to critical (M=5.66) reflective conversations; this trend was the same for both genders but more so for female student teachers. The measure of dispersion for descriptive and comparative reflective conversations was higher in female (descriptive SD=6.86: comparative SD=9.5)

than male (descriptive SD=2.78; comparative SD=6.22) student teachers. These results are shown in Figure 5.7.

Figure 5.7 *Distribution of types of reflective conversation in dimension 7 of reflective practice, extracted from interview transcripts*

Enhance the quality of pupil learning	Types of reflective conversation									Total number (%)
	Descriptive			Comparative			Critical			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	103	17.16	2.78	87	14.5	6.22	36	6	3.63	226 (49.5)
Female	100	16.66	6.86	99	16.5	9.5	32	5.33	2.73	231 (50.5)
Total (%)	203 (44.4)	16.91	4.99	186 (40.7)	15.5	7.72	68 (14.9)	5.66	3.08	457 (100)

5.9 Critically reflect on their own teaching: *dimension 8*

An essential characteristic of extended professionals is their capacity and commitment to critically reflect on their own teaching and act upon insights gained to inform future planning, improvement and development. This section is divided into four sub-sections to trace evidence of student teachers:

Reflecting on practice to improve their own teaching

Motivation to search for reasons behind the outcomes of their teaching

Ability to critically reflect on reasons behind the outcomes of their teaching

Situating their own teaching within the wider professional landscape

5.9.1 Reflecting on practice to improve their own teaching

Seventy one (88.75%) student teachers' reported that reflecting on practice during their research had influenced their teaching: 36 (45%) reported it definitely had, while 35 (43.75%) indicated it probably had, influenced their teaching (see Appendix M). Aspects of improvement student teachers perceived in their own teaching were grouped into three broad interrelated themes as detailed in Table 5.9. Several themes and sub-themes complement those presented in Table 5.8, which highlights areas in which student teachers reported that personal development had influenced pupil learning and development.

Table 5.9 Student teachers' perceptions of improvement in their own teaching

Areas of improvement	N=80	100%
Greater knowledge and understanding:		
• Creating a positive learning environment	27	33.3
• Different levels of pupil ability	21	26.25
• Pupils' diverse learning and special needs	19	23.75
• Effectiveness of teaching approaches and strategies	18	22.5
• How to promote pupil learning	17	21.25
• How pupils learn	13	16.25
Total:	115	
Personal characteristics:		
• Thinking more	45	56.25
• Searching for new ideas	15	18.75
• Increased confidence to try new approaches	10	12.5
• Enhanced motivation when pupils are actively learning	7	8.75
Total:	77	
Evaluating own practice:		
• Informed future planning	15	18.75
• Analysing what worked and why	14	17.5
• Making decisions	12	15
• How I teach	11	13.75
• Seeking feedback from others	10	12.5
• What I can do to improve	8	10
Total:	70	

Table 5.9 shows the main theme in which student teachers' perceived improvement in their own teaching was *greater knowledge and understanding* of how to enhance the quality of pupil learning. The most common sub-themes were expressed in terms of greater knowledge and understanding of: how to create a positive learning environment; the differences between pupils' levels of ability; and, how to accommodate those with diverse learning and special educational needs. For example:

use of more demonstrations to promote pupil understanding (st61)
ways I can tailor my teaching to suit pupils' needs (st14, st15)

The most recurring improvement perceived in the *personal characteristics* theme was expressed in terms of *thinking more* about a range of pedagogical principles and procedures. Table 5.9 shows 45 (56.25%) student teachers made reference to this sub-theme, which was

the most common aspect of improvement reported across all themes. The most frequent improvements noted within the theme *evaluating own practice* comprise: more informed future planning, analysing whether strategies were effective, finding out why and decision-making. For example:

> *looking in detail at what occurs in my lessons and how I influenced this (st25, st37)*
> *more carefully planned lessons by taking information into account (st4, st11, st38, st40, st44, st77)*
> *assessment as a learning tool rather than a measure of learning (st1)*
> *identifying strengths and weaknesses that can be worked on (st18, st24,st46, st62, st66, st78)*

These findings strongly suggest the majority of student teachers believed that reflecting on practice had influenced their teaching in a wide range of areas. However, 7 (8.7%) reported reflecting on practice probably had not influenced their teaching (see Appendix M) and one remarked:

> *goal setting was very time consuming in the way I used it…would probably use a variation of what I did (st68)*

This suggests although a particular strategy was not considered effective in the way the student teacher approached it, by evaluating how he had used it in a particular context, future teaching in goal setting would be better informed.

Twelve (92.3%) dissertation supervisors' indicated one of the most important aspects of student teachers' action research experience was the potential it had in enabling them to reflect on themselves and on their own practice (see Appendix N). Ten (76.9%) reported the action research experience had influenced the ability of *all,* or *most*, student teachers to reflect on their own practice, while 2 (15.4%) reported the experience had influenced *some* of them (see Appendix P). A matrix was used to probe how well dissertation supervisors' perceived that the student teachers they had overseen reflected on practice as they engaged in research: each made between 1 and 3 entries which gave rise to 28 response items, as shown in Table 5.10.

Table 5.10 Dissertation supervisors' perceptions as to how well student teachers' they supervised had reflected on their own practice

	All	Most	Some	None	Total
Exceptionally well	0	1	7	1	9
Reasonably well	1	8	4	0	13
Not very well	1	0	5	0	6
Total	2	9	16	1	28

Of the 28 response items, 10 (35.7%) indicate *all* or *most* student teachers reflected exceptionally well or reasonably well and 11 (39.3%) that *some* student teachers' reflected exceptionally well or reasonably well. Accordingly, 21 (75%) response items are largely positive and favourable in terms of dissertation supervisors' perceptions as to how well these student teachers reflected on their own practice. The remaining 7 (25%) response items however, appear to be largely negative and unfavourable as they indicate these student teachers did not reflect very well on their own practice.

Dissertation supervisors' suggested that by applying the principles of action research to an aspect of their own teaching student teachers' developed the capacity to analyse their practice more fully and in more depth; one made reference to their ability to *internalise* the action research process so that *each new lesson should be better than its predecessor (ds9)*. In turn, this was perceived to develop reflection and the student teachers' ability to reflect more widely on other aspects of their practice: *as student teachers' apply the knowledge of their own experiences one would hope that the positive effects in terms of reflection would transfer to other areas of practice (ds3)*. As a consequence this process was perceived to *improve the quality of their teaching (ds11)* and for student teachers to *learn more about themselves as teachers and about the process of teaching (ds4)*.

Dissertation supervisors' indicated their judgement for gauging how well student teachers reflected on their own practice arose, in part, from one-to-one discussions and tutorials with them. One explained basing judgements on:

> *the level of debate within these discussions and an appreciation of the enormous number of variables within teaching that affect its effectiveness/pupil learning in addition to the realisation that changes in their teaching really affect pupil learning (ds11)*

As noted in section 5.6, however, 5 (38.45%) dissertation supervisors' reported a minority of student teachers failed to seek advice, guidance and support through one-to-one discussions and tutorials with them. Therefore, it is reasonable to suggest judgements for gauging how well student teachers' reflected on their practice arose, in large measure, from the final written report.

Four (30.7%) dissertation supervisors' reported the action research experience had improved the quality of *most* student teachers' own teaching and 7 (53.8%) reported the experience had influenced *some* student teachers in this area (see Appendix P). One stated in most cases it is clear from discussions and the final written report that student teachers *have become more effective practitioners (ds7)* and another commented:

experience suggests that even the least perceptive student teachers make comments which suggest improvement…in discussion, most student teachers are capable of being more analytical about their teaching (ds10)

This said, an alternative perception is also evident:

l believe they are too narrow in their reflection…to make a real difference to them as people…the quality of self-development…as a result of them analysing themselves and…the discourses that are around them…is minimal…they have not engaged (ds5)

These two excerpts suggest dissertation supervisors have different perceptions of how reflecting on practice influenced student teachers' ability to improve the quality of their own teaching.

5.9.2 Motivation to search for reasons behind the outcomes of their teaching

Forty nine (61.25%) student teachers' stated that reflecting on practice had influenced their motivation to search for reasons behind the outcomes of their teaching: 15 (18.75%) reported definitely yes and 34 (42.5%) probably yes (see Appendix M). These student teachers' demonstrated commitment to explore why their own teaching was or was not effective.

By contrast, 23 (28.75%) student teachers' indicated reflecting on practice had not influenced their motivation to search for reasons behind the outcomes of their teaching: 21 (26.25%) reported probably no and 2 (2.5%) definitely no (see Appendix M). Explanations provided by 12 (15%) student teachers challenge this view, as exemplified below:

my motivation to be a good teacher didn't change (st32)
I feel that I teach what I think the pupils need to learn from previous lessons (st47)
I am able to adjust lessons if and when pupils' fail to achieve a learning outcome (st29)

These explanations suggest motivation to search for reasons behind the outcomes of teaching was already embedded in practice prior to these student teachers' research experience. Interview transcripts were examined for evidence of student teachers' motivation to search for reasons behind the outcomes of their teaching, five broad interrelated themes were found.

First, 9 (75%) indicated searching for reasons was *important* as:

things happen for a reason…I think it is important to understand why they happen…I think that reading literature is important because you can see something happen and you might have read something about it that suggests that incident happened to them also, and that can help you planning for the future lesson…by reading other peoples' work, having discussions with people who have more knowledge in that area than you, seeing what they have tried and things that might work is very beneficial…things happen for a reason, so if their performance is improving…why is it improving?…and feedback does

help improve but are there other factors?…perhaps practice time, different types of feedback…so yes, looking for reasons behind what's happening in front of you is very important (ssi9)

Second, 9 (75%) reported searching for reasons had increased their *confidence* to make changes to aspects of their teaching:

I feel I can go in and I could change something which I did do and if it doesn't work then that's fine…I'm aware that problems can be solved by changing aspects of my teaching and I know that there's going to be weaknesses in certain areas because there will be with everyone…so, I'm just confident, more confident in making those changes and admitting that I could have done better and I could do that to improve it (ssi6)

This finding was supported by dissertation supervisors' perceptions. For example, 9 (69.25%) dissertation supervisors' reported the action research experience had increased the confidence levels of *all* or *most* student teachers, while 3 (23.1%) reported it had only increased the confidence levels of s*ome* (see Appendix P). Eight (61.5%) dissertation supervisors' considered empowerment to be an important outcome of student teachers' research experience (see Appendix O). One stated, student teachers come to the realisation whenever problems arise *they have the power to do something about it themselves (ds7).* This important stepping-stone *devolves responsibility for changing teaching to the student teacher (ds11)* and has the power to *convince student teachers that they can change accepted practice for the better (ds1).*

Third, 7 (58.3%) student teachers' noted that searching for reasons behind the outcomes of their teaching enhanced their knowledge and understanding of factors which influence *pupil learning and development*:

the psychological underpinnings of self-esteem and things like that has really made me think about the research I've read about how pupils' self-esteem develops and can be affected in schools…it's made me more inquisitive…rather than just taking something as 'right, that's what happened…that's the result'…thinking about why that was the case and why that happened in a lesson (ssi4)

Fourth, 6 (50%) student teachers' reported that searching for reasons behind the outcomes of their teaching encouraged them to raise more questions and *think more* about situations in the teaching-learning environment:

I think in some ways it makes you look more into things or read more into things and look wider at things…you don't just accept things for how they are…it makes you think about things more, even the little things to do with teaching such as how they enter a classroom…if they enter noisily you start looking for different reasons for things…why are they like this today…rather than just accept…that's just the way they are today…I think that is a good thing definitely and it makes you want to get to know the pupils more…it was great getting to know those pupils and being able to understand why they were, how they were…obviously not to the full extent because I don't think you could possibly ever really do that…but I think it makes you want to be more involved and get to know them more (ssi2)

Fifth, 3 (25%) student teachers' indicated searching for reasons behind the outcomes of their teaching was part of the ongoing process of professional development and that knowledge gained from their research outcomes *might only be provisional*:

> *I would not say that I always got it right because to a certain extent action research is trial and error…you take your feedback in and see if that leads you to certain conclusions so you try to put that into practice…I think a lot of the times the changes that I made had a positive effect on the pupils' learning…and I don't think the process is finished yet…there are a lot of things I could extract from the project as a whole…and then go back and do another one and improve it some more… …I think it's important to know why something you do is effective …you can then transfer this into other areas…so, ultimately…the knowledge of 'why' in my opinion is going to be quite effective and important…and to continually want to do that is just part of professional development (ssi7)*

5.9.3 Ability to critically reflect on reasons behind the outcomes of their teaching

Sixty four (80%) student teachers' reported reflecting on practice during their research had influenced their ability to critically reflect on reasons behind the outcomes of their teaching: 15 (18.75%) reported definitely yes and 49 (61.25%) reported probably yes (see Appendix M). This finding suggests the action research experience made an impact on these student teachers in terms of their capacity to examine their own teaching was or was not effective.

Four broad, interrelated themes emerged from 48 (60%) of student teachers' explanations as to why reflecting on practice had influenced their ability to critically reflect on reasons behind the outcomes of their teaching: 16 (20%) student teachers made reference to *evaluating more widely*; 14 (17.5%) to *analysing more closely*; 12 (15%) to *thinking in greater depth*; and, 6 (7.5%) to *receiving advice and guidance* from their mentor or personal search of literature. The first three themes complement those reported in Tables 5.8 and 5.9, which show how student teachers' perceived reflecting on practice had influenced pupil learning and development and improved their own teaching. An example of *evaluating more widely* as to possible reasons behind the outcomes of teaching is:

> *after your lessons when you do your evaluations, you're always looking at why that happened and how can you make it better…and what is it that I did that influenced their learning or why they didn't learn…and why some pupils weren't achieving…so, you always look at why…why, why, why…it usually comes back to the teacher and even if the pupils sometimes are disruptive it's usually because they're bored and the teacher hasn't given enough stimulation…so, you've got to look at yourself and think…how can I change…some pupils are learning yet some pupils are not and you need to ask yourself why (ssi8)*

An example of *thinking in greater depth* as to possible reasons behind the outcomes of teaching is:

to look deeper and evaluate 'what you were seeing' and 'what was happening' and then, this has a knock on effect when it comes to evaluating other lessons because you start to think more about why things are happening…did they actually receive it?…and, not just look at 'yes' they achieved but asking why they achieved? What did you do or what did they do, how did they achieve? (ssi9)

By contrast, 11 (13.75%) student teachers' reported reflecting on practice had not influenced their ability to critically reflect on reasons behind the outcomes of their teaching: 10 (12.5%) reported probably no and 1 (1.25%) definitely no (see Appendix M). Explanations provided by 4 (5%) student teachers suggest critically reflecting on reasons behind the outcomes of teaching was already embedded in their practice prior to their research experience:

I do (have always done) anyway (st9, st30, st73)
I was good at reflecting on my teaching before (st29)

Conversely, another 4 (5%) student teachers' expressed the belief that, although reflecting on practice inspired them to want to know why things happened in the teaching environment, it probably had not influenced their ability to do so:

sometimes you think everything has gone well, that you have achieved what you set out to do but pupils' responses suggest something different – so, it is then hard to reflect on two different views(st8)

This suggests that the student teacher needs support and guidance to critically analyse and evaluate reasons behind the outcomes of his teaching, particularly when conflicting perspectives are encountered. Another student teacher stated that reflecting on practice *has not improved my ability to find out why (st38)* some pupils' struggle to learn new concepts and skills. This suggests the student teacher might benefit from seeking further knowledge and understanding of how pupils' learn new concepts and skills, along with guidance as to how she can recognise and evaluate that learning.

Four (30.8%) dissertation supervisors' reported the action research experience had influenced the development of *all,* or *most,* student teachers to justify aspects of good practice (see Appendix P) and one stated:

even if the submitted research lacks wider significance it does have something original and relevant to say about the students' work in that particular teaching environment; and, this is unique and helpful to student and school, I think – despite sometimes being focal and narrow when seen in a larger context…most students can distinguish elements in their teaching that were more or less effective and rationalise why this was the case (ds4)

However, 8 (61.5%) dissertation supervisors' reported the action research experience had only influenced the development of *some* student teachers' to justify aspects of good practice and 1 (7.7%) reported *no* student teachers development was influenced in this area. This finding reiterates the point noted in section 5.9.1 in relation to differences between dissertation supervisors' perceptions of student teachers' ability to improve the quality of

an aspect of their own teaching. Arguably, if student teachers are unable to justify aspects of good practice they might not recognise what it is they need to do to enhance the quality of their own teaching.

5.9.4 Situating their own teaching in the wider professional landscape

In addition to reflecting on practice in relation to a specific group of pupils within a specific classroom context to evaluate their own teaching, some proponents of critical reflection (Barnett, 1997; Carr and Kemmis, 1986; Moon, 1999) espouse the view that student teachers must situate their practice in the wider professional landscape for their reflections to be deemed truly critical. Interview transcripts of student teachers were examined for evidence of critical reflection in three broad areas beyond the immediate interface of the classroom context: the physical education department; the wider school context; and then local and national contexts.

5.9.4.1 The physical education department

Ten (83.3%) student teachers made reference to influences on their own practice as they reflected on issues within the context of their physical education department. Most reiterated school wide policy and practice (see section 5.9.4.2), which filtered down to departmental level with the following exceptions:

> *prior to my study, as a department we had an outsider come in to run an INSET [In Service Educational Training] day that showed me how to use it… [Dartfish software package]…so I was comfortable about using it and I had the half term to take these resources home and practice (ssi12)*

> *it was department policy that we don't come inside…even if it's raining you have to stay out there…the first lesson we had was torrential rain, the pitches were covered in water, it was muddy, all the pupils are trying to head the balls that are covered in mud (ssi1)*

In addition to reflecting on influences to personal practice, which originated from department initiatives or policy, student teachers made reference to how their own research had an impact on staff in their respective departments. One reported that as a result of sharing research outcomes with his head of department:

> *they have now implemented a set assessment strategy (within the department) and see it as a tool for learning (ssi3)*

Another stated as a result of working closely with her mentor, who expressed optimism in the outcomes of her research:

it got her thinking about her own lessons and how she could improve/try out various ways…she developed an interest in greater differentiation by teaching styles, particularly in Hockey – those after the guided discovery threshold where pupils have ownership of their learning…as clearly the class is now more motivated to participate in Hockey (ssi7)

Similar influences were noted by 30 (37.5%) student teachers who perceived their research had made an impact on staff within their school: 5 (6.25%) reported it definitely had and 25 (31.25%) that it probably had (see Appendix M).

5.9.4.2 The wider school context

Nine (75%) student teachers made reference to influences on their own practice as they reflected on issues in the wider context of their school. The following narrative exemplifies constraints to research, which stemmed from the philosophy senior managers held of the purpose behind physical education and which permeated through to the department level:

the senior teachers in this school…adopted an old school approach….we were asked to submit our proposals to them…they wanted to see what we were doing because we had to send letters home…I don't think they perceived PE as being particularly important. When you think we've been training for 4 years and we've all developed our own philosophies of why we're here, what we're doing, and particularly with my project because I was looking at the future…the importance of physical activity and that's something I'm interested in…for someone to go against that…who, at the end of the day is in charge of you is frustrating…we're justifying what we're doing and they didn't see the importance of it…the school was a very highly achieving school and in terms of extra-curricular, that was a real key point of the PE department…the reason for PE lessons was to contribute to extracurricular…the girls that were within this group were the low ability half of the year group and none of them were involved in extracurricular or particularly enthusiastic about what they were doing…when I gave my proposal to the head teacher she was almost…well you're dealing with the low ability group!…their perception of their ability was very low because they weren't achieving in games' activities and because I brought something new in which was a health related fitness unit of work, they found things that they could do and they found things that would have an impact on them and they could see that…I felt that they really gained from having this kind of study with them rather than me basing it on a high ability group who would be motivated and want to take part anyway (ssi6)

This illustrates how a personal philosophy of aims, which underpin the purpose behind physical education, can be very different from that of others, particularly within the hierarchical structure of a school. Through introducing a low ability group of pupils to a new area of physical activity, the student teacher challenged the traditional games' orientation of physical education embedded within the school curriculum. The narrative also demonstrates how the student teacher adopted a child-centred ethic (Eraut, 1994; Stenhouse, 1975, 1983) by addressing the particular needs and interests of a particular group of pupils, who prior to their health related fitness unit of work were unable to achieve and celebrate success in physical education.

Further references to school wide influences, as student teachers' reflected on their practice include: accommodating *a learning support assistant within her physical education lessons*

(ssi1); seeking a *consultation with the special education needs coordinator to identify specific pupils (ssi5);* and, adopting school wide policies and initiatives. Exemplars of the latter influences are:

> *it was school policy that pupils had to line up and be quiet before they came in to get changed…that lost around six minutes of each 45 minute lesson (ssi8)*

> *I needed to alert Senior Management of all incidents because a lot of it was quite serious stuff…some pupils used to fight so that they would be sent to Room 33…an inclusive room…they would rather do that than do the lessons (ssi10)*

> *the school I was in believed in telling pupils what they needed to get and then giving them their marks, seeing if they have improved…from a 4 to a 5…just seeing the reward they were getting for the hard work they had put in to improve their sequence, listening to what was being said to them and trying to improve was very rewarding (ssi9)*

5.9.4.3 Local and national contexts

Six (50%) student teachers made reference to influences on their own practice as they reflected on issues in local and national contexts. Government initiatives reported, which had been adopted by the school and subsequently impacted their own practice include:

> *formative assessment and attainment target/levels from the national curriculum was a school wide initiative (ssi12)*

> *they had a gifted, able and talented register…all pupils had a national curriculum rating…the differences between the best and the worst was four levels…so, to get these pupils so they could all learn something and all develop their knowledge I think would be the key aim and with such a large difference it was really fundamental that all of them had the opportunity for that (ssi7)*

One particularly poignant influence which combined local, school wide and department issues is captured in the following narrative:

> *I had quite a mix of pupils from bad backgrounds…one of my pupils didn't know she was ADHD, we weren't allowed to tell her…her mother didn't want her to know.*
> *Another one of my pupils…her father had died of cancer and her mother basically said she didn't want her anymore...she was going through foster care and being passed from family to family to family to family…she'd been separated from her brother and she was really troublesome when she started. As a department we managed to turn it round because she was in my form group and she was a smashing pupil, absolutely smashing. It was just…I think she was angry and it was just seeing the results from her within PE and fitting in within the school (ssi10)*

This illustrates a range of emotional, ideological, moral, political and social issues the student teacher had to negotiate both in her pastoral role and as a member of the physical education department.

Findings reported in this sub-section strongly suggest more than four-fifths of the student teachers' situated their teaching in the context of their department and three quarters in the wider context of the school as they critically reflected on their own practice. Further, half the student teachers' situated their teaching in local and national contexts as

they critically reflected on their own practice. These findings however have been challenged as the following narrative highlights:

I think they try to reflect on practice as the project goes ahead, but more on extrinsic items rather than on themselves. I do not feel they 'bring themselves to the writing'…they are somehow removed from the scenario they are investigating…not really engaging in the discourses of the self and the other discourse that surrounds them (ds5)

The expression *bring themselves to the writing* is complex and multi-dimensional as distinctions have been made between the process of reflection and the representation of that process in written form (Moon, 1999). Reference to extrinsic factors supports the point raised in section 5.2 concerning some student teachers' lack of commitment to study their own teaching for personal improvement. The vignettes featured within this section illustrate how some student teachers have engaged in the discourse of self and other discourses, which surround them.

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 8 of reflective practice was descriptive (n=736: 52.6%), followed by critical (n=349: 25%) and then comparative (n=313: 22.4%). This trend was the same for both genders. The total number of reflective conversations for female (n=779: 55.7%) student teachers was higher than that for male (n=619: 44.3%) student teachers. The range between the mean values of critical (M=29.08) and comparative (M=26.08) reflective conversations was very small as compared to descriptive (M=61.33) reflective conversations; this trend was the same for both genders. The measure of dispersion for descriptive reflective conversations was particularly high for female (SD=25.94) as compared to male (SD=16.5) student teachers. These results are shown in Figure 5.8.

Figure 5.8 *Distribution of types of reflective conversation in dimension 8 of reflective practice, extracted from interview transcripts*

Critically reflect on their own teaching	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	333	55.5	16.5	129	21.5	10.31	157	26.16	13.55	619 (44.3)
Female	403	67.16	25.94	184	30.66	16.05	192	32	16.28	779 (55.7)
Total (%)	736 (52.6)	61.33	21.6	313 (22.4)	26.08	13.72	349 (25)	29,08	14.6	1398 (100)

5.10 Continue to improve their own teaching: dimension 9

Earlier sections in this chapter have, in large measure, examined student teachers' perceptions as to how reflecting on practice during their research investigation influenced their own teaching for personal improvement. An enduring hallmark of extended professionals (Eraut, 1994; Stenhouse, 1975, 1983) is their commitment to continue to study their own teaching so as to become more effective practitioners. Student teachers' responses to two areas, which illuminate this commitment, are presented in Table 5.11.

Table 5.11 Student teachers' commitment to continue to improve their own teaching by reflecting on practice

	Definitely yes n=80 (%)	Probably yes n=80 (%)	Probably no n=80 (%)	Definitely no n=80 (%)	n=80	100%
Apply the process of reflecting on practice to other aspects of teaching and pupil learning?	23 (28.75)	49 (61.25)	3 (3.75		75	(93.75)
Interest to engage in further research by reflecting on practice?	13 (16.25)	45 (56.25)	19 (23.75)	1 (1.25)	78	(97.5)

Table 5.11 shows 72 (90%) student teachers' reported they would *apply the process of reflecting on practice* to other aspects of teaching and pupil learning to continue to improve their effectiveness as teachers: 23 (28.75%) reported they definitely would and 49 (61.25%) they probably would. This finding suggests that student teachers' perceived reflecting on practice to be a vehicle through which their own effectiveness as teachers could be enhanced. Moreover, they expressed commitment to reflect on practice in order to continue to improve their own teaching.

Of these, 32 (40%) student teachers' reported they would draw upon insights gained from trying out new teaching approaches, resources and strategies used in their research and *apply these to different areas of physical activity* across the curriculum and with different teaching groups across the Key Stages; and, 29 (36.25%) indicated they would use the process of *self-reflective enquiry* to reflect on other aspects of their teaching and pupil learning. The latter theme was articulated in three ways as summarised below:

- Fifteen (18.75%) student teachers' made reference to *more in-depth analysis* in order to:

examine my own effectiveness (st62)
gain insight into other areas (st6)
adapt every lesson (st78)
think about how to differentiate tasks throughout all PE lessons (st48)
help with other areas of professional development (st16)

- Ten (12.5%) student teachers' made reference to *personal improvement* in order to:

  identify strengths and weaknesses (st48, st71, st78)
  highlight imperfections and find ways to improve (st70)
  gain more confidence and trial methods in areas of weakness (st24)

- Six (7.5%) student teachers' made reference to *enhance pupil learning* in order to:

  gain insight into what actually drives the pupils to learn (st6)
  accommodate pupil needs in my planning (st15)
  address the needs of all pupils (st78)

These findings complement themes, which surfaced in sections 5.8 and 5.9 in relation to how student teachers' perceived reflecting on practice had influenced pupil learning and development and improvement in their own teaching. This suggests these student teachers' demonstrate commitment to engage in the process of self-reflective enquiry for future personal development.

By contrast, 3 (3.75%) student teachers' reported they probably would not apply the process of reflecting on practice to other aspects of teaching and pupil learning to continue to improve their effectiveness as teachers. One stated that it:

takes a lot of time to go through the process…when in school teaching there always seems to be a lot of other things that need to be done…ideas and work are always changing…it is only relevant to the group worked with and in a particular setting [positive feedback on pupil behaviour] (st8)

This suggests reflecting on practice had not become an integral part of analysing and evaluating the outcomes of teaching and pupil learning for this particular student teacher. Rather, reflecting on practice appears to have been perceived as a time consuming process and of relevance only to the situational context in which he had undertaken research. Another student teacher commented he did not have *the will power to do it again (st18).*

Table 5.11 shows, 58 (72.5%) student teachers' indicated they would be *interested to engage in further research* by reflecting on practice: 13 (16.25%) reported definitely yes and 45 (56.25%) probably yes. Of the 52 (65%) explanations provided by student teachers, 47 (58.75%) identified areas of teaching and pupil learning they would be interested to research. These areas were as diverse and varied as those detailed in Appendix K in relation to aspects of teaching, pupil learning and development, year group, pupil characteristics

and range of subject areas within physical education. However, from student teachers' responses, three shifts in emphases were identified:

- Eighteen (22.5%) reported an interest to research subject specific content, teaching strategies and resources for classroom based work with GCSE 'O' and 'A' Level groups where this was the focus for 6 (7.5%) student teachers prior to their research experience;

- Twelve (15%) reported an interest to gain more experience in using ICT within their teaching where this was the focus for 5 (6.25%) student teachers prior to their research experience;

- Four (5%) reported an interest to gain more experience developing and using specific teaching styles where this was the focus for 16 (20%) student teachers prior to their research experience.

Of the remaining 5 (6.25%) student teachers, 4 (5%) reported they would be interested to engage in further research in order to enhance their knowledge and understanding of other aspects of teaching and learning and 1 (1.25%) made reference to *researching issues that would arise in the job (st21)*. Expressing an interest to engage in a specific area of research, which stemmed from her action research experience, is exemplified in the following narrative:

> *it interests me to find out why and not just think 'oh, that's that'…there's a different area as well…motivation came up as one for me…especially the year 7 pupils were so different…I think sometimes it was really hard to motivate them and a couple of examples came up…when we did small games and I tried to make it more fun for them…I'd like to look at it again…but I probably wouldn't do it on such a wide level…I'd like to look at it…possibly in classes…just to try out different strategies and write down what happened and maybe work out some decent ones to use…but I'm not sure whether we'd end up doing that anyway…whether it was action research or not (ssi2)*

By contrast, Table 5.11 shows 19 (23.75%) student teachers' reported they probably would not and 1 (1.25%) definitely would not be interested to engage in further research by reflecting on practice. Four (5%) indicated, although they felt it would be beneficial, it was also time consuming and 3 (4.5%) experienced difficulty finding physical education specific literature in the area studied.

Six (46.2%) dissertation supervisors' reported the action research experience had influenced *most* student teachers to take ownership of personal continuing professional development and 7 (53.8%) reported the experience had influenced *some* student teachers in this area (see Appendix P). One stated the research experience should lay the ground for student teachers in *taking responsibility for their own professional development (ds11)*, one considered the experience was important as it would develop teachers who wanted to *be*

responsible for their own CPD [Continuing Professional Development] through researching within their

own subject area (ds8) and another reported:

> *some of the student teachers will go on to do systematic research and…the year 4 dissertation provides them with a foundation of confidence and a template for professional development…others will be encouraged to see teaching in a more analytical light…even if they do not engage in research…almost all student teachers …I believe…will have been changed…positively…involvement in a worthwhile activity…makes it seem even more worthwhile (ds10)*

Types of reflective conversation

The most common type of reflective conversation found in interview transcripts in dimension 9 of reflective practice was descriptive (n=118: 46.1%), followed by comparative (n=77: 30.1%) and then critical (n=61: 23.8%). This trend was the same for male but not female student teachers who differed in the rank order of frequency between critical and comparative reflective conversations. The range between the mean values of comparative (M=6.41) and critical (M=5.08) reflective conversations was smaller than between that of descriptive (M=9.83) reflective conversations; similar trends were apparent in both genders. These results are shown in Figure 5.9.

Figure 5.9 *Distribution of types of reflective conversation in dimension 9 of reflective practice, extracted from interview transcripts*

Continue to improve their own teaching	Types of reflective conversation									Total number (%)
	Descriptive			*Comparative*			*Critical*			
	N (%)	M	SD	N (%)	M	SD	N (%)	M	SD	
Male	66	11	5.47	46	7.66	3.82	27	4.4	1.64	139 (54.3)
Female	52	8.66	3.26	31	5.16	1.32	34	5.66	4.45	117 (45.7)
Total (%)	118 (46.1)	9.83	4.46	77 (30.1)	6.41	3.02	61 (23.8)	5.08	3.26	256 (100)

5.11 Main research findings

This section draws together the main research findings presented in sections 5.2 through 5.10 for the purpose of gathering evidence to answer the research questions. Figures 5.10 and 5.11 illustrate the main findings of this study in relation to the first research question:

> *How can student teachers' develop reflective practice within the context of action research?*

Figure 5.10: Dimensions of reflective practice in which student teachers perceived they demonstrated capacity and commitment
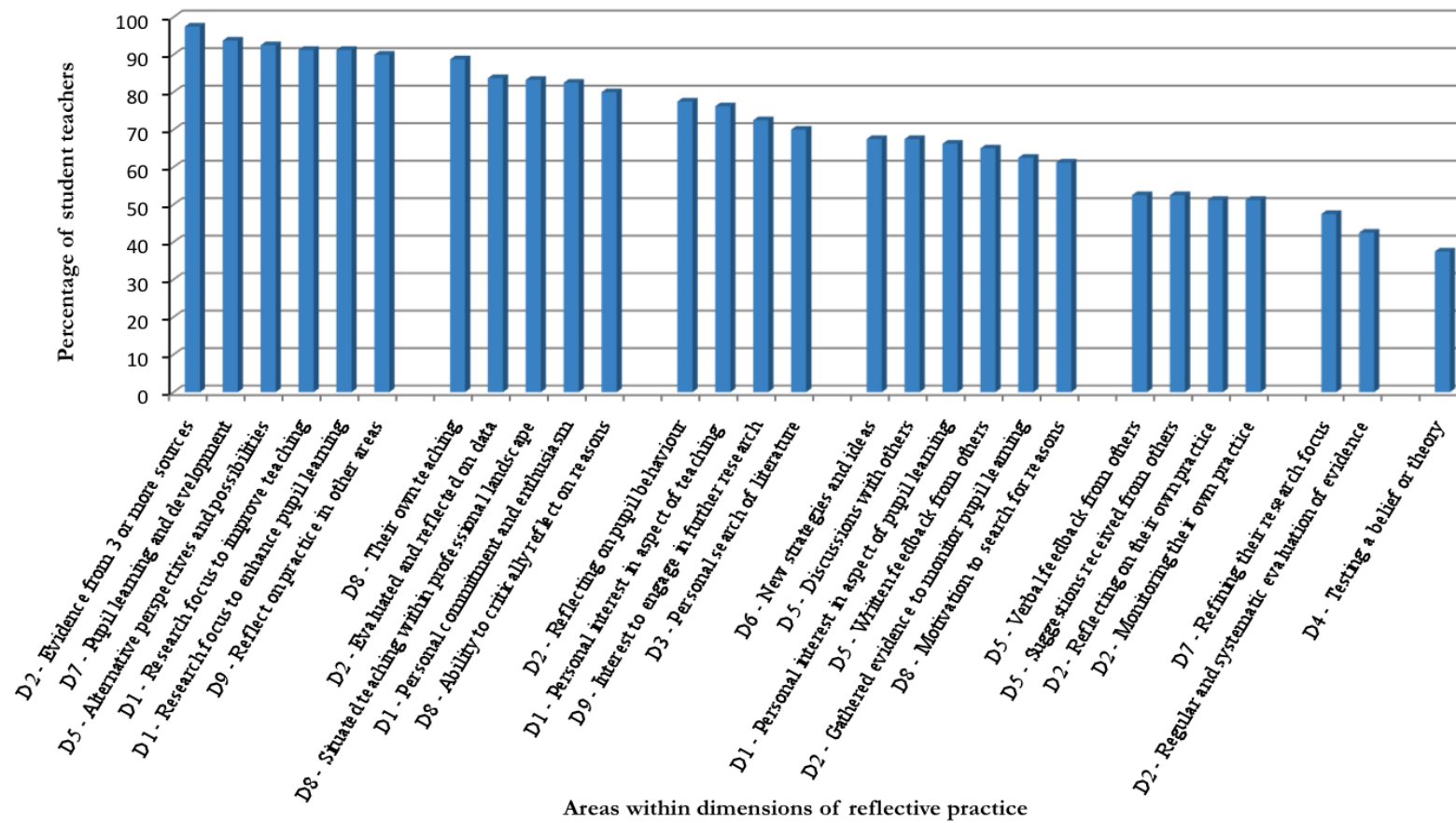
Figure 5.11: Dimensions of reflective practice in which dissertation supervisors perceived student teachers demonstrated capacity and commitment
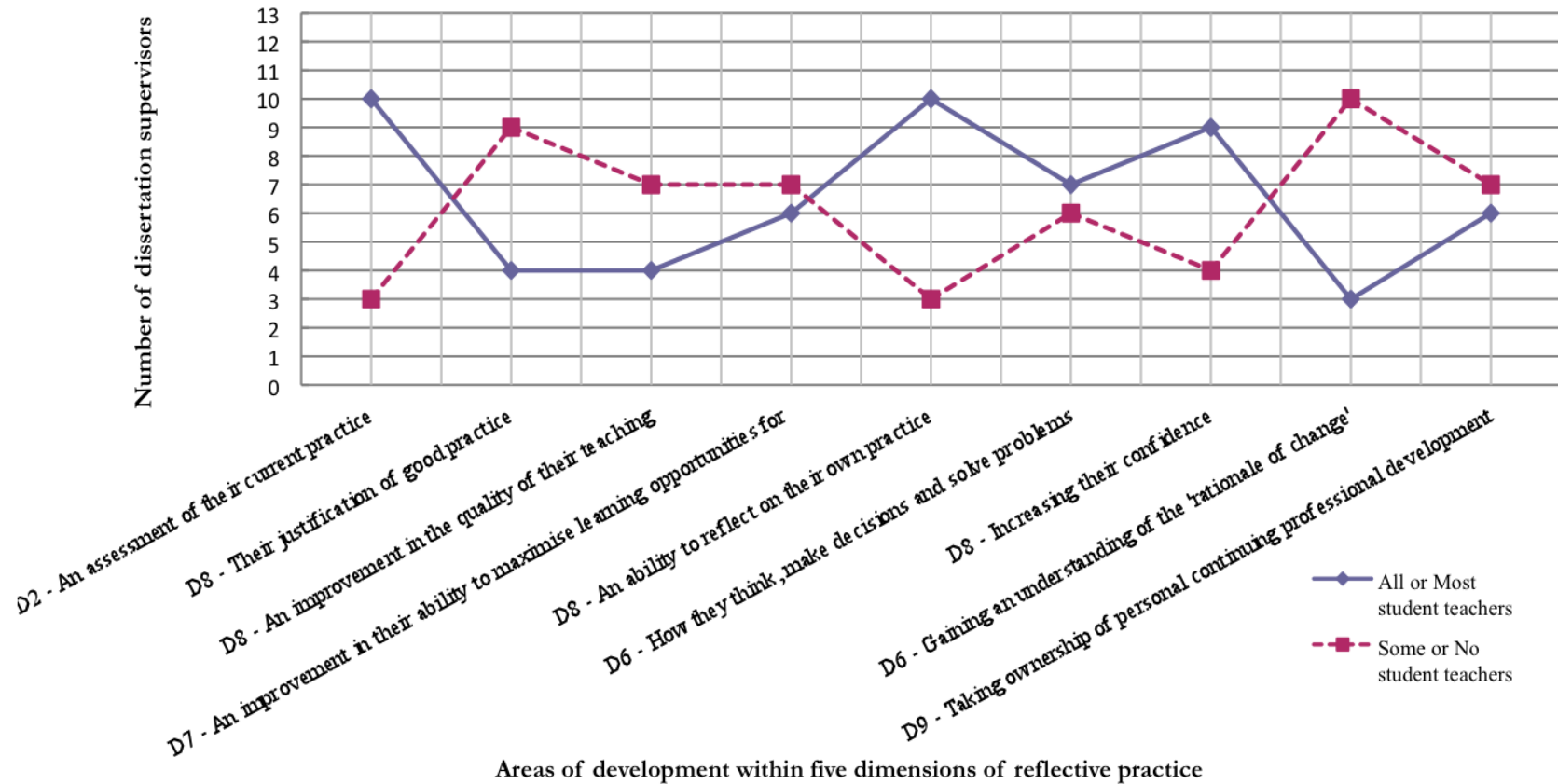
Dimensions of reflective practice in which student teachers' perceived they demonstrated capacity and commitment are shown in Figure 5.10 and those in which dissertation supervisors perceived student teachers demonstrated capacity and commitment are shown in Figure 5.11.

Six areas within five dimensions of reflective practice were perceived by 90% or more student teachers to have been influenced as they studied their own teaching. Gathering evidence from three or more sources through classroom research procedures to inform their teaching (dimension 2) was the most common area and pupil questionnaires the most frequently used data collection technique. Ten dissertation supervisors' perceived the action research experience influenced *all* or *most* student teachers' capacity to assess their current practice whereas three perceived *some* or *no* student teachers were influenced in this area.

The next most common area perceived by student teachers to have been influenced as they studied their own teaching was their capacity to enhance the quality of pupil learning and development (dimension 7) in three main areas: pupil progress or achievement, pupil behaviour patterns and pupil affective states. Six dissertation supervisors' perceived the action research experience influenced *all* or *most* student teachers to improve their ability to maximise learning opportunities for pupils whereas seven perceived *some* or *no* student teachers were influenced in this area.

Student teachers believed that pupil learning and development was attributable to their personal improvement in three main areas: greater understanding, insight and awareness about the principles and procedures of pedagogy; thinking more about aspects of teaching and their enhanced knowledge of pupil difference and diversity.

The third most common area perceived by student teachers to have been influenced as they studied their own teaching was their capacity and commitment to seek alternative perspectives and possibilities to inform their teaching (dimension 5). Gathering pupils' opinions, thoughts and points of view was the most frequently cited perspective sought.

The commitment to improve their own teaching (dimension 1) was demonstrated by the student teachers' decision to select a research focus, which was guided by their concern to improve the *quality* of their teaching and their concern to enhance the *quality* of pupil learning. More than 60% of the 90% who reported these reasons had influenced their choice of research focus rated these factors within the highest two cells of importance. Several dissertation supervisors however, challenged the motivation behind some student teachers' decisions in selecting their particular research focus.

The final area perceived by 90% or more student teachers to have been influenced as they studied their own teaching was demonstrated in their capacity and commitment to apply the process of reflecting on practice to other areas of teaching and learning to continue to improve their own teaching (dimension 9). Six dissertation supervisors' perceived the action research experience influenced *all* or *most* student teachers to assume ownership of their personal continuing development whereas seven perceived the experience had influenced *some* or *no* student teachers in this area.

Five areas within three dimensions of reflective practice were perceived by between 80% and 89% student teachers to have been influenced as they studied their own teaching. These include the capacity to critically reflect on their own teaching (dimension 8) particularly in terms of how they evaluate their own practice and use teaching strategies and approaches. In a similar vein, student teachers' perceived their capacity to critically reflect on reasons behind the outcomes of their teaching (dimension 8) had improved as a consequence of personal development in three main areas: evaluating more widely, analysing more closely and thinking in greater depth. As they reflected on practice student teachers' demonstrated the capacity to situate their own teaching within the wider professional landscape (dimension 8) and critical reflection was very evident. The most common contexts in which student teachers' situated their own teaching were the physical education department and wider context of the whole school. Ten dissertation supervisors' perceived the action research experience had influenced the capacity of *all* or *most* student teachers to reflect exceptionally well or reasonably well on their own practice whereas three perceived the experience had influenced the development of *some* or *no* student teachers in this area.

Student teachers' perceived their ability to evaluate and reflect upon data gathered through classroom research procedures (dimension 2) from pupils, personal journals and observers had been influenced as they studied their own teaching. However, anomalies were evident between the number of student teachers who reported collecting data from multiple perspectives and those who reported actually using that evidence to inform their research.

The final area perceived by between 80% and 89% student teachers to have influenced their own teaching was their personal commitment and enthusiasm during the ongoing development of their research (dimension 1). Four dissertation supervisors' perceived the action research experience influenced the capacity of *all* or *most* student teachers to improve

the quality of their own teaching whereas seven perceived the experience influenced *some* or *no* student teachers in this area.

Four areas within four dimensions of reflective practice were perceived to have influenced between 70% and 79% student teachers as they studied their own teaching. These comprise: demonstrating commitment to gather evidence through classroom research procedures for the purpose of reflecting on pupil behaviour (dimension 2); selecting a research area of personal interest in order to improve the quality of their teaching (dimension 1); demonstrating interest to engage in further research in order to continue to improve their own teaching (dimension 9); and, engaging in a personal search of literature in the endeavour to link theory with their own practice (dimension 3).

Six areas within five dimensions of reflective practice were perceived to have influenced between 60% and 69% student teachers as they studied their own teaching. Student teachers' demonstrated the capacity and commitment to try out new strategies and ideas in order to improve the effectiveness of their own teaching (dimension 6). Seven dissertation supervisors' perceived the action research experience influenced *all* or *most* student teachers in terms of how they think make decisions and solve problems whereas six perceived the experience had influenced *some* or *no* student teachers in this area. Three dissertation supervisors' perceived the action research experience had influenced *all* or *most* student teachers to gain an understanding of the rationale of change whereas ten perceived *some* or *no* student teachers were influenced in this area.

Personal interest in a particular aspect of pupil learning, guided student teachers to select a research focus to improve that aspect of their teaching (dimension 1). Student teachers' monitored pupil learning by gathering evidence from a range of sources through classroom research procedures (dimension 2). Through discussions with informed others and responding to written feedback received from informed others, student teachers demonstrated commitment to consider alternative perspectives and possibilities (dimension 5).

The final area perceived by between 60% and 69% student teachers to have been influenced as they studied their own teaching was that reflecting on practice had increased their motivation to search for reasons behind the outcomes of their own teaching (dimension 8). Importance was attached to this process and confidence to make changes to aspects of their own teaching was perceived to have increased. Four dissertation supervisors' perceived the action research experience improved the capacity of *all* or *most* student teachers to justify aspects of good practice whereas nine perceived the experience

influenced *some* or *no* student teachers in this area. Nine dissertation supervisors' reported the action research experience had increased the confidence of *all* or *most* student teachers, while four reported the experience had influenced *some* or *no* student teachers in this area.

Four areas within two dimensions of reflective practice were perceived to have influenced between 50% and 59% student teachers as they studied their own teaching. These comprise: reflecting on, and monitoring their own practice through classroom research procedures (dimension 2); and, considering alternative perspectives and possibilities by responding to suggestions and verbal feedback received from informed others (dimension 5). It is noteworthy that more student teachers' reported written feedback as compared to verbal feedback received from informed others had influenced the ongoing development of their research.

Two areas within two dimensions of reflective practice were perceived to have influenced between 40% and 49% student teachers as they studied their own teaching. Notably, refining their research focus in order to enhance the quality of pupil learning (dimension 7); and, regular and systematic evaluation of research evidence gathered through classroom research procedures (dimension 2).

The least common area perceived to have influenced 37.5% student teachers as they studied their own teaching was testing a belief or theory (dimension 4). Six dissertation supervisors' reported the opportunity to test a personal belief or strategy was an important aspect of the student teachers research experience.

The findings presented in Figure 5.11 show three main trends. First, there was general agreement between dissertation supervisors that the action research experience influenced the development of *all* or *most* student teachers in three areas:

- An assessment of their current practice
- An ability to reflect on their own practice
- Increased confidence to make changes in their teaching

The first two areas are congruent with the perceptions of 80% or more student teachers and the third with 60% or more of them.

Second, there was general agreement between dissertation supervisors that the action research experience influenced the development of *some* or *no* student teachers in two areas:

- Their justification of good practice
- Gaining an understanding of the rationale of change

The first area is incongruent with the perceptions of between 80% and 89% student teachers and the second incongruent with perceptions of between 60% and 69% of them.

Third, there was general disagreement between dissertation supervisors as to whether the action research experience had influenced the development of *all, most, some* or *no* student teachers in three areas:

- An improvement in their ability to maximise learning opportunities for pupils
- Taking ownership of personal continuing professional development
- How they think, make decisions and solve problems

The vast majority of student teachers' (>90%) perceived they had personally developed in the first two areas and approximately two thirds (>60%) in the latter area.

Potential barriers to student teachers' reflective practice which surfaced from dissertation supervisors and student teachers' questionnaire responses were identified as: disinterest or lack of support by school staff, some of whom were set in their ways; not involving school staff; interventions by school staff; pressures of undertaking research during final school experience; time constraints; not being timetabled with their peer; and, failure by some student teachers to seek advice, guidance and support through discussions and tutorials with their dissertation supervisors.

Figures 5.12 and 5.13 illustrate the main findings of this study in relation to the second research question:

What qualitative distinctions in reflective practice can be drawn between student teachers?

The frequency, percentage, mean value and standard deviation of types of reflective conversation analysed from the sample student teachers' (n=12) interview transcripts are shown in Figure 5.12. This was informed by combining the male (n=6) and female (n=6) composite profiles presented in Table 4.11 (see section 4.7.4) and, which permeate throughout this chapter in the sub-sections entitled *Types of reflective conversation.* The overall frequency distribution of types of reflective conversation used by the male and female student teachers within each dimension of reflective practice are shown in Figure 5.13.

Figure 5.12 Types of reflective conversations used by the sample of student teachers (n=12) within each dimension of reflective practice - reported in terms of frequency, percentage, mean value and standard deviation

	Dimensions of reflective practice	Types of reflective conversation									Total number (%)
		Descriptive			Comparative			Critical			
		Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation	Frequency	Mean	Standard deviation	
1	*Study their own teaching for personal improvement*	198	16.5	4.46	111	9.25	3.98	40	3.33	2.26	349 (7.3)
2	*Systematically evaluate own teaching through classroom research procedures*	364	30.33	12.79	338	28.16	11.59	92	7.66	3.7	794 (16.7)
3	*Link theory with their own practice*	237	19.75	8.57	166	13.83	4.91	94	7.83	5.9	497 (10.4)
4	*Test a personal belief or theory*	97	8.08	4.33	56	4.66	3.08	35	2.91	3.02	188 (3.9)
5	*Consider alternative perspectives and possibilities*	117	9.75	4.67	304	25.33	7.45	54	4.5	3.23	475 (9.9)
6	*Try out new strategies and ideas*	181	15.08	7.98	128	10.66	5.49	47	3.91	1.72	356 (7.5)
7	*Enhance the quality of pupil learning*	203	16.91	4.99	186	15.5	7.72	68	5.66	3.08	457 (9.6)
8	*Critically reflect on their own teaching*	736	61.33	21.6	313	26.08	13.72	349	29.08	14.6	1398 (29.3)
9	*Commitment to continue to improve their own teaching*	118	9.83	4.46	77	6.41	3.02	61	5.08	3.26	256 (5.4)
	Total number (%)	2251 (47.2)			1679 (35.2)			840 (17.6)			4770 (100)

Figure 5.13: Frequency distribution of types of reflective conversations used by male and female student teachers in each dimension of reflective practice
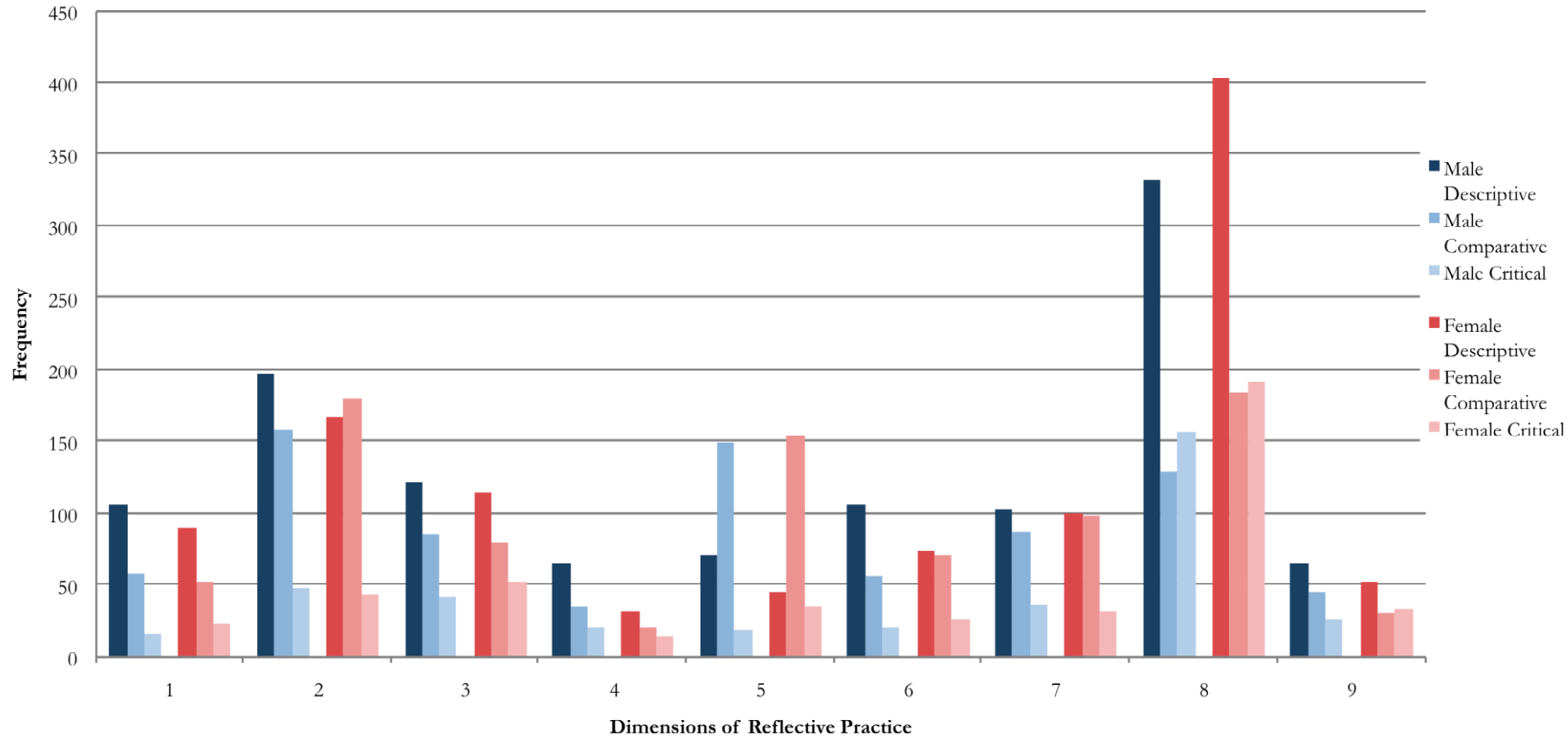
From the total number of student teachers' reflective conversations across all dimensions of reflective practice, nearly one half were descriptive (n=2251: 47.2%); approximately one third comparative (n=1679: 35.2%); and, one sixth critical (n=840: 17.6%) in nature as shown in Figure 5.14. Although this trend was the same for both genders, female student teachers were found to use fewer descriptive and more comparative and critical reflective conversations overall, than male student teachers.

Figure 5.14: Overall distribution of types of reflective conversation used by the sample of student teachers
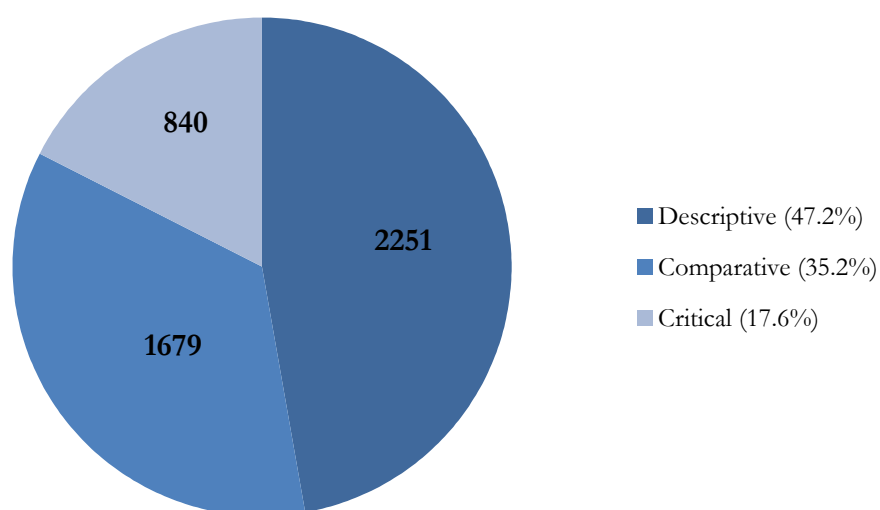
Dimension 8, which captured the student teachers' capacity to critically reflect on their own teaching attracted the highest frequency of reflective conversations (n=1398) of which more than half were descriptive (n=736: 52.6%), one quarter critical (n=349: 25%) and over one fifth comparative (n=313: 22.4%) in nature. Although this trend was the same for both genders, the total number of reflective conversations used in this dimension was found to be higher in female than male student teachers.

Dimension 2, which captured the student teachers' capacity to systematically evaluate their own teaching through classroom procedures attracted the next highest frequency of reflective conversations (n=794) of which more than two fifths were either descriptive (n=364: 45.8%) or comparative (n=338: 42.6%) as compared to just over one tenth that were critical (n=92: 11.6%) in nature. Although this trend was the same for male student teachers, the female student teachers' differed in their rank order of frequency between descriptive and comparative reflective conversations.

Dimensions 3, 5, and 7 were each found to attract approximately one tenth of the total number of reflective conversations. Dimension 5, which captured the student teachers' capacity and commitment to consider alternative perspectives and possibilities was notable, in that, almost two thirds of the reflective conversations in this dimension were comparative (n=304: 64%) as compared to approximately one quarter descriptive (n=117: 24.6%) and one tenth critical (n=54: 11.4%) in nature. Although this trend was the same for both genders the range between the number of descriptive and critical reflective conversations was higher in male (descriptive 71% - critical 19%) than female (descriptive 46% - critical 35%) student teachers.

The least number of reflective conversations were identified in dimension 4, which captured the student teachers' capacity to test a personal belief or theory (n=188). More than half the reflective conversations were found to be descriptive (n=97: 51.6%) as compared to approximately three tenths comparative (n=56: 29.8%) and two tenths critical (n=35: 18.6%) in nature. Although this trend was the same for both genders it is noteworthy that of the total number of reflective conversations within this dimension, almost two thirds originated from male (n=120: 63.8%) as compared to female (n=68: 36.2%) student teachers.

The range between the mean value of student teachers' descriptive and critical reflective conversations was notable in dimensions 1, 2, 3, 4 and 6. Although this trend was the same for both genders, the range was found to be higher in male (descriptive M=17.83: critical M=3.5) than female (descriptive M=12.33: critical M=4.33) student teachers in dimension 6.

The range between the mean value of student teachers' descriptive (M=16.91) and comparative (M=15.5) reflective conversations was very small in dimension 7 as compared to critical (M=5.66) reflective conversations. Although this trend was the same for both genders, it was more pronounced among female student teachers.

The range between the mean value of student teachers' comparative and critical reflective conversations was notable in dimension 5 (comparative M=25.33: critical M=4.5) whereas the range was found to be much smaller in dimensions 8 and 9. This trend was found to be the same for both genders.

Measures of dispersion found to be above 10 from the overall sample of student teachers were identified in the descriptive and comparative reflective conversations of

dimensions 2 and 8, and the critical reflective conversations of dimension 8. These results illustrate areas in which variance between student teachers was particularly high: notably, the ability to systematically evaluate their own teaching through classroom research procedures (dimension 2) and critically reflect on their own teaching (dimension 8).

Measures of dispersion found to be 4 or below from the overall sample of student teachers were identified in the comparative reflective conversations of dimensions 1, 4 and 9 and critical reflective conversations of all dimensions with the exception of dimensions 3 and 8. These results illustrate areas in which variance between student teachers was found to be the lowest.

The measure of dispersion for descriptive reflective conversations was found to be higher in female than male student teachers in dimensions 7 and 8. The measure of dispersion for comparative reflective conversations was higher in female than male student teachers in dimensions 2, 5 and 7. The measure of dispersion for critical reflective conversations was found to be higher in male than female student teachers in dimension 3 and conversely, found to be higher in female than male student teachers in dimension 9. These results indicate there was greater variance between female student teachers than male student teachers in a number of areas.

5.12 Summary

This chapter has investigated the development of student teachers' reflective practice within the context of action research. The perceptions of student teachers and dissertation supervisors, gathered from questionnaire responses and interview transcripts, were analysed quantitatively to identify patterns, trends and themes and inductively, to identify qualitative distinctions between student teachers and provide rich, in-depth explanations and narratives of experience for exemplification purposes. The findings were situated within the nine dimensions of reflective practice devised for this study in which student teachers can demonstrate capacity and commitment.

Areas within five dimensions of reflective practice were perceived by 90% or more student teachers to have influenced their professional development as they studied their teaching, and a sixth dimension was added when the perceptions of 80% or more student teachers were considered. The dimension of reflective practice that influenced the professional development of the least number of student teachers (37.5%) was testing a personal belief or theory. This range illustrates the wide continuum of areas within

dimensions of reflective practice which student teachers' perceived either had, or had not, influenced their own professional development.

Dissertation supervisors' perceptions supported those of 80% or more student teachers within two dimensions of reflective practice yet were found to be incongruent with those of student teachers in several areas within three dimensions of reflective practice. The perceptions of dissertation supervisors themselves were divided in relation to three areas within three dimensions of reflective practice in which student teachers can demonstrate capacity and commitment. Thus, relatability of dissertation supervisors' perceptions within some dimensions of reflective practice was not feasible.

Interview transcripts were also analysed to identify qualitative distinctions in the types of reflective conversation used by student teachers within each dimension of reflective practice. Of the total number of reflective conversations found across the sample of student teachers, nearly one half were descriptive, one third comparative and one sixth critical in nature. Although this trend was the same for both genders, female student teachers were found to use fewer descriptive and more comparative and critical reflective conversations than male student teachers. The range between the number of descriptive, comparative and critical reflective conversations used varied across some dimensions of reflective practice and between male and female student teachers. Of particular note was that almost two thirds of the total number of reflective conversations found within dimension 4 originated from male student teachers' reflective conversations. Variations between types of reflective conversation and between genders surfaced when the mean value and measures of dispersion within each dimension of reflective practice were examined.

These research findings and their implications are discussed in the next chapter.

Chapter 6: Discussion and implications of research findings

6.1 Introduction

This chapter discusses the main findings of this study and considers how they relate to theoretical literature and previous research of reflective practice in initial teacher education, particularly in physical education initial teacher education. Implications behind the research findings are examined and some suggestions proposed for the development of reflective practice in student teachers. Limitations of this study are identified and recommendations made of areas that warrant further research.

The purpose of this study was to analyse the concept reflective practice and investigate the development of student teachers' reflective practice within the context of action research. Research into the relationship between reflective practice and professional development within initial teacher education suggests a number of distinctions can be drawn between student teachers, in relation to their disposition to enquiry (Jay and Johnson, 2002; LaBoskey, 1993; Noffke and Brennan, 1991; Zeichner and Liston, 1996) and, processes through which they structure or restructure actions, knowledge, theories or beliefs (Baxter Magolda, 1999; Calderhead, 1989; Furlong and Maynard, 1995; Hatton and Smith, 1995; King and Kitchener, 2002; Lee, 2005; McIntyre, 1993; Moon, 2005; Sparks-Langer *et al*, 1991; Valli, 1993) to inform their own teaching.

Research studies undertaken to examine aspects of this relationship within the context of physical education however, are less common (Gore, 1990; Gubacs-Collins, 2007; Macdonald and Brooker, 1999; McCormack, 2001; Tsangaridou, 2005) and have focused on either primary or secondary student teachers at different stages of development within a range of initial teacher education programmes. These studies have been conducted in Australia, Cyprus or the United States of America with student teachers undertaking different types of initial teacher education courses to that featured within this study. These differences in initial teacher education courses along with the diverse nature of those studies which have been undertaken (see sections 2.10.1; 2.10.2; 2.10.3) indicate that generalisation and direct comparison to year 4 secondary physical education student teachers' engaged in action research, from one institution of higher education in England, might not be wholly appropriate nor applicable. Therefore, the results from this study are compared and contrasted to those of others, with caution.

In this study, reflective practice has been defined as: a disposition to enquiry incorporating the process through which student teachers' structure or restructure actions,

knowledge, theories or beliefs that inform teaching for the purpose of personal professional development. Two research questions guided this study: How can student teachers' develop reflective practice within the context of action research? What qualitative distinctions in reflective practice can be drawn between student teachers?

To inform these questions a conceptual framework was designed on the one hand, to analyse dimensions of reflective practice in which student teachers can demonstrate capacity and commitment; and on the other, to identify qualitative distinctions between student teachers in terms of the types of reflective conversations they used within each dimension. Quantitative and qualitative data was gathered and analysed in relation to the nine by three matrix devised for this purpose (see Figure 4.2).

The focus of the next sub-sections in this chapter is to discuss the main research findings pertinent to both research questions within each dimension of reflective practice used to frame this study. Links between the dimensions are drawn out as, and where, appropriate.

6.2.1 Study their own teaching for personal improvement – dimension 1

In this study, although student teachers' reported a number of reasons had guided their decision to select a particular research focus there were two reasons, both advanced by the vast majority of student teachers, which were perceived as highly important. These reasons were to improve the quality of their own teaching and to enhance the quality of pupil learning. This finding suggests the motives behind these reasons could be interrelated. For example, the vast majority of student teachers might have recognised areas of their own teaching in which they perceived improvement could lead to more effective personal practice so as to enhance the quality of the learning experiences they provided for pupils. Research by Tsangaridou (2005) with two elementary, year 4 physical education student teachers found that the goal to provide meaningful learning experiences for pupils was a powerful agent for wanting to improve a particular aspect of their own practice.

This finding suggests that within Maynard and Furlong's (1995) five phase model of student teacher development, these student teachers' approached their research enterprise by shifting from the phase of *hitting the plateau*, in which student teachers have learned what does or does not work and would prefer to stick to what works, to that of *moving on,* when student teachers can shift their focus to pupil learning. Several qualities Eraut (1994: 232) attributes to the accountability of professional practitioners can be recognised in these student teachers' perceived disposition to study their own teaching for personal

improvement: specifically, a moral commitment to serve the interests of pupils and a professional obligation to review the nature and effectiveness of their own practice so as to improve the quality of their own teaching. Also, one of the key attributes Stenhouse (1975: 143-144) attributes to extended professionals is that student teachers should have a commitment to question personal practice. This finding therefore has resonance with student teachers who exhibit a responsible (Eraut, 1994; Hoyle and John, 1995; Stenhouse, 1975; TTA/DfES, 2003; TDA, 2007), wholehearted approach (Dewey, 1910, 1933) and passionate creed (LaBoskey, 1993) in their quest to become more effective teachers and suggests a commitment to study their own teaching for personal improvement in the interests of those pupils they teach.

Partial support for this view came from the findings that a majority of student teachers' reported personal commitment and enthusiasm had been highly influential to the ongoing development of their research and, that reflecting on practice during their research investigation had influenced their motivation to search for reasons behind the outcomes of their own teaching (see section 6.2.8). This finding can be situated within the categorisation of *committed* student teachers Gore (1990) identified in her study of year 2, elementary physical education student teachers, in terms of their recognition of the need for change and realisation that they could be influential toward that end.

However, in this study, the motivation behind some student teachers' selection of a particular research focus was challenged. For example, one dissertation supervisor reported *they play safe rather than wanting to promote change…I do try to encourage unique foci rather than yet another one on motivation or teaching styles (ds5)* and, one student teacher stated *some people are just seeing it as what mark is going to effect their degree rather than actually something that you are going to be able to use to make you a more effective teacher (ssi1).* Partial support for this concern came from the finding that more than one eighth of the student teachers' reported sound subject knowledge had influenced their decision to select a particular research area. This could be for a number of reasons, which raises the question of extrinsic as compared to intrinsic motives.

The former motive suggests some student teachers might have approached their research by drawing upon personal strengths or areas in which the research of others was plentiful to secure a high grade for their written report. The attachment of a grade to the assessment of the action research project does affect the student teachers' degree classification and is likely to be an element of concern. Some student teachers might simply have wanted to pass the action research element of the degree course and drawn upon

subject knowledge in which they were more confident and familiar. This has resonance with the type of student teacher Gore (1990: 120) identified in her research as *acquiescent*, in that, although they were concerned about assessment and the extrinsic rewards it offered, thinking about teaching and schooling was used instrumentally as a means to an end as they would prefer simply to 'cruise along and do the minimum' and their major concern focused on 'how to get through the course'. This was highlighted in the perceptions one student teacher voiced about the motivation behind several peers: *a lot of people I know did feedback, in all sorts of forms thinking…this project is going to be a pain around my neck for 3 ½ months, and I just want to do it, get it in and get rid of it (ssi3).*

Another possible reason relates to the placement within the degree course structure of the student teachers' major and minor physical education practical options and their introduction to the productive cluster of teaching styles (Mosston and Ashworth, 1994) in year 3. It would seem a natural progression to want to experiment with a range of teaching styles in areas of physical education in which they perceived they had sound subject knowledge when next in school, notably, during their final school experience in year 4. In this study, an exploration of teaching styles was the most common aspect of teaching identified by student teachers for research purposes (see Appendix K). An alternative reason is some student teachers might have perceived the research enterprise itself as daunting or intimidating due to limited previous experience and chose to study an area in which they felt more confident and relatively secure. This was reflected in the initial thoughts of one student teacher who stated, *it was quite overwhelming, you look at it and think, I don't know what I'm going to do…9,000 words on some area of your teaching, I can't ever see myself doing it (ssi9).*

In this study, one issue raised by two dissertation supervisors was that some student teachers were unable to exercise a measure of autonomy in the selection and direction of their research focus which might have been due to power relations and influences incurred within their placement school. As one stated, *early lessons seemed to follow a predetermined schedule laid down by the mentor/school at the conception of the module (ds9).* Although considerable importance is attached to the premise that student teachers must ensure their research is appropriate to the context in which they find themselves, it can also be argued that one goal behind the research experience is for student teachers to assume responsibility for their ongoing professional development. This finding suggests some student teachers might have been influenced by a conflict of interests in terms of the direction of their research.

Several qualitative distinctions were found between student teachers in the types of reflective conversation used within this dimension of reflective practice. Results showed female student teachers used marginally fewer descriptive and comparative reflective conversations and more critical reflective conversations than male student teachers. This finding shows that as student teachers returned to experience (Boud *et al*, 1985) to contemplate areas in need of improvement, discourse which situated areas of personal improvement within the wider professional landscape and considered alternative perspectives was more prevalent in female student teachers. However, results also showed a moderately high (>5) measure of dispersion in the descriptive reflective conversations of female student teachers and comparative reflective conversations of male student teachers. This indicates that variance within same gender groups was also evident between student teachers.

Implications for teacher educators

The commitment of student teachers to study their own teaching for personal improvement is articulated by government as a requirement in the Standards for the award of QTS (TTA/DfES, 2003; TDA, 2007) and, has been identified as a key attribute of extended professionals (Stenhouse, 1975). While results of this study show the vast majority of student teachers' perceived they exhibit this commitment, several issues were identified which have potential to create barriers for student teachers within this dimension of reflective practice.

First, it was suggested one reason behind the student teachers' decision to focus their research on an area in which they perceived they had sound subject knowledge was that they might have found the research enterprise intimidating due to limited previous experience. This needs to be investigated further, particularly in relation to developing the techniques characteristic of action research so that student teachers have confidence to venture into areas in which their subject knowledge is more limited when they study their own teaching for personal improvement in the final year.

Second, concern was raised that some school staff appeared to guide and direct the focus of some student teachers research investigation. The reasons behind this need to be investigated further, particularly in relation to the underlying aims and purposes behind the student teachers' research experience and the fact that mentors currently, are not called upon to play an integral role in the research enterprise of student teachers yet, since the introduction of school-based initial teacher education (DfE, 1992), are expected to assume

responsibility for supporting, guiding and assessing their performance when in school on teaching experience. These factors might signal mixed messages.

Third, motives which might underpin reasons behind the student teachers' decision to select a particular research area needs to be explored, particularly as one of the main goals behind the experience is for student teachers to study their own teaching for personal improvement as opposed to gaining a good grade for their written report.

The types of reflective conversations used by student teachers within this dimension of reflective practice highlight areas in which difference and variance between them were shown. These areas need to be explored further, particularly in relation to devising strategies which might encourage the more descriptive student teachers to take a critical stance as they engage in discourse to scrutinise why aspects of their own teaching might need improvement and consider what the implications of such improvement might mean within the wider professional landscape.

6.2.2 Systematically evaluate their own teaching through classroom research procedures – dimension 2

Results of this study showed the vast majority of student teachers' reported gathering evidence from three or more sources by using classroom research procedures to inform their own teaching. Sources of evidence most commonly drawn upon were identified as: pupil questionnaires, observation schedules completed by peers or colleagues, personal journals/field notes and pupil interviews. This finding indicates not only that a range of research instruments were used but also data was gathered from a range of perspectives, which supports the argument of the need to gather evidence from multiple perspectives or lenses for triangulation purposes (Bell, 2005; Brookfield, 1995; Hopkins, 2002; Robson, 2002). This was in line with the approach adopted in other research studies for developing reflective practice in physical education student teachers (Gore, 1990; Gubacs-Collins, 2007; Macdonald and Brooker, 1999; McCormack, 2001). In this study, it is noteworthy that the vast majority of student teachers' reported they sought data about pupils directly from the pupils themselves, particularly as evidence derived from this perspective was less familiar to student teachers than that usually acquired from peers, colleagues and mentors to inform them of strengths or areas in need of development within their teaching. This could also be indicative of the 'acceptance of a child-centred ethic' (Hoyle and John, 1995: 128) to their practice.

Although a number of purposes were identified for gathering evidence through classroom research procedures, the two most common reported by approximately three quarters and two thirds of the student teachers respectively, were those of gathering pupils' perceptions, opinions, thoughts and points of view and to monitor pupil learning. These were perceived as highly influential to the ongoing development of their research. This finding suggests pupils were positioned at the heart of the research process and student teachers were concerned about their pupils' perceptions and developmental needs. Further, it suggests pupils' perceptions were valued and student teachers' recognised that they might be very different to their own or from those of others, for example: *I think a lot of us would have been a little bit biased and want it (action research) to work and so, maybe you do read a little bit deeper into things…I did try through my data collection methods to stay as impartial as possible and get reflective data from the pupils so that I could then make fair judgements (ssi6).*

Previous research studies (Gore, 1990; Gubacs-Collins, 2007; Macdonald and Brooker, 1999; McCormack, 2001; Tsangaridou, 2005) have shown reflective journals were most commonly used as a vehicle to develop not only the reflective capacity of physical education student teachers but also, to provide evidence of their ongoing professional development. In this study, a majority of student teachers' reported personal journals and field notes had been highly influential to the ongoing development of their research. Several reasons were identified for using them: to record personal thoughts, observations, key events, and modifications to their plan of action and to reflect on the effectiveness of their strategy. It is noteworthy, that this finding represents an increase of more than one quarter of student teachers who had reported incorporating this data collection technique into their original plan. This could be for a number of reasons. For example, there was an indication that some student teachers' adapted their lesson evaluations into a more personal reflective account as they questioned whether learning outcomes had been achieved by their pupils and, importantly, why: *I tried to make my lesson evaluations as detailed as possible and specific to my dissertation…I could see these are the learning outcomes they have achieved, these are the ones they haven't and then look at specific pupils…if I could see there was a problem in the understanding of something or the demonstration of something I could address that next lesson…it was almost a reflective account within a reflective account (ssi3).* This suggests lesson evaluations assumed increased value and significance for some student teachers as their research progressed.

In this study, a majority of student teachers also reported that data collected by observers, which included observation schedules and focused lesson observations, had

been influential to the ongoing development of their research. The most common reason reported for gathering data from their observers was to monitor pupil learning.

The majority of student teachers' reported that they reflected upon data gathered through classroom research procedures: reflecting on pupil behaviour was perceived as the most influential determinant to inform the ongoing development of their research. This finding suggests that monitoring changes in pupil behaviour was the yardstick by which these student teachers' judged the effectiveness of their teaching. Ten dissertation supervisors support this finding, in that, they perceived the action research experience influenced the capacity of *all* or *most* student teachers to assess their current practice. Assessment, and more specifically assessment for learning (Black *et al*, 2003; Black and Wiliam, 1998, 2002) is a complex, multi-dimensional phenomenon and within the context of action research, effective assessment of current practice arguably is dependent not only on the student teachers' ability to design appropriate research instruments for specific purposes but also, to reflect on the feedback received and interpret possible meanings embedded within the data. These findings would suggest a majority of student teachers used feedback derived from multiple sources and multiple perspectives effectively to gauge their own practice during the ongoing development of their research.

Some findings however, which emerged from the student teachers' perceptions raise several anomalies. For example, some student teachers indicated that not all data gathered from their pupils and colleagues through classroom research procedures was reflected upon or used and, less than half reported they had engaged in the regular and systematic evaluation of research evidence to inform the ongoing development of their research. These findings raise concern and suggest several things.

First, some student teachers might have evaluated and reflected upon data gathered at the outset of their research and deemed subsequent evaluation unnecessary as they devised their plan of action from this initial assessment. Partial support for this view came from the finding that less than one half of the student teachers reported they refined their focus during the ongoing development of their research. When the precise focus is predetermined, it is quite likely that much happening within the research environment might be overlooked. This approach is not indicative of action research methodology, which consists of the systematic evaluation of research evidence (Carr and Kemmis, 1986; Elliott, 1991; Hopkins, 2002; McKernan, 1996; Russell and Korthagen, 1995) gathered lesson-by-lesson so that 'the ensuing feedback may be translated into modifications, adjustments, directional changes, redefinitions' (Cohen and Manion, 1994: 192). In part,

this might explain why only three dissertation supervisors' perceived the action research experience had influenced the capacity of *all* or *most* student teachers to gain an understanding of the rationale of change. Arguably, to gain an understanding of the rationale of change student teachers must scrutinise how modifications they make in the minutiae of their teaching influences the ongoing learning and development of pupils and importantly, search for the reasons why.

Second, the research instruments student teachers' designed might not have been fit for purpose (Bell, 2005; Hopkins, 2002) due to their inexperience of constructing questionnaires, interview protocols and focused observation schedules. Approximately two thirds of the student teachers' reported not all data collection techniques they had designed were successful for a number of reasons. These reasons included: difficulties incurred with pupil literacy and inappropriate use of language; pupils who struggled to communicate their own ideas as they were found to be nervous in the interview situation; and, observers who experienced difficulty in recording all the data they required.

Third, although student teachers might have been astute in recognising the limitations inherent within some research instruments they had designed, discarding those found to be unsuccessful has potential to bias the outcomes of their research, particularly when they are unable to reflect upon, and cross reference, data gathered from multiple sources and multiple perspectives.

Fourth, the action research project was undertaken during the student teachers' final assessed school experience and five dissertation supervisors' perceived conflicting pressures of meeting Standards required for the award of QTS might have influenced how much time student teachers were prepared, or able, to devote toward their research endeavour. As one stated *it was better when this [final school experience] was behind them so that they entered a fourth year experience with [perhaps] more confidence and less stress and could focus on the project without pass/fail worries (ds4).* Similar concerns were voiced by student teachers, and one stated, *at the time in school, I had to think about my dissertation and my lesson plans, I had to think about my Standards folder and I was just doing everything…I didn't have much time to sit and think about it (action research) (ssi5).* This finding is in line with several challenges Price (2001) identified in his student teachers' action research experiences, notably: struggling to keep up with data collection and finding time to reflect on their lessons. As a consequence, this suggests that time, planned and protected, for reflective moments (Miller, 1990) might have been diminished.

In this study, results showed this dimension of reflective practice attracted the second highest frequency of all reflective conversations used by student teachers across the dimensions. Within this dimension, less than half the reflective conversations were found to be descriptive and approximately two fifths comparative in nature. These findings indicate that student teachers' engaged in discourse to describe, compare and contrast their classroom research procedures, which arguably is an integral component of action research methodology. However, the ratio of critical reflective conversations, of just over one tenth, shows that discourse to evaluate and critically reflect upon their classroom research procedures to inform a particular aspect of teaching was relatively low, and lower than might be expected. This finding indicates that student teachers' explanations were somewhat limited in terms of their justifications as to why they had gathered specific research data and whether it had been found effective in terms of moving their research enterprise forward.

Female student teachers used marginally fewer descriptive and comparative reflective conversations and more critical reflective conversations than male student teachers. However, results also showed a high (>10) measure of dispersion in the descriptive reflective conversations of both genders, the comparative reflective conversations of male student teachers and a moderately high (>5) measure of dispersion in the comparative reflective conversations of female student teachers. This indicates that considerable variance within same gender groups was also evident between student teachers.

Implications for teacher educators

The capacity and commitment of student teachers to systematically evaluate their own teaching through classroom research procedures is recognised as an integral component of professional development (Day, 1999; TTA/DfES, 2003; TDA, 2007) and a key attribute of extended professionals (Stenhouse, 1975). While the overall results within this dimension of reflective practice suggest the vast majority of student teachers exhibit the commitment to gather evidence from multiple sources and perspectives, several anomalies emerged which suggest the capacity of some student teachers to design appropriate research instruments and use research evidence effectively can be questioned.

First, it was suggested one reason behind the student teachers' perception that not all data collection techniques they designed and used were successful was due to their limited experience in constructing research instruments. This needs to be investigated further, particularly in relation to introducing student teachers to the advantages and disadvantages

of different research techniques and providing opportunities for them to experiment with how they can be used for specific purposes and designed for specific individuals effectively. Arguably, these skills should be embedded in practice before they are called upon to use them in their research study in year 4 so that appropriate evidence can be gathered, in the limited time available, to inform their teaching.

Associated with this was the concern that regular and systematic evaluation of research evidence and refining their research focus were not found to be indicative of the approach undertaken by some student teachers. This needs to be investigated further, particularly as these processes are at the heart of action research and should provide student teachers with a link between the considered events of the past and future planning and development (Carr and Kemmis, 1986).

The types of reflective conversations used by student teachers within this dimension of reflective practice highlight areas in which difference and variance between them was shown. These areas need to be investigated further, particularly in relation to exploring strategies that might support the more descriptive student teachers to take a critical stance as they systematically evaluate their own teaching through classroom research procedures.

6.2.3 Link theory with their own practice – dimension 3

In this study, student teachers' reported there were four main sources of knowledge drawn upon to inform their practice, which included knowledge gained from a personal search of literature, university-based professional studies and practical physical education modules, and previous school-based experiences. The most common source reported by over two thirds of the student teachers was that gained from their personal search of literature, more than half of whom indicated, reading about the research studies of others had influenced their decision to select a particular research focus. This finding suggests these student teachers used the action research enterprise as a vehicle to try out some of the ideas, approaches and strategies they had read about within the context of their teaching. In so doing, they would be able to apply theoretical principles underpinning particular aspects of pedagogy to their own practice and ascertain their appropriateness and effectiveness within the context of a particular teaching environment. As one student teacher reports, *I did a lot of reading and tried to base my dissertation around other peoples' studies…and developing new strategies to use for feedback, such as practice time and knowledge of results (ssi9).* Tinning (1995: 27) suggests the application of research findings to practice 'essentially represents thoughtfulness about

action', which he links to van Manen's (1977) level of technical reflection and Grimmett *et al's* (1990) first level of reflective teaching.

Student teachers' identified three further reasons for engaging in a personal search of literature. First, to find out more information about a particular aspect of their teaching, which needed further development. In response to his third year final school experience report for example, one student teacher recognised a more differentiated approach to his teaching was recommended. He reported searching the literature to gain an increased understanding of a range of differentiation strategies and focused his research on *how differentiation through task can enhance pupil performance (ssi11)*.

Second, to find out information about a particular phenomenon or situation in which they had limited knowledge or previous experience yet needed to address in their teaching. For example, one student teacher reported she had a particularly challenging group of year 9 girls, half of whom were identified with ADHD. Thus, she searched the literature to find out about ADHD and focused her research on *how to incorporate ADHD pupils, how to improve them and develop them in PE and in other areas of the curriculum (ssi10)*.

Third, to question the epistemological assumptions underpinning a particular aspect of knowledge by searching for alternative explanations and questioning how they related to a specific aspect of their own teaching. One student teacher for example, focused her research on grouping strategies within mixed ability teaching as she sought *to keep the anxiety levels of pupils with low self-esteem to a minimum (ssi4)* within the context of gymnastics. She reported other researchers had found there was no real purpose behind the way pupils in schools were grouped and challenged the 'quick' grouping strategies she had learned about from university and in previous school experiences, as her research findings indicated *as the tasks get more challenging, similar ability groups were less effective, pupils came off task quite quickly because they found the activities too challenging…and pupils became quite frustrated (ibid)*. Thus, having compared and contrasted knowledge derived from a range of perspectives to her own teaching situation she concluded more thought needs to be given to the purpose behind grouping pupils as this can influence pupils' self-esteem and approach to tasks they perceived as challenging.

The latter two reasons suggest some student teachers were constructing their own theories-in-use and personal epistemology of practice (McKernan, 1996; Schon, 1983, 1987; Strauss and Corbin, 1967) of exemplars, images and metaphors of what actually worked for them in a specific teaching context. Informed by their personal search of literature there is also an indication that these student teachers were driven by the concern

to understand the meanings associated with pupil behaviour in order to make sense of their own teaching. This supports the argument advanced by Boud and Walker (1990) of the importance of the learning milieu which shapes the type of learning from experience that is possible, in addition to the findings of other research studies (McCormack, 2001; Tsangaridou, 2003) which reported that knowledge gained by student teachers was situationally driven and contextually bound.

By contrast, it is noteworthy that the following comments were made in relation to searching literature for the action research enterprise:

It does make them read (ds8)
I have read more for this one research topic than I have over the entire four-year course (ssi1)
I think something like that came to us late…researching and looking at different journals, cross-referencing journals…that type of thing…we had to go and use the library…whereas the first two years I didn't think to go to the library…well I did but I was unsure about it…I think I would quite like to do a study…not on the same scale as this, earlier in the degree course where I needed to look through journals and through all the processes involved just to practice because it was quite overwhelming (ssi12)

These comments suggest the action research investigation provided the catalyst for some student teachers to undertake an in-depth search of literature into a particular aspect of their own teaching, which was somewhat uncharacteristic of their usual way of learning about teaching or about how to teach. There is also an indication that some student teachers perceived small-scale studies earlier in the degree course might enable them to gain confidence and experience in this area.

More than half the student teachers' reported they had drawn upon knowledge gained from university-based professional studies to inform their research. Although it is not clear which course component this finding specifically relates to, there was an indication that some student teachers had drawn upon knowledge gained from their *Teaching for Learning* module (see Appendix B(i)) as they chose to explore how particular teaching styles, notably those located within the productive cluster (Mosston and Ashworth, 1994) could be used to enhance pupil learning. For example, one reports *I tried using a range of teaching styles (self-check, reciprocal, guided-discovery) to research whether there was a correlation between the style used and how much pupils learned, their ability to detail what they learned and their performance (ssi7).* In so doing, aspects of personal practice in which modifications were realised included managing the teaching environment, letting pupils discover answers to questions rather than *leading them by the nose*, and *letting go* so that pupils assumed *more responsibility for their own learning (ibid).* As she draws links between theory and her own practice she reported, although this strategy *had amazingly positive effects and there were strong links to suggest there are benefits in teaching this way, I would not say it's conclusive or that I always got it right…I think a larger study, focusing on a*

much wider variety of subject areas in the National Curriculum, would be able to narrow down some of the questions I still have (ibid). This is indicative of uncertainty and awareness of the provisional nature of knowledge (Dewey, 1910, 1933; Jay and Johnson, 2002; King and Kitchener, 2002; Moon, 2005; Schon, 1983, 1987) and has resonance with Loughran's (1996: 3) suggestion that 'the more deliberately a teacher considers his or her actions the more difficult it is to be sure that there is one right approach to teaching'. This suggests some student teachers' engaged in critical thinking (Moon, 2005) when linking theory to their own practice and can be positioned within the most advanced stage of epistemological cognition Baxter Magolda (1999) identified in her research with higher education students in relation to those who adopted a relativist position in their thinking as they constructed knowledge, based upon judgements made of evidence gathered within a specific context.

The least common source of knowledge approximately one third of the student teachers' reported drawing upon was that gained from university-based physical education modules. This finding suggests more student teachers might have been secure in their subject knowledge of areas of physical activity and focused their research on how best to translate that subject knowledge through the pedagogical processes of teaching to promote pupil learning. In so doing, they would be well positioned to link their subject knowledge with developing an understanding of what approaches they found to be effective in their own practice. Partial support for this view came from the finding that less than one third of the student teachers' reported, limited subject knowledge in a particular area influenced their decision to select a particular research focus.

Through linking theory with their own practice and taking ownership of new insights and learning to inform future teaching, student teachers appropriate knowledge (Boud et al, 1985) and make it their own. The capacity to do this was reported by one dissertation supervisor as characteristic of the more perceptive student teachers, in that, *a philosophy of education was starting to emerge…they are producing their own criteria…they own their own teaching…not just the development of their pedagogic expertise (ds10).*

Several qualitative distinctions were found between student teachers in the types of reflective conversations used within this dimension of reflective practice. Results showed that female student teachers used marginally fewer descriptive and comparative reflective conversations and more critical reflective conversations than male student teachers. Results also showed that the measure of dispersion was found to be moderately high (>5) in each type of reflective conversation for male student teachers and in the descriptive reflective conversations of female student teachers. This indicates that more female than male

student teachers assumed a critical perspective when linking theory with their own practice and there was variance between male student teachers in terms of the number of reflective conversations used.

Implications for teacher educators

The capacity and commitment of student teachers to link theory with their own practice has been recognised as an essential component of professional development (Day, 1999; TTA/DfES 2003; TDA, 2007) and as an attribute of extended professionals (Hoyle and John, 1995; Stenhouse, 1975). The critical analysis of relevant literature has also been identified as an integral part of the action research process (Macintyre, 2000).

The overall results within this dimension of reflective practice suggest more than two thirds of the student teachers exhibit the commitment to gain knowledge from a number of sources to inform their teaching. How that knowledge was used in order to link theory with their own practice however indicates there were several qualitative distinctions between these student teachers. The exemplars presented suggest some student teachers' demonstrated the capacity to generate a personal epistemology of practice (Schon, 1983, 1987) and reached the epistemological stage of contextual knowing (Baxter Magolda, 1999) and reflective reasoning (King and Kitchener, 2002).

The number of critical reflective conversations used by student teachers show that this characteristic was more prevalent in female than male student teachers. This said, variance was found between male and female student teachers in terms of the number of descriptive, comparative and critical reflective conversations used within this dimension of reflective practice. This area needs further investigation, particularly in relation to how student teachers' construct knowledge and use that knowledge to link theory with their own practice.

The comments made in relation to the action research enterprise as providing the catalyst for some student teachers to engage in an in-depth search of literature raises concern, inasmuch as this might suggest a reluctance to access relevant source material and theoretical literature until level 3. This area warrants further investigation, particularly as this factor could influence the capacity of some student teachers to critically analyse relevant literature effectively due to their limited previous experience. Several dissertation supervisors noted that library access for student teachers was reduced as they are in school teaching full time, which has potential to further complicate this issue.

6.2.4 Test a personal theory or belief – dimension 4

In this study, approximately one third of the student teachers' reported that testing a personal theory or belief influenced the ongoing development of their research. Of these student teachers, most indicated this factor was highly influential to the purpose behind their research. This finding suggests these student teachers used action research as a vehicle to deconstruct and reconstruct an existing theory or belief by questioning the epistemological assumptions and values they held about a particular aspect of their own teaching. Arguably, these student teachers' acknowledged the uncertain, provisional nature of knowledge (Baxter and Magolda, 1999; King and Kitchener, 2002; Moon, 1999, 2005) as they questioned the effectiveness or appropriateness of their theory or belief in relation to a specific context. Dewey (1910, 1933) equates the disposition of student teachers to question why they do what they do with responsible action. Tinning (1995: 27) argues this disposition is one through which 'new understandings of previously taken-for-granted assumptions about practice are developed', which he links to van Manen's (1977) interpretation of critical reflection and Grimmett et al's (1990) third level of reflective teaching. These characteristics are exemplified in the narrative of one student teacher who reported, part of his personal philosophy behind assessment in physical education was that *formal assessment at the end of the unit generally focused on what skills pupils can do so they'll be watched in a couple of practices and in a game…I have always thought that pupils who struggle physically won't get the best attainment grade if they can't have their evaluating and knowledge of health and fitness assessed…assessment in physical education was all very skill observation and these two strands were undernourished (ssi3).* This student teacher focused his research on how to assess the knowledge, skills and understanding of low ability pupils across the four strands of physical education, in his quest to produce *a better picture of the all round development of pupils (ibid).* In so doing, he questioned the epistemological assumptions, which he perceived underpinned formal assessment traditionally conducted at the end of a unit of work, and his personal assumptions, values and beliefs about the purpose of assessment within physical education. With support from colleagues in the department who *thought it was interesting, a good idea, hadn't seen anything like it before* and *were quite interested to see how it went (ibid),* he had the opportunity to appraise and re-appraise his 'principled preferences' (Carr, 1992: 244), which also suggests a measure of autonomy in exercising judgement and making decisions about what to assess and the assessment procedures he could use with pupils. This has resonance with Whitehead's (1993) notion of 'living educational theory' wherein student teachers can more fully realise personal values and beliefs through their authentic lived

experiences. In so doing, they are better able to question the educational values and goals which give 'shape, form and purpose' to what they do (Ghaye and Ghaye, 1998: 19) in their own teaching. He continues, *I now ask the question, when pupils can't do something is it because they cannot physically do it, or because they do not understanding how to do it? My previous assumption was they are not coordinated or they haven't got the motor skills and I would presume it was purely a lack of physical competence…it makes you disappointed in yourself, the fact that you've taught lots of lessons and accused lots of pupils of not being able to do it, and they then just think 'I can't do it'…instead of saying 'I can't do it because I don't understand'…I've never given that understanding aspect much thought…I've just said, okay, keep practising and re-gone over the skills because I didn't understand why…my research enlightened me to different ways pupils learn and it has definitely made an impact on the way I think and changed my teaching practice, without a doubt…it's still there…that lingering question in my head which has definitely had a positive effect (ibid).*

This finding supports the research undertaken by McCormack (2001) and Gubacs-Collins (2007) who reported changes in physical education student teachers' attitudes and patterns of thinking toward teaching dance and tennis respectively, which had emerged as student teachers were prepared to challenge and question personal assumptions, theories and beliefs about teaching those areas of physical activity. Gubacs-Collins (2007: 118-119) found although several student teachers' struggled to change their 'deeply ingrained technically oriented focus about games' teaching 'drill for skill' approach', with one exception, all student teachers managed to think differently about the practices required in a tactical approach. A link can also be made to the research of Macdonald and Brooker (1999) who found, by challenging the traditional dominant pedagogies preferred by student teachers through such questions as 'What is worthwhile knowledge in schools?' and 'What is the function of physical education in schooling?' student teachers were able to gain an awareness of socio-political issues and develop a more innovative approach in their teaching.

Several qualitative distinctions were found in the types of reflective conversations used by student teachers within this dimension of reflective practice. Results showed just over half the reflective conversations used by student teachers were descriptive, almost three tenths comparative and one fifth critical. These results indicate that in describing the nature of their personal theories and beliefs the student teachers' discourse focused more on an exploration of alternative assumptions, theories and beliefs than on situating personal theories and beliefs within the wider professional landscape. Arguably, this distinction suggests that in questioning personal theories and beliefs student teachers were open

minded (Dewey, 1910, 1933) and receptive to alternative perspectives and possibilities, as exemplified in the above narrative. One notable finding that emerged was that approximately two thirds of all reflective conversations used by student teachers within this dimension of reflective practice originated from male student teachers.

Results also showed that approximately two thirds of the student teachers did not report testing a personal theory or belief had influenced the ongoing development of their research. One dissertation supervisor raised concern that some student teachers often model their behaviour on that of teachers they experienced in their own schooling, which might not be wholly appropriate in a changed context. This has resonance with the argument presented by teacher educators (Clark, 1988, 1995; Lortie, 1975; Pajares, 1992; Schempp and Graber, 1992) in that, what student teachers experience and observe during their own schooling can have a powerful impact on their subsequent teaching. This could be for a number of reasons, including the preference shown by some student teachers to draw upon 'expert' knowledge rather than value their own ideas, as the findings in Macdonald and Brooker's (1999: 59) research suggest and, the 'apprenticeship of observation' all student teachers have which some theorists (Knowles and Holt-Reynolds, 1991; Pajares, 1992) argue is one of the major differences between teaching and other professional occupations, such as law or medicine.

Another concern reported by one student was some peers she had observed on paired school experiences *don't have closures to lessons, don't have question and answer sessions, don't establish what has been learned and what they need to do in the next week…all they're worried about is that they've taught what they were going to teach, with the equipment they were going to use, followed the lesson plan they had written and that's it…and actually forget to find out and look, stand back and have a look, to see if the pupils are doing what they're supposed to be doing and whether they've learned something at the end (ssi10).* This suggests some student teachers might not question why they do what they do or evaluate the appropriateness of their own teaching in a specific context. This approach might be indicative of Dewey's (1910, 1933) notion of routine action, as compared to reflective action, which is guided by a disposition to accept the most commonly held view of resolving a problem in a given situation in a routine almost thoughtless way. No attempt is made to experiment with alternative strategies or views as attention is directed toward the means to achieve specific ends that are taken-for-granted. Dewey (1910: 4-5) refers to such thoughts as prejudices or 'prejudgements, not judgements proper that rest upon a survey of evidence'. Similarly, one attribute Gore (1990: 120) associated with *recalcitrant* student teachers was an attitude 'indicative of instrumentality

whereby questions of efficiency and effectiveness dominate over concerns with purposes or with the moral or political implications of one's practice'. Thus, the concern raised above might suggest that some student teachers in this study exhibit recalcitrant (Gore, 1990) and routine (Dewey, 1910, 1933) characteristics inasmuch as personal theories and beliefs about why they do what they do in their own teaching are not questioned.

It is noteworthy that this dimension of reflective practice was the least common dimension of reflective practice reported by student teachers as having been influential to the ongoing development of their research. It also attracted the lowest frequency (approximately 4 percent) of all reflective conversations used by student teachers.

Implications for teacher educators

One of the distinctions Stenhouse (1975) draws between restricted and extended professionals is the capacity and commitment of extended professionals to question their own practice as a basis for teacher development. This is also a requirement student teachers must achieve for the award of QTS (TTA/DfES, 2003; TDA, 2007). Research has shown that all teachers have personal theories and beliefs about themselves as teachers, their teaching, subject matter, pupils, and their roles and responsibilities in the classroom (Clark, 1988; Clark and Peterson, 1986; Ennis, 1994; Feiman-Nemser and Floden, 1986; Fenstermacher, 1986; Kagan, 1992; Lester, 1990; Munby and Russell, 1993; Nespor, 1987; Pajares, 1992; Porter and Freeman, 1986; Tabachnick and Zeichner, 1991). Clark (1988: 5) for example, suggests teachers' teachers develop and hold implicit theories, which tend to be 'eclectic aggregations of cause-effect propositions from many sources, rules of thumb, generalisations drawn from personal experiences, beliefs, values, biases and prejudices'. In this study, the findings suggest approximately two thirds of the student teachers might have allowed their preconceived values and taken-for-granted assumptions to influence the way they have always taught or approached particular situations.

In this study, results showed approximately one third of the student teachers' perceived testing a personal theory or belief had influenced the ongoing development of their research whereas approximately two thirds did not report this dimension of reflective practice had been influential. While it can be argued this might have been an implicit or tacit goal for these student teachers, this finding needs further investigation, particularly in terms of raising their awareness about the implicit theories and beliefs they might hold and the possible influences and consequences in their own teaching should personal theories and beliefs remain unchallenged.

Results showed that male student teachers used twice as many reflective conversations than female student teachers within this dimension of reflective practice. Reasons to explain this difference are not readily apparent. This is an area that could be explored.

6.2.5 Consider alternative perspectives and possibilities – dimension 5

In this study, student teachers' identified a number of ways through which they considered alternative perspectives and possibilities to inform their own teaching. Several of these are linked to findings reported within other dimensions of reflective practice.

The vast majority of student teachers' reported they gathered the perspectives of their own pupils through classroom research procedures. Although the majority perceived that feedback received from pupils had been highly influential to the ongoing development of their research, others indicated some of this feedback had been less effective, and subsequently was not used. This finding suggests the perspectives of pupils were considered by a majority of student teachers to contemplate alternative possibilities in their teaching.

Results showed that student teachers' reported knowledge gained from their personal search of literature, previous school experiences, university-based professional studies and practical physical education modules had influenced the ongoing development of their research. This finding suggests the perspectives of more experienced teachers, both in school and university contexts, in addition to those advanced by theorists and researchers were considered, to varying degrees, by student teachers to contemplate alternative possibilities in their own teaching. Support for this view came from the findings that approximately three quarters of the student teachers' perceived knowledge gained from their personal search of literature had been highly influential and approximately half the student teachers reported that suggestions made by informed others had influenced the ongoing development of their research. In relation to the context of the school within which she conducted her research, for example, one student teacher reported *one of the experienced PE teachers…gave me some really useful ideas and things that she thought, from her point of view, could be changed…as well as reflecting myself she was able to reflect and help me make decisions (ssi6)*. This exemplifies the social constructivist perspective of meaning-making as an active and creative process of jointly constructed interpretations (Newman and Holzman, 1997) which has resonance with Pendlebury's (1995) notion of the 'dialogical other', the discursive forum through which student teachers can 'open their eyes' to alternative perspectives and possibilities of how to approach a particular teaching situation;

Loughran's (2002) notion of 'reframing' and Schon's (1983, 1987) model of 'joint experimentation' wherein student teachers view practice 'through the eyes of others'; and, Kolb's (1984) stage of 'abstract conceptualisation' which explores new possibilities for future action. This finding suggests the perspectives of more experienced teachers, which arose from suggestions they had made, were considered by half the student teachers in their contemplation of alternative possibilities. Tinning (1995: 26-27) links the process of clarifying assumptions underpinning practical actions to 'a deliberation among choices of competing versions of good teaching' and associates this with van Manen's (1977) level of practical reflection and Grimmett *et al's* (1990) second level of reflective teaching.

In this study, a higher proportion of student teachers' perceived discussions with informed others, rather than suggestions received from them, had been influential to the ongoing development of their research. This could be for a number of reasons, including student teachers using the discussion forum to share their own ideas of alternative possibilities to try in their teaching, seeking knowledge about specific pupils, or guiding informed others about how to complete an observation schedule they had prepared. However, an alternative interpretation might be that some student teachers were not receptive to the suggestions made by informed others during discussions with them. This factor has been identified in several research studies. Boud (1999: 125) recognised that the emphasis placed on the need for personal disclosure in discussion forums was often found to be beyond the capacity of some student teachers. In a similar vein, Macdonald and Brooker (1999: 59) perceived potential barriers in student teachers' uneasiness in working with the personal. LaBoskey (1993: 30) found some common sense thinkers 'seemed to have beliefs, values, attitudes or emotions that prevented or distorted the reflective process in most situations'. Thus, reasons behind this finding need to be investigated further, particularly in relation to creating an environment of trust so that suggestions made by informed others can be perceived as constructive and non-threatening.

In this study, more student teachers' reported that written feedback from informed others, rather than verbal feedback received from them, had been influential to the ongoing development of their research. This finding suggests some student teachers might have perceived written feedback was of more value than verbal feedback in terms of contemplating alternative possibilities in their teaching. It may be that having information documented they could refer back to and revisit was more beneficial to some student teachers than trusting solely to their memory for retrieving more transient information. It could also be related to the suggestion made above in that, student teachers might have

considered suggestions made by informed others through written feedback was perceived as less threatening than those received through verbal dialogue. An alternative interpretation Alternatively, it could be that written feedback focused more on gathering specific data for their research rather than gauging the perspectives of informed others. Support for this view came from the finding that a higher ratio of student teachers reported gathering written feedback from colleagues and peers in order to monitor pupil learning than to gain an outsider's perspective, opinion or viewpoint.

Overall, the results within this dimension suggest that not only did the vast majority of student teachers gather multiple perspectives in a number of different ways, but also that they considered alternative possibilities to inform their own teaching. Results showed the reflective conversations used by student teachers within this dimension of reflective practice were notable, in that, approximately two thirds were comparative in nature. Although it can be argued, a high proportion of comparative reflective conversations was inevitable in this dimension, what is surprising is that just over one tenth were critical in nature. This finding, mirrors that found within dimension 2 and thus the same argument can be applied. Specifically, although student teachers' demonstrated the capacity to describe how they had considered, compared and contrasted alternative ideas, theories and strategies in relation to their own research, their critique as to why they considered some perspectives and possibilities and not others, and whether those considered might be effective to inform their own teaching within a particular learning environment was somewhat limited.

Several qualitative distinctions were found between male and female student teachers in the types of reflective conversations used within this dimension of reflective practice. Results showed that female student teachers used fewer descriptive and more comparative and critical reflective conversations than male student teachers. Results also showed that the measure of dispersion was found to be moderately high (>5) in the descriptive, and high (>10) in the comparative reflective conversations of female student teachers. These findings show there were differences between male and female student teachers in terms of the reflective conversations used when engaged in discourse to consider alternative perspectives and possibilities, and also variance between female student teachers in the number of descriptive and comparative reflective conversations used.

In this study, some results emerged which raise concern: notably, just over half the student teachers did not report the support, commitment and enthusiasm of others had influenced their research, just under one half did not report suggestions from others and,

approximately one third did not report discussions with others had been influential. Several issues were raised by student teachers, which, in part, might explain these findings.

First, some student teachers reported experiencing a lack of support and disinterest by school staff in what they were doing. This finding suggests some student teachers might have felt disadvantaged within the context of their placement through the attitudes they perceived were shown by school staff toward their research. This has implications for student teachers, particularly those who might need the support of more informed others to help extend their horizons of new possibilities in their own teaching. This needs to be investigated further as it has potential to reduce the significance of the student teachers action research experience and might also influence the student teachers' attitude toward their own research.

Second, some student teachers' perceived school staff were very set in their ways in terms of their preferred teaching styles, curriculum content and methods of delivery. For example, *the head of department had taught at the school since she qualified…and taught exactly the same now as she was trained to…she hasn't developed and changed her teaching to suit pupils…very autocratic, very command style…50 years ago pupils were a lot different to the way they are now…she hadn't adapted and changed her teaching, seen what was working, what wasn't working…the pupils just were not learning (ssi10).* This suggests some student teachers might have perceived encountering barriers from more experienced teachers, which either influenced or limited their opportunities to consider alternative possibilities to use in their teaching within some environments. Research conducted by Price (2001: 58) found one of the challenges student teachers' experienced in undertaking action research was receiving support from their mentors: he concluded that although mentors can become a tremendous support for student teachers they can simultaneously 'unwittingly set boundaries upon their experimentation'.

Third, some student teachers' reported school staff were neither aware of, nor involved in, their research as they themselves had chosen not to involve them or to share the outcomes of their research. This could be for a number of reasons, including the student teachers perceptions of disinterest shown by school staff in what they were doing, power relations which might jeopardise their research or that the topic under investigation could raise sensitive issues. Support for the latter view came from such discourse as: *I had to tread carefully and not say…I think a lot of your assessment is two-stranded and not a four-stranded approach (ssi3).* For example, gauging pupils' perceptions about their preference to an innovative

teaching approach a student teacher has introduced, as compared to that they traditionally experienced with staff in school.

Implications for teacher educators

The capacity and commitment to consider alternative perspectives and possibilities has been recognised as an important element of student teacher professional development (Brookfield, 1995; Chetcuti, 2002; Dewey, 1910, 1933; Day, 1999; TTA/DfES 2003; TDA, 2007) and, as an attribute of extended professionals (Hoyle and John, 1995; Stenhouse, 1975). Research has shown (Hatton and Smith, 1995; Jay and Johnson, 2002; Gore, 1990; Lee, 2005; Macdonald and Brooker, 1999; McCormack, 2001; Pendlebury, 1995; Sparks-Langer *et al*, 1991; Valli, 1992) there are a number of strategies, such as discussion forums, negotiations, peer and collaborative teaching, through which student teachers can come to acknowledge 'multiple realities' (Gore, 1990), as they adopt an open mind (Dewey, 1910, 1933) to consider more than one side of an argument and attend to alternative possibilities. Results in this study showed the perspectives and lenses (Brookfield, 1995) most commonly identified by student teachers included those of pupils, experienced teachers and researchers through the strategies of classroom research procedures, personal search of literature and discussions with informed others.

While the overall results within this dimension of reflective practice suggest the vast majority of student teachers' considered alternative perspectives and possibilities to inform their own teaching, a number of qualitative distinctions were identified between male and female student teachers in terms of their use of descriptive, comparative and critical reflective conversations. This finding suggests the reasons underpinning differences and variance found within and between genders needs further investigation.

Within this dimension a number of findings raise the question as to whether some student teachers might have experienced barriers in gaining the perspectives of more experienced teachers. The lack of support and disinterest some student teachers perceived from school staff in what they were doing raises concern, as does the decision reported by some student teachers of not wanting to involve school staff, or disclose to them what they were doing. This raises both ethical and professional issues. These concerns could be linked and, in part, might explain why some student teachers did not perceive discussions with informed others had influenced the ongoing development of their research. Even though school staff were not involved in the student teachers' action research *per se*, the research was undertaken within the context of their school and with their pupils. These

areas need further investigation, particularly in relation to finding out what causes might underpin these perceived barriers and discovering ways to overcome them, so that student teachers and experienced teachers can engage in dialogue to explore alternative perspectives and possibilities, in all matters concerning the learning opportunities provided for pupils. Other findings which warrant further exploration concern the reasons behind differences found between the number of student teachers who either did or did not report that discussions, suggestions, written feedback and/or verbal feedback from informed others had been influential to their research.

6.2.6 Try out new strategies and ideas – dimension 6

In this study, approximately two thirds of the student teachers' reported trying out new strategies and ideas influenced the ongoing development of their research. Of these student teachers, most indicated this factor was highly influential to the purpose behind their research.

This finding suggests these student teachers used action research as a vehicle to construct new knowledge, skills and understanding associated with a particular aspect of their own teaching. Arguably, these student teachers' acknowledged the provisional nature of knowledge as they explored the effectiveness and appropriateness of new strategies and ideas in relation to a specific context. In so doing, they exercised the disposition of open-mindedness (Dewey, 1910, 1933) which links to their capacity and commitment to consider alternative perspectives and possibilities, as reported by the vast majority of student teachers in dimension 5. For example, having consulted theoretical literature and considered the perspectives of more experienced teachers, one student teacher reported trying out a range of strategies with an energetic group of year 8 boys in rugby, to minimise triggers associated with low-level disruption: *I used Bandura's model of reciprocal determinism which identified psychological aspects of the pupil and environment around them as potential triggers which can literally be anything from the ball they're holding, their perceptions of teacher proximity, boundaries, their perceptions of each other, the mood they're in, to the weather and noises in their environment…for example, if you gave the rugby ball purpose, with most pupils it lowered low-level disruption; if you can try to understand the perceptions of a child, who they look at, who they find significant, you can swap these around to try and get your best working groups; if you split pupils into very small groups, establish boundaries, and make sure they're in your eye-line, which puts you in their environment, or close enough that you're considered in their environment by them, the low-level disruption tended to decrease…in my research I identified a range of environmental triggers which could cause low-level disruption and tried*

different strategies to reduce triggers which influenced this pupil behaviour to prevent it from happening in the first place (ssi5).

This approach is indicative of building theories-in-use (Schon, 1983, 1987) and grounding curriculum theory (McKernan, 1996) in their own practice as student teachers' explore and experiment with what exemplars, images and metaphors might work within a particular teaching situation and context. In Elliott's (2005: 372) view, this provides the unity between 'theory and practice' as compared to the application of propositional forms of knowledge. Six dissertation supervisors identified testing a theory or strategy as an important component of the student teachers' action research experience. This is in line with research (Gore, 1990; LaBoskey, 1993; Tsangaridou, 2005), which has drawn links between the student teachers disposition to try new and innovatory approaches within their own teaching and their orientation toward professional growth and enquiry.

However, dissertation supervisors' perceptions were not wholly congruent with those of student teachers. Seven perceived the action research experience had influenced *most* student teachers in terms of how they think, make decisions and solve problems, whereas six perceived *some* had been influenced in this area. Even fewer dissertation supervisors' perceived the action research experience had influenced the capacity of *all* or *most* student teachers to gain an understanding of the rationale of change. A number of qualitative distinctions were found in the reflective conversations used by student teachers within this dimension of reflective practice, which in part, might explain some of the dissertation perceptions. Results showed just over one half of the reflective conversations used by student teachers within this dimension were descriptive, more than one third comparative and more than one eighth critical in nature. This finding suggests although the vast majority of student teachers might have assumed an innovative approach to their own teaching and explored new horizons, the capacity to gain in-depth awareness, insights and understanding of their research area was at the surface (descriptive), as compared to the deep and transformative level (Moon, 1999) of learning for many of them, as critical discourse was somewhat limited. However, results also showed that female student teachers were found to use fewer descriptive and more comparative and critical reflective conversations than male student teachers. The measure of dispersion was found to be moderately high (>5) in the descriptive reflective conversations of both genders and in the comparative reflective conversations of male student teachers. These findings show differences were evident between male and female student teachers and variance between

student teachers of the same gender in terms of reflective discourse they engaged in within this dimension.

It is noteworthy, that the perceptions of dissertation supervisors are not wholly congruent with one another in terms of the student teachers personal development within this dimension of reflective practice.

Implications for teacher educators

The capacity and commitment of student teachers to try out new strategies and ideas in their own teaching has been recognised as an integral component of professional development (Boud, 1999; Day, 1999; Hargreaves, 2003; Hoyle and John, 1995; Moore, 2000; TTA/DfES, 2003; TDA, 2007). It has also been identified as one means through which epistemological cognition moves toward the relativist position of contextual knowing (Baxter and Magolda, 1999; Moon, 1999) as student teachers construct knowledge which is situationally driven and contextually bound (Boud, 1999; Tsangaridou and O'Sullivan, 1997; Tsangaridou, 2005) and make sense of their own teaching for the purpose of building theories-in-use (Schon, 1983, 1987).

In this study, while the perceptions of approximately two thirds of the student teachers would suggest that they exhibited the capacity and commitment to try out new strategies and ideas in their own teaching, this finding was contrary to the perceptions of approximately half the dissertation supervisors. This could be for a number of reasons, including the suggestion that student teachers' perceptions might only show what they said they did whereas those derived from dissertation supervisors might show what they actually did. A number of qualitative distinctions were identified between male and female student teachers in terms of their use of descriptive, comparative and critical reflective conversations. A measure of incongruence was found between the perceptions of the dissertation supervisors themselves in relation to the capacity and commitment shown by the student teachers they had supervised within this dimension of reflective practice. Further investigation of possible reasons behind these variances needs to be undertaken.

6.2.7 Enhance the quality of pupil learning – dimension 7

Some evidence drawn upon to illustrate ways in which student teachers demonstrated the capacity and commitment to enhance the quality of pupil learning is linked to findings reported within other dimensions of reflective practice.

In this study, the vast majority of student teachers' reported one reason that guided their decision to select a particular research area was their concern to enhance the quality of pupil learning. This was perceived by a majority of these student teachers as highly important. Results also showed the majority of student teachers' reported one purpose for gathering data through classroom research procedures was to monitor pupil learning and behaviour. There could be several reasons for these findings, including the perceptions of student teachers that not only pupil learning but the quality of pupil learning was of considerable importance to them and, in order to gauge how they might enhance the quality of pupil learning through their own teaching they perceived it was necessary to reflect upon whether the learning opportunities and experiences they provided for pupils were effective. Partial support for this view came from the findings that a majority of student teachers' reported that reflecting upon pupil behaviour had been influential to the ongoing development of their research and approximately half reported they had refined their focus during their research investigation. This has resonance with one of the qualities Eraut (1994: 232) attributes to the accountability of professional practitioners - notably, that they demonstrate 'a moral commitment to serve the interests of pupils by reflecting on their well- being and their progress and deciding how best it can be fostered or promoted'.

As a result of reflecting on practice during their research enterprise, the vast majority of student teachers' reported their capacity to enhance the quality of pupil learning and development definitely, or probably, had improved. The three most common areas of pupil learning and development they identified include: pupil progress and achievement, pupil behaviour patterns and pupil affective states. Results also showed some student teachers' perceived they had influenced pupil learning and development in more than one area as their research evolved. In his quest to *bring pupils into the loop* of their own learning for example, one student teacher reports *initially the pupils were very, very poor at self-assessment and hadn't a great deal of experience of it…I asked them to record what level they would give themselves each week and you tended to find they would give themselves the best level…so, yes I was brilliant…I don't think they were able to make full use of that as they weren't quite sure how to use the information I was giving them…I used the record of achievement folder to get them to reflect on what they had been doing so that they were more aware of learning outcomes and the assessment criteria…I wanted them to think each*

week about what they were doing well, what they were doing badly, how they could improve…by the end they were getting the hang of it and were more accurate in recording their level (ssi1).

Further evidence this student teacher reported of his pupils' learning and development was: *when we were playing games after about 3 or 4 weeks of doing the research they were bringing in work we'd been doing previously…normally you'd teach something to them and they would forget to use it as soon as they get into a game and that's in the same lesson…but if they're bringing that in 3,4 weeks later they have understood it, I could see them actually using the skills…also, when they were answering questions, the language they used, if we talked about tackling they would be able to say we used a slide tackle, we used the shoulder chant (ibid).*

The capacity to enhance the quality of pupil learning is inextricably linked to the student teachers' own capacity to provide appropriate learning experiences and opportunities for their pupils. To this end, the opportunity to engage in action research and focus in-depth on one particular area of teaching was perceived by student teachers to have influenced their personal development in a number of areas. The most common areas of personal development they associated with their capacity to enhance the quality of pupil learning were identified as: their enhanced knowledge of pupils' ability levels and specific learning needs; greater understanding, awareness and insight of how to promote pupil understanding and accommodate individual pupils; and, thinking more about what teaching approaches and strategies promote pupil learning and how to plan future lessons. These perceived areas of personal development suggest the principles of potential and entitlement might have guided the learning experiences and opportunities student teachers provided for pupils in order to deliver an inclusive curriculum (DfEE/QCA, 1999). For example: *the thing I've learned is ADHD pupils don't follow patterns, the behavioural issues are so very different…it's just finding what they like doing and it seemed to be independent learning and giving them responsibility…and just staying calm with them in lessons. The reciprocal teaching worked and the self-check didn't which was a bit strange. I experimented with groupings because that occurred as an issue half way through, some of the pupils, their patience was short, they'd be getting on find with their partner and then it just seemed they'd 'spark off' and would be attacking each other…so to change them around they'd be happy again…and then something else would happen. One girl was very aggressive…that was quite challenging, keeping her on task and making her work with pupils she wouldn't attack…trying to keep her calm and the girl who got excluded for striking a member of staff and beating up another child (ssi10).*
This supports the research by undertaken by Tsangaridou (2005: 42-43) who found the student teachers ability to provide meaningful learning experiences for pupils was directly related to their ability to 'set particular educational goals' for a 'particular set of pupils'.

Overall, the perceptions of the vast majority of student teachers in this study would suggest that ethical and moral dimensions of focusing on the needs and interests of their pupils (Eraut, 1994: 232) was in the foreground as they sought to enhance the quality of their pupils' learning experiences.

However, dissertation supervisors' perceptions were not wholly congruent with those of the student teachers. Six perceived the action research experience had influenced *most* student teachers ability to maximise learning opportunities for pupils whereas seven perceived *some* or *no* student teachers had been influenced in this area. A number of qualitative distinctions were found in the reflective conversations used by student teachers within this dimension of reflective practice, which, in part, might explain some of the dissertation supervisors' perceptions. Results showed more than two fifths of the reflective conversations used by student teachers were descriptive, approximately two fifths comparative and one sixth critical in nature. Female student teachers were found to use marginally fewer descriptive and critical and more comparative reflective conversations than male student teachers. The measure of dispersion was found to be moderately high (>5) in the comparative reflective conversations of both genders and the descriptive reflective conversations of female student teachers. These results highlight differences between male and female student teachers and variance within both genders.

Thus, although the vast majority of student teachers might have equated pupil learning and development with changes they perceived either in their own or in pupil behaviour, the capacity to fully explore reasons behind such changes or to fully investigate strategies to move all their pupils' learning forward might not have been realised by many of them or alternatively. Alternatively, they might not have been able to demonstrate their capacity to enhance the quality of pupil learning to some dissertation supervisors. Associated with the latter point, results showed not all student teachers sought discussions and tutorials with their dissertation supervisors which suggests, in some instances, judgements by dissertation supervisors were made exclusively on the basis of the student teachers' ability to provide evidence as to how they influenced pupil learning and development in their written action research report. Moon (1999) argues there is a distinction between reflecting on practice and (re) presenting that process in written form, and some student teachers might struggle to present evidence of their learning in this way. This distinction suggests some student teachers might have shown the capacity to maximise learning opportunities for pupils through their teaching yet were unable to articulate this coherently in their written report. Dissertation supervisors' perceptions however showed variance and thus were inconclusive

in relation to the student teachers' personal development within this dimension of reflective practice. This said, it is quite plausible that dissertation supervisors might have distinguished between the expressions 'enhance the quality of pupil learning' and 'maximise learning opportunities for pupils', which in part, might explain their diverse perceptions.

Implications for teacher educators

The capacity and commitment of student teachers to enhance the quality of pupil learning has been recognised as a core component of professional development (Ashcroft and Griffiths, 1989; Day, 1999; Dewey, 1910, 1933; Eraut, 1994; Hoyle and John, 1995) and is a fundamental requirement in the Standards for the award of QTS (TTA/DfES, 2003; TDA, 2007). The capacity to focus on pupil learning and development has also been associated with the more advanced stages in conceptions of learning about teaching and learning about how to teach (Calderhead, 1996; Furlong and Maynard, 1995; Kwo, 1994; Prosser and Trigwell, 1997).

In this study, while the vast majority of student teachers' perceived they showed both the capacity and commitment to enhance the quality of pupil learning, this finding was contrary to the perceptions of approximately half the dissertation supervisors. A number of qualitative distinctions were identified between male and female student teachers in terms of their use of descriptive, comparative and critical reflective conversations within this dimension of reflective practice. Variance was found both within and between genders. The perceptions between the dissertation supervisors themselves were also found to be incongruent. Reasons behind these variances need to be investigated further, particularly in relation to possible barriers which might influence the student teachers' capacity to maximise learning opportunities for all their pupils, reasons underpinning the differences found both within and between genders and what evidence base dissertation supervisors draw upon and what criteria they might use when making judgements about aspects of student teacher development.

6.2.8 Critically reflect on their own teaching – dimension 8

- *To improve their own teaching*

This dimension was found to attract the highest frequency, almost 30 percent, of all reflective conversations used by student teachers across the dimensions, and more than 40 percent of all critical reflective conversations. This ratio of critical reflective conversations is notably higher than that found in other studies. For example, in their analysis of written

essays, Hatton and Smith (1995: 11) report that the largest proportion of student teachers' reflections was identified as descriptive (60-70%) and the smallest proportion were critical (8%).

Within this dimension of reflective practice, results showed more than half the total number of reflective conversations were descriptive and one quarter critical in nature. As the student teachers' primary goal was to improve the quality of their own teaching by drawing upon the principles and procedures of action research methodology, which positions reflection on practice at the heart of the process, these findings are not surprising. Although descriptive reflective conversations outweigh the number of critical reflective conversations, arguably this too can be expected due to the nature of the task. Student teachers must first engage in discourse, which serves to describe and analyse the constituent components of a particular aspect of teaching before they can reflect upon and critically evaluate their own effectiveness as they situate that aspect of teaching within a specific situation or context.

Ten dissertation supervisors' perceived the action research experience had influenced the capacity of *all* or *most* student teachers to reflect on their own practice. This was congruent with the majority of student teachers who reported reflecting on practice during their research investigation definitely, or probably, had influenced their teaching in a number of ways. These findings would suggest that reflecting on practice might have been the vehicle through which improvements in their own teaching had been realised by the majority of student teachers. There were three main areas in which student teachers perceived personal development and improvement in their own teaching had occurred.

First, student teachers' perceived that reflecting on practice had increased their *knowledge and understanding* about a range of factors, which could influence pupil learning and development. As a consequence, they perceived improvements in their own teaching had occurred in a number of areas. The most common improvements noted include how to: create a positive learning environment; use teaching approaches and strategies effectively; promote pupil learning and accommodate pupil difference and diversity.

Second, student teachers' perceived reflecting on practice had influenced a number of *personal characteristics,* which as a consequence improved their approach to teaching. The most common improvement noted was that of thinking more about different aspects of pedagogy, followed by searching for new ideas; increased confidence to try new approaches; enhanced motivation when pupils were actively learning.

Third, student teachers' perceived reflecting on practice had influenced the way they approached *evaluating their own practice*. As a consequence, they perceived improvements in their own teaching had occurred in a number of areas. The most common improvements noted include: analysing what worked and why; making decisions; more informed future planning; how they taught.

Although these findings suggest reflecting on practice had led to improvements in these three areas, which complement themes that surfaced within other dimensions of reflective practice, an improvement in the student teachers' capacity to reflect on practice does not necessarily equate to more effective teaching. For example, four dissertation supervisors for example, perceived the action research experience had led to an improvement in the quality of *most* student teachers teaching whereas seven perceived an improvement in the quality of *some* student teachers teaching. One stated *even the least perceptive student teachers make comments which suggest improvement (ds10)* whereas another reported *the quality of self development as a result of them analysing themselves and the discourses that are around them is minimal (ds5).* Arguably, these excerpts question whether aspects of improvement student teachers' perceived had occurred in their teaching were translated effectively into their own practice and, the depth and breadth of critique and analysis shown by some student teachers as they reflected on areas in which they perceived improvements in their own teaching had occurred. Associated with the latter point, only one third of the dissertation supervisors' perceptions indicated that *all* or *most* student teachers reflected exceptionally well or reasonably well on their own practice. Several qualitative distinctions were found between student teachers in terms of the reflective conversations used within this dimension of reflective practice. Female student teachers were found to use more descriptive, comparative and critical reflective conversations than male student teachers. The measure of dispersion in each type of reflective conversation for both genders was found to be high (>10), and particularly high (>20) in the descriptive reflective conversations used by female student teachers. These results highlight greater differences between male and female student teachers and greater variance in same gender groups, in terms of reflective conversations used within this dimension of reflective practice, than in other dimensions, which lends partial support to the dissertation supervisors' perceptions in terms of differences between student teachers.

These findings indicate a measure of incongruence between the perceptions of student teachers and dissertation supervisors in terms of how and whether reflecting on practice had led to more effective teaching. This could be for a number of reasons, including the

use of different criteria and evidence base drawn upon to formulate their respective judgements. Also, even though student teachers might perceive they think more about different aspects of teaching and have an increased knowledge and understanding of factors that might influence pupil learning, numerous variables have been found to influence the reflective process, which arguably manifest themselves in the student teachers own teaching. Research by LaBoskey (1993: 24) for example, found that student teachers characterised as 'common sense thinkers' showed two types of attribute: some were unable 'to engage in the cognitive approaches of reflective thinking' whereas others, had 'the necessary cognitive abilities but seemed to have beliefs, values, attitudes or emotions that prevented or distorted the reflective process in most situations'. It may be that some dissertation supervisors detected similar attributes in the student teachers within this study, particularly from those who did not report testing a personal theory or belief, had been influential to the ongoing development of their research.

- *Motivation to search for reasons*

In this study, approximately two thirds of the student teachers' reported reflecting on practice during their research investigation definitely, or probably, had influenced their motivation to search for reasons behind the outcomes of their teaching. Of the remaining student teachers, approximately two thirds reported this phenomenon was already embedded within personal practice. Student teachers' perceived their commitment to engage with this process was important for several reasons. First, they indicated searching for reasons enhanced their knowledge and understanding of factors that influenced *pupil learning and development,* which supports their perceived commitment to focus on the needs and interests of their pupils. Second, they indicated searching for reasons encouraged them to raise more questions and *think more widely* about factors that had influenced situations and events in the teaching environment, which supports their perceived commitment to study their own teaching for personal improvement. Third, they indicated searching for reasons enabled them to recognise knowledge gained from analysing and evaluating their research outcomes might only be *provisional* and what works in one situation might not be as effective in another. This supports their perceived commitment to consider alternative perspectives and possibilities and has resonance with King and Kitchener's (2002: 40) stage of reflective reasoning in that, student teachers have reached a level of understanding which recognises 'there is not necessarily any one correct answer to a given situation but several possible solutions to the situation'.

Student teachers also perceived that searching for reasons behind the outcomes of their teaching had increased their *confidence* to make changes to aspects of their own teaching, which supports their perceived commitment to try out new strategies and ideas. This is in line with findings from other research (McCormack, 2001). This finding was congruent with that of nine dissertation supervisors who reported the action research experience had increased the confidence of *all* or *most* student teachers. These findings would suggest that, as student teachers gained confidence and an increased sense of empowerment to make changes to aspects of their own teaching, they might have exercised a measure of autonomy and assumed increased responsibility for what was happening in the learning environment. Partial support for this view came from the perceptions of several dissertation supervisors: one stated, the action research experience has the power *to convince student teachers they can change accepted practice for the better (ds1)* and another reported, *student teachers come to the realisation that whenever problems arise they have the power to do something about it themselves (ds7)*. Research (Baxter and Magolda, 1999) has shown that one of the factors, which seemed to influence the students' progression into the stage of 'contextual knowing', was the need to make significant independent decisions in the professional work environment.

- *Critically reflect on reasons*

In this study, the majority of student teachers' reported that reflecting on practice during their research investigation definitely, or probably, had influenced their ability to critically reflect on reasons behind the outcomes of their teaching. Of the remaining student teachers, approximately one third reported this phenomenon was already embedded within personal practice. The student teachers' capacity to critically reflect on reasons behind the outcomes of their teaching was evidenced in a number of different ways, which complement themes noted earlier: specifically, student teachers' perceived they were able to *evaluate more widely, analyse more closely* and to *think more and in greater depth* about reasons behind the outcomes of their own teaching.

However, dissertation supervisors' perceptions were not wholly congruent with those of student teachers. Only four perceived the action research experience had influenced the capacity of *all* or *most* student teachers to justify aspects of good practice. This finding suggests an improved ability to reflect on practice does not necessarily equate to an improved ability to critically reflect on reasons behind the outcomes of their teaching, which arguably is inextricably linked to the student teachers capacity to justify aspects of good practice. There could be several reasons for this, including the dissertation

supervisors' perceptions that student teachers judgements were not based upon sound evidence and, they had not fully explored all possible reasons which could have influenced the outcomes of their own research. Linked to this latter point, it might also indicate some student teachers were unable to make sense of what was happening in the learning environment. Partial support for this view came from the finding that although reflecting on practice had inspired them to want to know why things happened in their own teaching, a minority of student teachers' reported it probably had not influenced their capacity to find out why they happened. This has resonance with King and Kitchener's (2002: 40) stage of *quasi-reflective reasoning* in that, although student teachers might use evidence, 'they do not understand how evidence entails a conclusion', particularly 'in light of the acknowledged uncertainty' and thus, 'tend to view judgements as highly idiosyncratic'. This would suggest some student teachers might struggle to engage in *means-ends analysis* (LaBoskey, 1993) and higher levels of thinking (Bloom, 1956) so as to analyse, synthesise and evaluate all relevant information into a tempered conclusion.

- *Situate their own teaching within the wider professional landscape*

In this study, the majority of student teachers' reported they had situated their own teaching within the context of their department as they reflected upon possible influences to their own practice. These influences include: taking account of departmental policies, procedures and practices and working closely with more experienced members of the department. Student teachers' perceived informed others had encouraged them to challenge personal assumptions and consider alternative possibilities in their teaching. They also identified ways in which they perceived their own research outcomes had influenced the work of others within the department.

Approximately three quarters of the student teachers' reported they had situated their own teaching within the wider context of their school as they reflected upon possible influences to their own practice. These influences include: taking account of, and in some instances, challenging the status quo of school wide policies and practices. Student teachers identified how such school wide policies and protocols as managing behaviour were perceived to have influenced how they handled pupil sanctions and discipline in their own classroom to ensure consistency of approach. They identified how introducing some pupils to a new area of physical activity, was perceived to have influenced the underlying philosophy of the purpose behind physical education across the whole school.

One half of the student teachers' reported they had situated their own teaching within local and national contexts as they reflected upon influences to their own practice. These

influences include: local authority and government initiatives, policies and practices. Student teachers' identified how national standardised testing and assessment were perceived to have influenced the way they designed their own lessons to ensure pupils were appropriately prepared. They also identified how they perceived they had enriched the programme for pupils 'labelled' as having special needs or learning difficulties.

These findings would suggest the majority of student teachers considered the ethical, moral, social, political and ideological dimensions of teaching (Macdonald, 2002; Tinning, 2002) when reflecting on reasons behind the outcomes of their own teaching. In so doing, it can be argued they situated their own teaching, to varying degrees, within the wider professional landscape. Although the perceptions of one dissertation supervisor questioned the capacity of *all* student teachers she had supervised to situate their own teaching within these wider dimensions and stated *they are somehow removed from the scenario they are investigating…not really engaging in the discourses of self and the other discourse that surround them (ds5),* this was not supported by other dissertation supervisors' perceptions.

Implications for teacher educators

The capacity and commitment of student teachers to critically reflect on their own teaching has been identified as a requirement in the Standards for the award of QTS (TTA/DfES, 2003; TDA, 2007), as an integral component of professional development (Day, 1999; Dewey, 1910, 1933; Eraut, 1994; Hoyle and John, 1995) and a key attribute of extended professionals (Stenhouse, 1975). It has also been recognised as one means through which epistemological cognition moves toward the relativist position of contextual knowing (Baxter and Magolda, 1999; Moon, 1999, 2005) as student teachers' construct knowledge which is situationally driven and contextually bound (Boud, 1999; Tsangaridou and O'Sullivan, 1997; Tsangaridou, 2005) for the purpose of improving personal practice.

In this study, results showed that engagement with action research was perceived both by dissertation supervisors and student teachers to have influenced the capacity of the majority of student teachers to reflect on practice. The majority of student teachers' perceived they had considered the ethical, moral, social, political and ideological dimensions of teaching and, thus, situated their own teaching within the wider professional landscape. While student teachers' perceived their improved capacity to reflect on practice had led to improvements in their own teaching, more than half the dissertation supervisors' perceived reflecting on practice had only influenced the quality of *some* student teachers' teaching. These perceptions suggest a measure of incongruence was evident in terms of

how, and whether, the student teachers' perceptions of their improved capacity to reflect on practice necessarily led to more effective teaching. This needs to be investigated further, particularly in relation to what aspects of pedagogy might have provided the focus of some student teachers' reflections and how an exploration of the constituent components of different aspects of pedagogy, in which student teachers' perceived they had an increased knowledge and understanding and were thinking more about, can lead to improvement in the quality of their own teaching. Arguably, these questions might be linked both to the student teachers' motivation to search for reasons behind the outcomes of their own teaching and their capacity to critically reflect on reasons behind the outcomes of their own teaching.

Results showed more than two thirds of the student teachers' perceived reflecting on practice had influenced their motivation to search for reasons behind the outcomes of their teaching. Several reasons to support why they perceived engaging with this process was important could be linked to their perceived commitment within other dimensions of reflective practice. In searching for reasons behind the outcomes of their own teaching, a common finding was that student teachers' reported they had more confidence to make changes to aspects of their own teaching. This was congruent with the perceptions of most dissertation supervisors who also suggested student teachers were gaining a sense of empowerment and ownership over their own teaching. This suggests that one argument in support of the value and purpose behind the action research experience might be that student teachers increasingly assume ownership of their own teaching, perceive themselves as agents of change and become accountable for consequences that occur within the learning environment.

Results showed the majority of student teachers' perceived reflecting on practice had influenced their capacity to critically reflect on reasons behind the outcomes of their own teaching. This finding however was only congruent with the perceptions of four dissertation supervisors. There could be several reasons for this, including the use of different criteria upon which student teachers and dissertation supervisors base their judgements and, that student teachers' perceived they had improved in these areas yet this was not shown in their level of reasoning and argument when exploring why things happened in their own teaching and trying to find appropriate justifications to explain why they happened. This area needs further investigation, particularly in relation to how it might have been interpreted and whether factors, which might have inhibited the capacity of

some student teachers to critically reflect on reasons behind the outcomes of their own teaching, can be identified.

A number of qualitative distinctions were identified between male and female student teachers in terms of the descriptive, comparative and critical reflective conversations used within this dimension. Although measures of dispersion were high for both genders they were more so for female student teachers. The measures of dispersion between student teachers in terms of descriptive, comparative and critical reflective conversations was found to be particularly high, and notably higher than in most other dimensions. This indicates considerable variance was found between some student teachers in terms of their capacity and commitment to engage in discourse as they reflected upon their own teaching which supports the perceptions of some dissertation supervisors. Reasons behind these variances need to be investigated further, particularly in relation to possible barriers, which might influence the capacity of some student teachers to assume a critical stance as they reflect upon possible reasons behind the outcomes of their own teaching and possible reasons behind differences found both within and between genders.

6.2.9 Continue to improve their own teaching – dimension 9

In this study, the vast majority of student teachers' reported they definitely, or probably, would apply the process of reflecting on practice to other aspects of teaching and pupil learning in order to continue to improve their own teaching. This commitment was articulated in two ways. First, student teachers' expressed their intention to draw upon insights they had gained from trying out new strategies and approaches in their teaching and applying these to other areas of physical activity and with other groups of pupils. Some student teachers' reported this had already begun to happen during their final school experience. This finding suggests these student teachers plan to build upon the knowledge, understanding and skills they had gained from their research experience and further explore how this might influence pupil learning in a range of other contexts. This illustrates commitment to want to improve their understanding of how to use strategies and approaches in their teaching effectively through experiential learning (Kolb, 1984). As one student teacher reports, *because I was learning to use Dart fish with a group of 30 pupils in gymnastics I was more competent using the different functions with a smaller group of year 11, GCSE pupils…it was more appropriate to use certain things…you could use more of the possibilities or capabilities the resource had…when they were looking at the analysis of their own performance skills on the screen they could slow*

down, focus on points, circle an area and zoom in…so, they found it really good to look at themselves and in a manner which they understand rather than just video tape and watch themselves for feedback (ssi12).

Second, student teachers' expressed their intention to scrutinise other aspects of pedagogy through the process of self-reflective enquiry. This was perceived as a vehicle through which they could: engage in more in-depth analysis of specific aspects of pedagogy; continue to improve areas of personal practice; and, further enhance learning opportunities they provided for pupils. These aspirations have resonance with Hoyle and John's (1995: 128) concept of responsibility wherein student teachers engage in the 'continuous development of knowledge and skill, the cultivation of judgement and acceptance of a child-centred ethic'. This finding suggests these student teachers' recognise the interdependent nature of reflecting on practice and self study and plan to embed this within personal practice. This illustrates commitment to engage in ongoing professional development in order to improve their own effectiveness in the interests of pupils they would be teaching in the future. This supports the research of Zeichner and Liston (1996: 6) who found there was often a commitment by teachers to 'internalise the disposition and skills to study their own teaching and become better at teaching over time'. It could be argued that the action research experience provided these student teachers with an invaluable point of departure and means through which this intention might be realised. As one reports, *when you go through the whole process from working out something you want to improve and then doing it and constantly reflecting it's just like when you go into every class when you become a teacher is going to be different and if you can't change things and evaluate what you've done you're never going to further that learning experience for pupil. I just feel through doing the project I found the whole process a lot more realistic and relevant to what I was doing. I've been given that opportunity to have to look at myself and examine what I've done and it has been really, really beneficial. It has definitely given me more ability to evaluate what I've done and look for ways of improving it. Just from the environment I was in and the support I had from my mentor and just being able to do that has really improved my teaching (ssi6).* This illuminates how the action research experience can make a difference to the way in which student teachers think about and approach their own teaching.

In this study, approximately three quarters of the student teachers' reported they definitely, or probably, would be interested to engage in further research by reflecting on their own practice. A diverse range of possible research areas were identified which represented a shift in direction to those hallmarked at the outset of the student teachers action research experience. For example, there was a notable increase in the number of student teachers who expressed an interest to research subject specific content, teaching

strategies and resources for classroom based work with examination groups, as reflected in the above narrative, and a notable decrease in the number who expressed an interest to gain more experience in developing and using specific teaching styles. These findings would suggest that areas targeted for future research were those in which student teachers, prior to their final school experience, had relatively limited previous experience. Thus, the expressed intention to want to learn more about these areas through further research suggests the reflective attitudes of responsibility and wholeheartedness (Dewey, 1910, 1933) have become an integral part of these student teachers' orientation toward professional growth and enquiry. 'Tracking the development of self as learner' (Usher, 1998: 18) through experience-based learning is also indicative of the commitment to take responsibility for their ongoing professional development.

Six dissertation supervisors' perceived the action research experience had influenced *most* student teachers to assume ownership of personal continuing development. As one stated, *some student teachers will go on to do systematic research…the year 4 dissertation provides them with a foundation of confidence and a template for professional development…others will be encouraged to see teaching in a more analytical light even if they do not engage in research…almost all student teachers, I believe, will have been changed positively (ds10).* By contrast, seven dissertation supervisors perceived the action research experience had influenced *some* student teachers in this area. Thus, dissertation supervisors' perceptions were not wholly congruent with those of student teachers or consistent between themselves in terms of the student teachers' personal development within this dimension of reflective practice.

This said, qualitative distinctions were found between student teachers in terms of the reflective conversations used within this dimension of reflective practice. Results showed less than half the reflective conversations were descriptive, three tenths comparative and approximately one quarter critical in nature. Female student teachers were found to use fewer descriptive and comparative reflective conversations and more critical reflective conversations than male student teachers. The measure of dispersion was found to be moderately high (>5) in the descriptive reflective conversations of male student teachers. Thus, variance was evident both within and between both gender groups.

Implications for teacher educators

The commitment of student teachers to continue to improve their own teaching and take increasing responsibility for their own professional development is articulated by government as a requirement in the Standards for the award of QTS (TTA/DfES, 2003;

TDA, 2007). It has also been associated with accountability (Eraut, 1994), professional development (Day, 1999; Hoyle and John, 1995) and identified as a key attribute of extended professionals (Stenhouse, 1975).

In this study, the vast majority of student teachers' expressed commitment to continue to improve their own teaching in a number of ways. However, this finding was contrary to the perceptions of approximately half the dissertation supervisors. It was also found that perceptions between the dissertation supervisors themselves were incongruent and are inconclusive. It is not readily apparent why these perceptions are opposed, which suggests this might be an area that warrants further investigation.

Differences were found between male and female student teachers in terms of the types of reflective conversations used within this dimension and variance was moderately high in the use of descriptive reflective conversations by male student teachers. Reasons behind these differences need further exploration.

6.3 Summary

Overall, results in this study showed the majority of student teachers' perceived the action research experience had influenced personal professional development within dimensions 1, 2, 5, 7, 8 and 9; approximately two thirds of student teachers within dimensions 3 and 6; and, approximately one third of student teachers within dimension 4 of reflective practice.

Three main trends were found in the perceptions of dissertation supervisors. First, there was general agreement between dissertation supervisors that the action research experience had influenced the development of *all* or *most* student teachers in three areas within dimensions 2 and 8 of reflective practice. Of these, *an assessment of their current practice* and an *ability to reflect on their own practice* was congruent with perceptions of a majority of student teachers, whereas an *increased confidence to make changes in their own teaching* was congruent with approximately two thirds of them.

Second, there was general agreement between dissertation supervisors that the action research experience had influenced the development of *some* or *no* student teachers in two areas within dimensions 8 and 6 of reflective practice. Of these, *their justification of good practice* was incongruent with the majority of student teachers and, *gaining an understanding of the rationale of change* was incongruent with approximately two thirds of student teachers.

Third, there was general disagreement between dissertation supervisors as to whether the action research experience influenced *all, most, some* or *no* student teachers in three areas within dimensions 7, 9 and 6 of reflective practice. Of these, an *improvement in their ability to*

maximise learning opportunities for pupils and *taking ownership of personal continuing professional development* were perceived by the vast majority of student teachers as areas in which they had developed, and *how they think, make decisions and solve problems* by approximately two thirds of student teachers as an area in which personal development had occurred.

In this study, results showed almost half of all the reflective conversations used by student teachers were descriptive, more than one third comparative and approximately one sixth critical in nature. Analysis of the overall number and types used within each dimension of reflective practice however showed this trend was not uniform across all dimensions. As compared to other dimensions, the number of reflective conversations used by student teachers within two particular dimensions attracted approximately half the overall total number of reflective conversations used, notably: the capacity and commitment to critically reflect on their own teaching and to systematically evaluate their own teaching through classroom research procedures. By contrast, the dimension found to attract the least number of reflective conversations was the capacity and commitment to test a personal theory or belief.

Overall, female student teachers were found to use fewer descriptive and more comparative and critical reflective conversations than male student teachers. Variance was also evident within genders and, most notably, in the critical reflective conversations of female student teachers.

These findings have raised a number of issues, which are discussed in the following sections of this chapter in relation to potential limitations of this study and recommendations for further research.

6.4 Limitations of the study

While insights have been gained into the perceived development that student teachers' experience through reflective practice within the context of action research from this study, the results should be interpreted cautiously due to a number of limitations. These are based on elements of the research methodology and design of this study, as well as the realisation that it is not possible to know with certainty whether the development of reflective practice would have occurred as a natural consequence of school-based teaching experience rather than the intervention of the student teachers' research investigation. However, the data sought was targeted directly toward gathering the perceptions of research participants in relation to the latter intervention.

The paucity of substantive research studies in initial teacher education and the diverse nature of those studies that have been undertaken to examine the development of student teachers' reflective practice, particularly within physical education initial teacher education, make direct comparison and contrast to previous research studies difficult. The sample size in this study was relatively small as participants all heralded from a single degree course within one institution of higher education in England. Although results of this study might be relatable to student teachers following similar courses in initial teacher education, they may be difficult to generalise.

One major challenge associated with qualitative research studies is that of interpretation. It was realised that there are several ways in which interpretation has potential to influence the results of this research. Although informed by the theoretical underpinnings, which have been advanced in the field of reflective practice by scholars, teacher educators and practitioners over past decades, in addition to discussions with professional colleagues, the framework of reflective practice designed for use in this study was shaped by the researcher's emerging conceptualisation of this phenomenon. Linked to this, evidence drawn upon to inform each dimension of reflective practice within the conceptual framework related directly to the student teachers' action research experience. Arguably, evidence can also be drawn from a number of other areas within the degree course structure to investigate the development of student teachers' reflective practice. Therefore, results from this research should be understood in light of the context in which it has been undertaken.

Evidence gathered to inform this study relied upon the research participants' understanding of what information was being asked of them. Although research instruments designed for use in this study were assessed for fitness of purpose prior to use, potential limitations associated with interpreting the questions in questionnaires and semi-structured interviews, as discussed in chapter 4, might have occurred. Similarly, although a number of measures were put in place to minimise risk of bias, the potential that power relations have to influence student teachers' responses should be noted.

Evidence gathered to inform this study also relied upon the research participants' judgements. Although dissertation supervisors were each provided with the same guidance material, variance between some of their perceptions concerning the student teachers development within some dimensions of reflective practice emerged in the findings, which was not expected. It may be that dissertation supervisors' interpreted some questions differently or used different frames of reference. It could also be that their judgements

were based upon different sources of evidence – notably, that derived from discussions with student teachers or from evaluating their final written report. Research (Hatton and Smith, 1995; Lee, 2005; McCormack, 2001) has shown some student teachers are better able to reflect on practice in the verbal as compared to the written medium due to such factors as 'a lack of personal reflective writing skill' (McCormack, 2001: 5). Also, Moon (1999; 2005) questions the use of written artefacts for evidence of reflective processes. This implies that some dissertation supervisors might have used different frames of reference and criteria in reporting their perceptions of the development of student teachers' reflective practice.

Although data extracted from qualitative responses was analysed by two independent researchers and agreement reached following discussion about units of relevant meaning, this was not a straightforward linear process. This implies that other independent researchers might also interpret some qualitative data differently.

A number of constraints were identified by research participants, which have potential to influence the results of this study. The juxtaposition of the student teachers' action research investigation with their final assessed school experience might have reduced the amount of time student teachers were either willing or able to devote to their research enterprise. Pressures associated with the assessed nature of the action research report and writing up the dissertation might have affected the development of student teachers' reflective practice. The influences that some student teachers' perceived experiencing from staff within the context of their school might have reduced their opportunities to benefit from the perspectives of more experienced teachers or restricted their autonomy in selecting the direction of their research. The limited or no contact some student teachers made with dissertation supervisors throughout the duration of their study might have reduced their opportunities to 'know about alternative teaching approaches being used elsewhere, to study relevant research and theoretical literature and to explicate and critically examine the principles which should or could inform the practice of teaching' (McIntyre, 1993: 114).

6.5 Recommendations for further research

Since this study introduced a new conceptual framework to investigate the development of student teachers' reflective practice within the context of action research, replication of this study is highly recommended. Replication with primary and other secondary physical education student teachers can be helpful for comparison purposes. Replication in other

subject areas can also add validity to these findings. A larger sample is suggested so that findings can be generalised.

The conceptual framework was designed to capture pedagogical moments in the context of the student teacher's discursive history, which is 'a complex mosaic of ideas, experiences and emotions' (Macdonald and Tinning, 2003: 89). To that end, an exploration of their action research experience was undertaken by unpacking dimensions of reflective practice in which they could demonstrate capacity and commitment. This is but one application of the conceptual framework. Future studies might explore how this particular model can be used and built upon within other contexts of learning about teaching and learning about how to teach, particularly as reflective practice arguably resides at the heart of professional growth and enquiry.

Qualitative distinctions found between student teachers in this study should be investigated further. The conceptual framework can be used for this purpose so that reasons behind the patterns and trends found within each dimension of reflective practice, and across the dimensions, can signal specific areas in which student teachers demonstrate strength or might need further development. Such research could help determine whether the content of the degree course structure effectively prepares student teachers to develop the capacity and commitment to engage in reflective practice, or whether some components need to be reviewed. For example, some questions which arise from the findings of this study include: Where, and how, in the degree course structure are student teachers encouraged to question personal theories or beliefs? Why is the propensity to question personal theories and beliefs more evident in male than female student teachers (particularly as these questions emerge from the dimension of reflective practice shown to have been the least influential in the ongoing development of the student teachers' research)?

A shared understanding and cooperation between universities and schools is necessary for supporting the professional development of student teachers. Results of this study suggest there might have been a conflict of interests, which has the potential to influence the experiences of some student teachers. Thus, possible ways in which school-based staff can be more involved in the action research experience of student teachers could be explored.

Research needs to be undertaken to ascertain how dissertation supervisors' formulate judgements about the development of reflective practice in student teachers, and what their understandings are of this complex phenomenon. Such questions as – Where do they look

for evidence to support their judgements? What frames of reference do they use? – provide a useful springboard. In turn, this knowledge could be used to devise a common model of guidance principles.

Modifications to this study, therefore, could have been the inclusion of semi-structured interviews with dissertation supervisors so that reasons underpinning their judgements could have been explored more fully and common frames of reference established. In this way, variance between their perceptions could be clarified. Also, an additional feature on the dissertation supervisors' questionnaires could have been an indication of the number of student teachers their judgements related to, particularly as the number each supervised ranged from between 3 and 8. This would enable more direct comparisons to be made with the student teachers' perceptions.

In this study, one common finding was that student teachers' perceived the action research experience had changed the way they thought about and approached their own teaching. The long-term impact this might have on their teaching is not known. Further research, in the form of a longitudinal study might explore ways in which such perceived changes influenced their ongoing professional development during the early years of their teaching career and whether, and how, reflective practice has become embedded within personal practice. Such insights also have potential to inform the action research component of student teachers' degree course structure.

6.6 Conclusions

The following conclusions were drawn from the findings of this study and relate to the research questions posed. Caution should be exercised concerning the generalisability of these conclusions beyond the student teachers and dissertation supervisors who were participants in this study.

Reflective practice is a complex, multi-dimensional phenomenon, which has become an integral part of initial teacher education. Its somewhat elusive boundaries make it difficult to capture. The purpose of this research has been to investigate the development of student teachers' reflective practice within the context of action research and identify what qualitative distinctions in reflective practice can be drawn between student teachers. Few studies have examined how student teachers learn the processes inherent within action research, what they learn, and further, how they make connections between classroom enquiry, teaching and educational change. Reflective practice, as defined in this study, can be situated at the heart of these learning processes. This research has therefore sought to

add to the research currently available in educational literature, which focuses on the impact strategies used to develop reflective practice in student teachers, can make to their professional development.

In this exploration of the student teachers' development of reflective practice, a number of patterns and themes emerged both within and across the dimensions of reflective practice used to frame this study. A majority of student teachers' perceived the action research experience had influenced their capacity and commitment to: study their own teaching for personal improvement; systematically evaluate their own teaching through classroom research procedures; consider alternative perspectives and possibilities; enhance the quality of pupil learning; critically reflect on their own teaching; and, continue to improve their own teaching. Several themes emerged which highlight how and why student teachers' perceived personal development had occurred within these dimensions. These include: thinking more and in greater depth; analysing more closely; evaluating more widely. In turn, these were perceived to have led to greater understanding, insight and awareness about the principles and procedures of pedagogy and enhanced knowledge of how to accommodate pupil difference and diversity within their own teaching.

Most student teachers' perceived the action research experience had influenced their capacity and commitment to: link theory with their own practice; and, try out new strategies and ideas. Two themes which highlight how and why student teachers' perceived personal development had occurred within these dimensions include their: personal search of literature and increased confidence to make changes in their own teaching. By contrast, just over one third of the student teachers felt that the action research experience had influenced their capacity and commitment to test a personal theory or belief. This disposition was found to be more prevalent in male than female student teachers. Collectively, these results show that student teachers' perceived that the action research experience had influenced their development of reflective practice in many dimensions.

However, dissertation supervisors' perceptions were not found to be wholly congruent with those of the student teachers. While most dissertation supervisors supported the student teachers' perceived improvement to assess and reflect upon their own practice, they did not support the student teachers' perceived improvement to gain an understanding of the rationale of change or to justify aspects of good practice. Variance between these latter perceptions suggest that student teachers and dissertation supervisors used different frames of reference in formulating their respective judgements or alternatively, student

teachers perceived they had developed in some areas yet were unable to provide evidence of their learning in those areas.

Qualitative distinctions were found between male and female student teachers and within same gender groups in terms of the reflective conversations they used within each dimension of reflective practice. These distinctions highlighted areas in which similarities and differences between student teachers in terms of their capacity and commitment to engage in descriptive, comparative and critical discourse were realised, which in part, support the above perceptions of dissertation supervisors. One such distinction was the finding that female student teachers used more critical reflective conversations than male student teachers in all dimensions of reflective practice but one. However, variance within genders was also particularly notable in the critical reflective conversations of female student teachers.

Variance between the dissertation supervisors themselves however was also evident in their perceptions of the student teachers' capacity and commitment to: think, make decisions and solve problems; maximise learning opportunities for pupils; and, take ownership of personal continuing professional development.

Notwithstanding the challenges inherent with each person's particular 'ways of being in the world' (Grimmett *et al,* 1990: 29), there was general agreement among research participants that the action research experience had not only influenced the way the student teachers' thought about and approached their own teaching, as they endeavoured to make sense of what was happening in the learning environment, but also that it had been an invaluable, worthwhile experience. One dissertation supervisor notes: *almost all student teachers, I believe…will have been changed positively…involvement in a worthwhile activity…makes it seem even more worthwhile (ds10).*

To this end, providing student teachers with an opportunity to engage in contextually focused research activity which enables them progressively to become more effective in accurately assessing a situation, selecting an appropriate course of action, implementing the plan of action and evaluating the outcome to inform future planning, is an experience which should lay the ground for professional growth and enquiry. It is also one means through which the student teachers' epistemological cognition can shift from the *dualist* to the *relativist* position of contextual knowing (Baxter Magolda, 1999), reflective reasoning (King and Kitchener, 2002) and critical thinking (Moon, 2005).

Following this line of argument, there is need to focus on the developmental nature of learning how to engage in reflective practice as soon as student teachers embark upon their

initial teacher education course so as to embed and internalise such newly acquired dispositions as: analysing more closely, evaluating more widely and thinking in greater depth, in the student teachers practice before they enter the final year. This, in turn, may narrow the variance found between student teachers as they develop characteristics associated with becoming a 'critical being' (Barnett, 1997). As Moore (2000: 128) persuasively argues, becoming a reflective practitioner is not so much about the acquisition or development *per se* of the skills and areas of knowledge required for successful teaching, but rather concerns 'the particular skills needed to reflect constructively upon ongoing experience as a way of developing those skills and knowledge and improving the effectiveness of one's work'.

The conceptual framework designed for, and used, in this study has made it possible to examine the various dimensions of reflective practice within the context of action research and to recognise the synergy between reflective practice and becoming an extended professional (Stenhouse, 1975). An exploration of how it might be further developed to support the professional development of student teachers as they engage in discourse to learn about the art and craft of teaching has potential to further clarify the elusive boundaries of this phenomenon.

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Appendix A: Reflective practice in teacher education

Traditions identified by Zeichner and Tabachnik (1991)

Academic

This tradition emphasises the teacher's role as a subject matter specialist (as in Shulman's (1986) derivation of subject matter knowledge) and transformation of subject matter knowledge to promote pupil understanding. Stages in Shulman's (1987) model of *pedagogical reasoning and action* are used to identify aspects of the teaching act which comprise - comprehension, transformation, instruction, evaluation, reflection and new comprehension. As one key component of this model, Shulman (1987: 19) describes reflection as:

> What a teacher does when he or she looks back at the teaching and learning that has occurred and reconstructs, re-enacts, and/or recaptures the events, the emotions, and the accomplishments. It is that set of processes through which a professional learns from experience…central to this process will be a review of the teaching in comparison to the ends that were sought.

This orientation prioritises reflection in terms of what content is to be taught and how it is to be taught and 'the standards for assessing the adequacy of teaching evolve primarily from the academic disciplines' (Zeichner and Tabachnik, 1991: 5).

Social efficiency

This tradition emphasises the knowledge base derived from the scientific study of teaching should be included within the initial teacher education curriculum and has been interpreted by Feiman-Nemser (1990) in two distinct ways. First, the *technological* version focuses on teaching student teachers the competencies and skills associated with desirable pupil outcomes. This orientation defines reflection 'as a way of thinking about educational matters that involves the ability to make rational choices and to assume responsibility for those choices' (Ross, 1990: 98). Second, the *principles of procedure* version, focuses on teaching student teachers the teaching skills for decision-making and problem solving. Cruickshank's (1987) model of *reflective teaching* exemplifies this version. It focuses on the application of pedagogical principles to particular situations and the thoughtful analysis of teaching episodes. This orientation prioritises reflection in terms of developing student teachers' capacity to exercise judgement and 'the emphasis is clearly on the intelligent use of generic teaching skills and strategies that have been suggested by research' (Zeichner and Tabachnik, 1991: 6).

Developmental

This tradition emphasises that the natural development of the learner provides the basis for decisions concerning what should be taught and how it should be taught. *Teacher as naturalist, teacher as researcher* and *teacher as artist* are metaphors Perrone (1989) associates with this tradition. Teacher as naturalist refers to classroom practice, which builds the curriculum and environment to accommodate the patterns of learner development and interests. Importance is attached to close observation and the study of a learner's behaviour in the classroom. Teacher as researcher refers to an experimental approach toward practice, which encourages teachers to initiate and sustain enquiries about the learning of specific pupils, to guide and inform practice in their own classrooms. Teacher as artist refers to the development of exciting and stimulating classrooms to engage practitioners who are creative and fully involved in their own learning. This orientation prioritises reflection in terms of engaging learners with phenomena and then seeking to understand the sense they are making from their engagement (Zeichner and Tabachnik, 1991).

Social reconstructionist

This tradition considers schooling and initial teacher education, are important determinants for the creation of a more just and humane society. This perspective prioritises reflection in terms of how student teachers' actions influence the status quo both within school and society. Valli (1992: 46) argues that schools as social institutions 'help reproduce a society based on unjust class, race, and gender relations and that teachers have a moral obligation to reflect on and change their own practices and school structures when these perpetuate such arrangements'. This tradition has three central strands. The first encourages teachers to focus their attention both inwardly at their own practice and outwardly at the social conditions wherein these practices are situated (Carr and Kemmis, 1986). The second advocates a democratic and emancipatory force as teachers focus their reflections on issues related to inequality and injustice, in the context of their own classroom, school and society. The third demonstrates a commitment to reflection as a communal activity and 'seeks to create 'communities of learning' where teachers can support and sustain each other' (Zeichner and Tabachnik, 1991: 9).

Noordhoff and Klein (1990) describe the initial teacher education programme at the university of Alaska-Fairbanks, which aims to prepare student teachers to work in complex multicultural settings using the phrase *design inquiry* rather than *reflective inquiry*. Case studies based around three school teaching practices throughout one academic year to examine the effect of this programme led Noordhoff and Klein (1990: 181) to conclude student teachers 'began to take more account of a primary facet of the teaching context – their students – in preparing and implementing lessons. They shifted from seeing instruction as a centre task under their control to viewing teaching as a more uncertain and problematic act that is dependent on contextual factors'. Tsangaridou and Siedentop (1995: 220) express the four types of activity in this programme as 'naming and framing situations and issues; identifying goals and appraising their worth; sorting images, selecting strategies, and spinning out consequences; and reflecting on effects and redesigning one's practice'.

Summary

Collectively, the traditions identify the range of reflective practice programmes used in the context of initial teacher education: reflections that focus on the transformation of subject matter knowledge; pupil thinking and understanding; teaching skills and pedagogical strategies recommended by research, undertaken both by university academics and classroom teachers; and, the social/political contexts of teaching. Zeichner and Liston (1990) identify some common features across the traditions: assessing the consequences of actions, considering alternatives, maintaining thoughtfulness along with creating and sustaining a more collaborative and professional teaching profession. There are however also distinct differences between the traditions particularly in terms of what the main focus for reflection should entail, which could directly stem from the epistemological base that informs each tradition. For example, the developmental tradition draws on 'Enlightenment philosophies and pedagogies, whereas the social reconstuctionist tradition draws on twentieth century movements in sociology and philosophy that were strongly reactionary to the Enlightenment traditions' (Tsangaridou and Siedentop, 1995: 216). The academic, social efficiency and developmental traditions largely take the existing social and political order as a given.

Orientations identified by Valli (1992)

Valli (1992) conducted a comparative case study of seven teacher education programmes in the United States designed to develop reflective practice in student teachers. Her approach was to look for characteristics,

which were similar and shared by programmes rather than examine, as in the case of Zeichner and Tabachnik (1991), how they differed. Her analysis highlights a wide range of conceptual and ideological approaches to reflection which shaped the content and design of these programmes, yet one strand, common across all programmes, was their goal to promote reflective approaches in student teachers, which Feiman-Nemser (1990) argues should be a 'generic professional disposition'.

Valli (1992: 13) reviewed the *reflective content* of programmes using Tom's (1985) four arenas of the teaching situation: the teaching-learning process; subject matter knowledge; political and ethical principles underlying teaching; and, educational institutions in their broad social context. Primary emphasis was found to be placed on the teaching-learning process where the content for reflection includes 'instruction, instructional design, individual differences, group processes and dynamics, research on teaching, learning, motivation, effective teacher behaviours, discipline and classroom organisation' (Valli, 1992: 14). Secondary emphasis was placed on broader arenas of ethical principles and social context where the content for reflection included such topics as 'normative influences on schooling, cultural diversity and social forces which impinge on teacher decision making' (*ibid*). The relationship between these broader arenas and the teaching-learning process was found to be embedded within programme designs so reflection on issues that relate to teaching and learning were considered in 'broader questions of purposes, goals, values and constraints' (Valli, 1992: 15). This link between Tom's (1985) small and larger arenas supports the action research findings of Noffke and Brennan (1988: 6) who suggest 'discipline and management issues' often embody 'the whole area of teacher-student relationships' and provide the means for student teachers to consider the 'interconnectedness and ethical base of classroom issues'. Noffke and Brennan (1991: 200) used action research as a vehicle to develop critical and reflective practice and found engagement through action research 'continues to be useful in our efforts to enhance our understanding of teaching practices, to improve those practices, and to improve the situation in which those practices take place'.

One additional theme Valli (1992: 15) evidenced, in three programmes, was that of 'self as teacher which includes personal teaching styles, themes or theories of professional growth'. This was expressed by Clift, Houston and McCarthy (1992) as reflection for self-enlightenment and by Oja, Diller, Corcoran and Andrew (1992) using the term co-explorers to emphasise 'the importance of making a methodological commitment to listen to the experience of others, to try to understand others in their own terms, and to expect to have the same effort made on their own behalf' (Valli, 1992: 15). This theme encourages student teachers to 'draw upon personal knowledge to transform or reconstruct their experience' (*ibid*) through a dialectical mode of reflection.

Valli examined the programmes from a second perspective, that of seeking what goals and strategies were used to enhance the *reflective quality* of student teachers. She aligns this orientation to reflection with work undertaken by Perry (1970) and Kitchener (1983), which suggests, conceptual development and considerable growth in thinking, happens to student teachers during initial teacher education. Baxter Magolda (1999) and Moon (2005) have subsequently built upon these studies (see section 2.3). Valli (1992: 16) notes the predominant theme of reflective quality was the concern to promote 'the ability to make the relationship between theory and practice problematic'. Exemplars she cites include encouraging student teachers to 'explore the tentativeness and tenuousness of the theory/practice relation' (ibid) in that they are taught decision making is dependent upon the interrelationships between principles from various disciplines. Teacher decisions for example, must balance between competing demands and expectations placed on the

school, which simultaneously promote academic learning, personal and social responsibility, and appreciation for diverse learners. Student teachers were taught the need for dialogue between theory and practice and the importance of not blindly translating research into a set of recipes and formulas (McCaleb, Borko and Arends, 1992). Distinction was made (Valli, 1992: 16) between 'research findings (the way things work in general) and practice (the uniqueness of each classroom setting and event)'. This stance reinforces Schon's (1983: 21) rejection of *technical rationality* or 'instrumental problem solving made rigorous by the application of scientific theory or technique'. Within this theme, the more technical question 'did I employ such and such aspect of research?' was replaced with the more reflective question 'is that theory or finding relevant to this situation and do I accept the value assumptions implicit in that strand of research?' (Valli, 1992: 17). The latter distinction, referred to by Grimmett *et al* (1988) as a deliberative and dialectical mode of reflective knowing, locates the purpose of reflection 'as informing action by deliberation on competing views or as transforming action by reconstructing personal experience' (Valli, 1992: 17). Within the programmes, the technical question was found by Valli (1992) to be of considerable importance, although a difference in emphasis was placed on the knowledge base(s) for teaching. Tom (1985: 39) describes this as a disciplined approach to inquiry, which entails 'the application of concepts, theories and research strategies drawn from the humanities and the social sciences'.

In her analysis of the *content* and *quality* of reflection across the programmes, Valli (1992: 18) notes the absence of, or limited attention given to, several themes: subject matter knowledge, reflective attitudes, and intuitions or emotions. She raises concern that 'in none of the programmes were students strongly encouraged to reject a taken-for-granted view of subject matter' and engage 'in a long-term study of the subtleties of fundamental bodies of knowledge' (Tom, 1985: 38). Subject matter knowledge was not made problematic in this way. Reflective attitudes were explicit in two programmes: on the one hand, to instil the attitude 'learning to teach is a life-long process' and on the other, to foster 'the desire for continuous professional growth' (Valli, 1992: 19). Although Valli suggests reflective attitudes in the other five programmes could be implicit or tacit goals, she questions that this is not a more dominant theme 'given the long standing literature on reflection being more than a set of skills' (*ibid*). Valli (*ibid*) notes one programme mentions 'the art of teaching' and another uses the term 'intuition' to encourage student teachers 'to use both intellectual and emotional resources in reflecting on the meaning and effect of their teaching'. She questions the omission of emotions and intuition, which contrasts the value placed on strict rationality, as expressed by Houston and Clift (1990: 211):

> Current definitions of reflection are strongly influenced by the Western cultural heritage; which emphasizes analysis and problem solving as opposed to negotiation, contemplation or enlightenment (they are influenced by) the importance of an analytical method that stresses objectivity and emotional detachment.

In drawing the major strands of her research together, Valli (1992: 31) proposes a six-level hierarchy for the development of reflective practice, which moves from behavioural (1), through technical decision making (2), reflection in action (3), deliberative (4), personalistic (5) to, critical (6). Hatton and Smith (1995: 15) question the sequential placement of reflection in action within her model, as Schon's (1983, 1987) description of this form of reflection appears to be 'the most complex and demanding…calling for multiple types of reflection and perspectives to be applied during an unfolding professional situation'. In her review, Valli (1992) found three principle strategies were commonly used to foster and develop reflective practice: action research projects, journal writing and seminar dialogues.

Appendix B (i) : Degree course rationale, structure and generic learning outcomes

Course Rationale

The four-year course prepares student teachers to teach physical education in secondary schools, tertiary colleges and further education centres across the 11-19 age range. Subject knowledge and professional development takes place concurrently and school experience occurs in each of the four years. School experience is embedded within professional studies modules in years 1 to 3 and contained within a discrete module in year 4.

The course defines the place of physical education in the National Curriculum (DfEE/QCA, 1999) and in relation to Sport and Leisure Activities (DfES/DCMS, 2003). The practical work incorporates all six areas of activity from the physical education National Curriculum through which the four strands of pupil learning are emphasised (DfEE/QCA, 1999). The practical work is supported by related theory in anatomy, kinesiology, physiology, biomechanics, sociology, social psychology, psychology, philosophy and the history of physical education and sport. The rest of the course is devoted to professional studies and school experience, which develops the strategies and pedagogical skills of teaching. An awareness of whole school issues is developed as well as those relating to physical education. All student teachers take the same broadly based course during years 1 and 2; during years 3 and 4 they can specialise in the theory and practical areas of physical education, identified within the course structure.

The rationale for combining practical and theoretical university-based work with concurrent school experience is to enable student teachers to utilise their learning in a vocationally relevant way and to meet the Standards necessary for the award of QTS (TTA/DfES, 2003). Upon successful completion of the course, year 4 student teachers will have experienced teaching across all areas of the physical education National Curriculum and achieved learning outcomes that relate to: Knowledge and understanding; Cognitive skills; Subject specific skills; and, Key skills. These are broken down at modular level and related to the Standards in the form of learning outcomes.

The development of student teachers into reflective practitioners in their approach to teaching physical education is one of the key cognitive skills' learning outcomes that build progressively throughout the four-year course. The key skill 'improving own learning and performance' for example is advanced through activities that practice skills associated with setting personal targets, evaluating outcomes and making judgments; and that of 'problem solving' through skills associated with applying principles and procedures, breaking skills down into constituent components, divergent thinking, reasoning and finding alternative strategies to resolve problems. A range of approaches to course delivery that incorporates lectures, seminars, workshops, individual and group presentations, discussions, debate, peer and self assessment, peer observation and feedback, team teaching, microteaching, laboratory work, individual and small group tutorials are utilised to accommodate diverse learning styles and ensure that all student teachers have the opportunity to realise the learning outcomes.

Course Structure

Module Code	Module Title	Credit Value	Level	Semester	Mandatory	Compulsory	Pre-requisites
PART ONE							
PSBA1001	Learning to Teach and Inclusive PE	QTS	1	Year long	Yes	Compulsory	
PEBA1001	Scientific Foundations	30	1	Year long		Compulsory	
PEBA1002	Areas of Learning A: Body Management and Aesthetic	30	1	Year long		Compulsory	
PEBA1003	Areas of Learning B: Challenge and Interaction	30	1	Year long		Compulsory	
PART TWO							
PSBA2001	Assessing Learning and developing teaching	QTS	2	Year long	Yes	Compulsory	PSBA1001
PEBA2001	Teaching for Learning 1	15	2	Year long		Compulsory	PSBA1001
PEBA2002	Physical Education and Sport – their place in History	15	2	Year long		Compulsory	
PEBA2003	Applied Areas of Learning 1	30	2	Year long		Compulsory	
PEBA2004	Applied Areas of Learning 2	30	2	Year long		Compulsory	
PART THREE							
PSBA3001	The Reflective Teacher	QTS	3	Term 2	Yes	Compulsory	PSBA1001 PSBA1002
PEBA3001	Teaching for Learning 2	15	3	Year long		Compulsory	PEBA2001 PSBA2001
PEBA3002	Consumer Culture & Physical Education	15	3	Year long		Compulsory	
And one from three							
PEBA3003	Performance and Psychomotor Learning	15	3	Year Long		Option	
PEBA3004	Physiology of Exercise	15	3	Year Long		Option	
PEBA3005	Biomechanics of Sport	15	3	Year Long		Option	
And							
PEBA3006	Minor Practicals	30	3	Term 1		Compulsory	
And							
PSBA3002	Teachers and the Pastoral Curriculum	15	3	Term 1		Compulsory	
And							
PSBA3003	Final School Experience	QTS	3	14 weeks	Yes	Compulsory	
And							
PSBA3004	The Action Research Project	30	3	Yr4		Compulsory	
And							
PSBA3005	Entering the profession	15	3	Yr4 Term 2		Compulsory	
And two from six (from areas of activity not studied in Year 3 Minor Practical Modules)							
PEBA3007	Major Practical Games	15	3	Yr4 Term 2		Option	
PEBA3008	Major Practical Athletics	15	3	Yr4 Term 2		Option	
PEBA3009	Major Practical Dance	15	3	Yr4 Term 2		Option	

PEBA3010	Major Practical Gymnastics	15	3	Yr4 Term 2		Option	
PEBA3011	Major Practical Swimming	15	3	Yr4 Term 2		Option	
PEBA3012	Major Practical Outdoor & Adventurous Activities	15	3	Yr4 Term 2		Option	

And one from four							
PEBA3013	Sport Psychology	15	3	Yr4 Term 2		Option	
PEBA3014	Theory of Dance	15	3	Yr4 Term 2		Option	
PEBA3015	Cultural Issues in Physical Education & Sport	15	3	Yr4 Term 2		Option	
PEBA3016	Philosophical Issues in Education & Sport	15	3	Yr4 Term 2		Option	

Note:

PEBA prefix relates to practical modules

PSBA prefix relates to professional modules

Generic Learning Outcomes

Generic outcome headings	What students should know and be able to do upon completion of the Diet
Knowledge & understanding	They should have the subject knowledge and understanding necessary to enable them to meet the standards for the award of QTS in physical education. They should by the end of the course be confident and authoritative in Physical Education teaching and have a clear understanding of how all pupils should progress and what teachers should expect them to achieve. They will be aware of the place of Physical Education in the whole school curriculum and of whole school issues. They will develop an understanding of the philosophy and ideology of Physical Education through the study of the theoretical disciplines.
Cognitive skills	They should have the necessary breadth and depth of knowledge to enable them to have a flexible and adaptable approach when interpreting and delivering their subject in different curricula within both schools and the community. They will become a reflective practitioner and a proactive innovator in their approach to teaching PE. They will understand the theory and ideology underpinning Physical Education and its relationship to sport.
Subject specific skills	They should be able to plan and prepare work appropriate to the needs of pupils, teach the material they have planned and organise and manage classes to facilitate efficient and effective learning in physical education. For Physical Education this should be across the Key Stages 3-4 and include public examination work e.g. GCSE, A-level GNVQ. They should be able to monitor, assess record and report on pupil learning in physical education. They should be aware of the other professional issues that are relevant to teachers in today's schools and they should be able to function effectively as teachers in the whole school context. They will have a sound understanding of the theoretical disciplines that underpin physical education and will be able to apply these to their teaching at selected examination levels.
Key Skills	The following Key Skills are embedded within the programme: communication; application of number; ICT; working with others; improving own learning and performance; and problem solving

Appendix B (ii) : School experience performance expectations and observation tasks, year 1 though 4

Standards being addressed within each of the criteria are given in brackets.

Year 1

Expectations of trainee performance set out below are intended as the basis for assessment.

1. **Planning and Preparation [2.1, 2.1c, 2.3, 3.3.1, 3.1.2, 3.3.8]**
   In their school experience file they should show:
   - an understanding of the nature of the school organisation, routines, code of conduct and sense of community;
   - lesson plans to include – learning outcomes for the lesson, which are appropriate to the pupils and show progression from lesson taught; material including learning outcomes for each lesson episode; organisation of pupils, apparatus, equipment and space; teaching points;
   - wet weather alternatives – physical and classroom based; preparation of teaching aids (music, posters, wall charts, wall displays).

2. **Teaching Performance [1.2, 3.3.1, 3.3.2, 3.3.2c, 3.3.3]**

   - **Presentation and communication** – the trainee is expected to show confidence, adaptability and enthusiasm; develop the use of appropriate language using correct English (no slang); develop effective use of voice (volume, tone, pace, projection and clarity)
   - **Classroom management** – the trainee is expected to organise the pupils and equipment effectively and safely; begin to develop control and supervision techniques (positioning; manner – fair, firm and consistent; give appropriate instruction)
   - **Relationship with pupils** – the trainee is expected to maintain a clear teacher/pupil relationship at all times; develop effective working relationships with whole classes and be aware of individuals who may have special needs; develop the ability to deal with disorderly behaviour

3. **Motivation and promotion of learning [1.1, 3.3.7, 3.3.9]**
   The trainee is expected to develop:
   - the ability to gain attention and maintain pupils' participation;
   - motivation techniques to stimulate learning (e.g. praise, positive reinforcement, use of facial expression);
   - the effective use of demonstration, by self and pupil;
   - sound questioning techniques;
   - an understanding of pupils' learning difficulties (physical, psychological, emotional, cognitive)

4. **Professional attitudes [1.3, 1.4, 1.5]**
   The trainee should behave as a member of staff and show a positive and professional attitude. This should include:
   - positive working relationship with staff/pupils and a willing involvement in the life of the school;
   - willingness to accept, and act upon, constructive advice and guidance from mentors and other teachers given in feedback
   - a sense of personal responsibility in terms of time-keeping, absence and appearance;
   - a respect for confidential information;
   - working within the ethos of the school;
   - a positive response to the process of assessment

5. **Monitoring and assessment [3.2.1, 3.2.2]**
   The trainee is expected to carry out on-going assessment in relation to their planning, teaching and the pupils' progress/learning

6. **Evaluation**
   The trainee is expected to:
   - complete weekly evaluations which should focus on a particular aspect of their teaching performance e.g. use of voice, demonstration, positioning;
   - evaluate with respect to 2 groups of 5 lessons the success of their planning in relation to pupil learning;
   - conduct an overall self-evaluation at the end of the school experience;
   - evaluate the role of the teacher and reflect on their relationships with colleagues.

Observation Tasks

All tasks must be completed during the six-week experience. It would be most helpful if mentors monitored these tasks, observed lessons and fully discussed these issues with trainees. The evidence collected should be stored in a separate section in your school experience folder. This work will be required for reference during the modules studied in the latter part of this semester.

Task 1: Introducing Skills

How do teachers introduce new skills in their lessons? e.g. by verbal instruction, demonstration, visual or auditory aid.
How do teachers break down their demonstrations? Observe some examples and note the important points.

Task 2: Teacher Feedback

Following the performance of a skill, teachers give feedback to pupils to facilitate improvement. During a single lesson, note the target groups for feedback given by the teacher. Use the following categories for guidance: whole group, small group and individual. What is the content and purpose of the feedback given? Choose examples of each of the following types of feedback:

- encouraging
- re-enforcing positive aspects of performance
- error detection
- error correction

Task 3: Pupils of different ability

Discuss with PE staff and observe the ways in which they challenge pupils of different abilities within the same lesson.

Task 4: Special Educational Needs

Arrange a meeting with the school Special Educational Needs Co-ordinator (SENCO) to discuss the school procedure for identifying pupils with special educational needs. During lesson observation, focus on 2 pupils with special needs. Has any special provision been made for these pupils?
How are the pupils integrated into the lesson?

Task 5: Gender Issues

Find out for all aspects of physical education taught during this term whether they are taught in mixed or single gender groups. In observing mixed teaching focus on the following questions:

- Who decides the pupil groupings?
- When pupils decide, do they tend to gravitate towards single gender pairs or small groups?
- Do boys and girls integrate fully during the lesson?

Task 6: Maturation

1. Observe a group of year 6 or 7 pupils playing a game. Comment on the range of maturational status within the group and how this might affect the pupil's ability to participate effectively. Choose four pupils – two males and two females with a range of anthropometric characteristics (e.g. large/small) and observe them closely for a period of time during a game situation.
2. Are any particular pupils in your group at an advantage when playing this game?
3. If yes, what are the reasons? E.g. tall, larger, smaller, quicker
4. Think of other games activities and predict whether you might observe similar patterns
5. Are there any types of game where this would not apply?
6. Observe another game and test your hypothesis. Does it apply to other NC areas of activity?

Year 2

Expectations of trainee performance set out below are intended as the basis for assessment.

1. **Planning and Preparation [2.1, 2.1c, 2.3, 2.4, 2.5, 2.7, 3.3.10]**

   In their school experience file they should show:
   - an understanding of the nature of the school organisation, routines, code of conduct and sense of community;
   - lesson plans to include – learning outcomes for the lesson, which are appropriate to the pupils and show progression from lesson taught; material including learning outcomes for each learning episode and apply teaching strategies; organisation of pupils, apparatus, equipment and space; teaching points;
   - wet weather alternatives – physical and classroom based; preparation of teaching aids (music, posters, wall charts, wall displays);
   - use lesson appraisals/evaluations to:
     keep units of work under review and amend as necessary;
     record the success of the lesson in meeting the intended learning outcomes:
     inform future planning to ensure logical progression between lessons.

2. **Teaching Performance [3.1.3, 3.3.1, 3.3.2, 3.3.7, 3.3.8, 3.3.9]**

   - **Presentation and communication** – the trainee is expected to show poise, confidence, enthusiasm and initiative; use language appropriate to the pupils' linguistic needs and abilities; use voice effectively.

   - **Classroom management, organisation and safety** – the trainee is expected to organise the pupils and equipment effectively and safely; establish and maintain order; be positive and consistent; use intelligent positioning and anticipate and avoid disorderly behaviour; use time efficiently with good management of the beginning and the end of lessons and between lesson sections; cope calmly with emergencies, following recommended school procedures.

   - **Relationship with pupils** – the trainee is expected to maintain a clear teacher/pupil relationship at all times; develop effective working relationships with whole classes and be aware of individuals who may have special needs; secure the respect of the class; use a wide range of strategies for dealing with disorderly behaviour.

3. **Motivation and promotion of learning [3.1.1, 3.1.2, 3.1.3, 3.3.3, 3.3.10]**

   The trainee is expected to:
   - gain and maintain the pupils' attention, participation and co-operation;
   - achieve clarity of language use in focusing on, and explaining lesson objectives
   - use subject specific language appropriately;
   - motivate the pupils to work with interest and commitment by using praise, criticism and other extrinsic motivation appropriately; using a variety of teaching aids; varying the pace of the lesson; responding positively to pupils so encouraging them to reach their potential; using pupils' individual interests;
   - stimulate pupils to explore and experiment on their own initiative. Encourage pupils to take responsibility for their own learning;
   - recognise mastery, misunderstanding and learning problems in the pupils;
   - promote pupil learning.

4. **Professional attitudes [1.1, 1.2, 1.3, 1.4, 1.5]**

   Assume the role of the teacher and act in a professional manner at all times:
   - being reliable, prompt and appropriately dressed at all times;
   - being co-operative, tactful, willing and courteous;
   - establishing a positive relationship with the school staff and pupils;
   - being co-operative in general standards and organisation of the running of the school and the department(s). Be aware of the school's system of rewards and disciplinary procedures and consult the school staff regarding their implementation;
   - assisting in extra curricular activities and where possible taking responsibility;
   - seeking help and to accept constructive criticism;
   - respecting confidential information.

5. **Evaluations [3.2.1, 3.2.2, 3.2.3]**

To be documented by the trainee both during and at the end of the experience

- **Of planning**

    Ability to evaluate appropriateness and effectiveness of a series of lessons and a unit/scheme of work
    Ability to evaluate appropriateness and adequacy of lesson planning in relation to:
      Learning outcomes identified
      Content included
      Teaching strategies
      Needs of individual pupils
      Chosen points for assessment

- **Of pupil learning**

    Ability to evaluate pupils' progress towards the lesson learning outcomes and episode learning outcomes
    This will involve identifying groups of pupils or individuals that require additional support or additional challenges. Assuming the responsibility for assessment when opportunities arise (under guidance of school staff)

- **Of own teaching performance**

Relates to their ability to evaluate their own performance and work towards targets agreed with the mentor

- **The whole school experience performance**

    Ability to reflect on the total experience: including the need to adapt to the specific school context. This should include reflection on all facets of the teacher's role.
    At the end of the school experience trainees must complete and submit all weekly evaluations, evaluations of 2 units of work, an overall self-evaluation and an evaluation of the role of the teacher.
    Clearly identify and set targets for year 3 placement.

****

Observation Tasks

It is expected that the trainee's timetable can reflect an appropriate balance between teaching; working in a base class with a form tutor; undertaking extra-curricular activities; observing good practice and assessment (4 hours per week); as well as engaging in the general life and routines of the school. The timetable should provide a range of classes and areas of activity with particular focus on areas in which the trainee needs more experience.

Assessment task:

Identify 6 pupils who experienced the unit of work planned for assignment one in the module PSBA2001: Assessing Learning and Developing Teaching.
Critically evaluate the assessment procedure devised for the unit in relationship to the performance of these pupils and to the general principles and purposes of assessment [1500 words]. Marking criteria:

- Depth and quality of critical evaluation
- Understanding of principles, purposes and terminology of assessment
- Ability to relate assessment theory to perceived pupil performance
- Standard of presentation and referencing
- Concise and accurate use of language.

Year 3

Observation tasks used in semester 2

1. **Assessment:**

   For one of the Units of Work that you are teaching, develop three points for assessment [see Year 2 'Assessing for Learning and Developing Teaching' module: PSBA2001] and apply them to 10 pupils across the ability range of the class

2. **Pastoral Care:**

   This information will be used in the 'Teachers and the Role of the Form Tutor' module: PSBA3001] in semester 2

   - Arrange a meeting with the PSHE Co-ordinator where you can discuss the teaching approaches that are used to deliver PSHE and the range of resources that are required

   - Obtain and read any school policy on the following issues:

     Bullying
     Sex Education
     Drugs and Alcohol
     Citizenship

   Identify how and when these topics are delivered to pupils from years 7-11

   Are any other issues dealt with within the PSHE programme?

   You should be seeking opportunities to observe/teach PSHE on this experience. You should not be expected to deliver such topics as Sex Education and Drugs at this point in your training except in a team-teaching situation

Year 4

Standards Related Tasks

Further requirements to facilitate completion of the Standards indicated through the production of the relevant evidence [evidence for these standards is not always easy to attain]

Task 1:   Standard 3.2.3

For two of the Units of Work that you are teaching, develop 3 points for assessment [see year 2 'Assessing for Learning and Developing Teaching' module – PSBA2001] and apply them to 12 pupils across the ability range of the class

Task 2:   Standard 3.2.6

Assess 6 pupils during your placement across any units in which you teach them [select pupils from the classes for which you have delivered the most units]. Ensure that 3 are from a Key Stage 3 class and 3 are from a Key Stage 4 class. Your 3 pupils should comprise a top, middle and bottom

Identify progress made in the Knowledge, Skills and Understanding in each unit. Ensure that you have written documentation of this process. You may use your written evaluations, the University assessment procedures and/or the school's assessment systems to help with this task

Discuss your analysis with your mentor in order to justify your findings

Task 3:   Standards 1.4 and 3.2.7

Produce written reports for 3 pupils you have assessed [see Task 2] during the term. Use the school's proforma for reporting and discuss your reports with your mentor, making any necessary amendments

Task 4:   Standards 2.5, 3.1.3 and 3.2.5

Design at least one learning resource for each of your taught units that takes into account the needs of a pupil that may be learning English as an additional language [key words will be important]. If you do not have any pupils with this need, discuss your resources with your mentor or the school SENCO

You will need these resources during the module 'Entering the Profession: PSBA3005] as an item for seminar discussion

Task 5:   Standard 3.1.5

Opportunities can be found in the organisation of away fixtures and trips to local facilities [e.g. leisure centres/swimming pools]

However, better evidence can be gained from your involvement in organising a PE specific trip if such opportunity should arise [e.g. trip to an International Event, theatre dance trip, etc.]

Appendix C: Professional Standards for Qualified Teacher Status (*adapted from TTA/DfES: 2003*)

1: Professional Values and Practice
Those awarded Qualified Teacher Status must understand and uphold the Professional Code of the General Teaching Council for England by demonstrating all of the following:

1.1
They have high expectations of all pupils; respect their social, cultural, linguistic, religious, and ethnic backgrounds; and are committed to raising their educational achievement.

1.2
They treat pupils consistently, with respect and consideration, and are concerned for their development as learners.

1.3
They demonstrate and promote positive values, attitudes and behaviour that they expect from their pupils.

1.4
They can communicate sensitively and effectively with parents and carers, recognising their roles in pupils' learning and their rights, responsibilities and interests in this.

1.5
They can contribute to, and share responsibly in, the corporate life of schools.

1.6
They understand the contribution that support staff and other professionals make to teaching and learning.

1.7
They are able to improve their own teaching by evaluating it, learning from the effective practice of others and from evidence. They are motivated and able to take increasing responsibility for their own professional development.

1.8
They are aware of, and work within, the statutory frameworks relating to teachers' responsibilities.

2: Knowledge and Understanding
Those awarded Qualified Teacher Status must demonstrate all of the following:

2.1
They have a secure knowledge and understanding of the subject(s) they are trained to teach. For those qualifying to teach secondary pupils, this knowledge and understanding should be at a standard equivalent to degree level.

2.1 c
For Key Stage 3, they know and understand the relevant National Curriculum programme(s) of study and those qualifying to teach one or more of the core subjects, the relevant frameworks, methods and expectations set out in the National Strategy for Key Stage 3. All those qualifying to teach a subject at Key Stage 3 know and understand the cross-curricular expectations of the National Curriculum and are familiar with the guidance set out in the National Strategy for Key Stage 3.

2.1 d
For Key Stage 4 and post 16, they are aware of the pathways for progression through the 14-19 phase in school, college, and work-based settings. They are familiar with the Key Skills as specified by the QCA and the national qualifications framework. They know the progression within and from their own subject and the range of qualifications to which their subject contributes. They understand how courses are combined in students' curricula.

2.2
They know and understand the Values, Aims, and Purposes and the General Teaching Requirements set out in the National Curriculum Handbook. As relevant to the age range they are trained to teach, they are familiar with the Programme of Study for Citizenship and the National Curriculum Framework for Personal, Social, and Health Education.

2.3
They are aware of expectations, typical curricula and teaching arrangements in the Key Stages or phases before and after the ones they are trained to teach.

2.4

They understand how pupils' learning can be affected by their physical, intellectual, linguistic, social, cultural, and emotional development.

2.5

They know how to use ICT effectively, both to teach their subject and to support their wider, professional role.

2.6

They understand their responsibilities under the SEN Code of Practice and know how to seek advice from specialists on less common types of special educational needs.

2.7

They know a range of strategies to promote good behaviour and establish a purposeful learning environment.
3: Teaching

3.1: Planning, Expectations and Targets
Those awarded Qualified Teacher Status must demonstrate all of the following:

3.1.1

They set challenging teaching and learning objectives, which are relevant to all pupils in their classes. They base these on their knowledge of:

  The pupils
  Evidence of their past and current achievement
  The expected standards for pupils of the relevant age range
  The range and content of work relevant to pupils in that age range

3.1.2

They use these teaching and learning objectives to plan lessons, and sequences of lessons, showing how they will assess pupils' learning. They take account of pupils' varying support needs so that girls and boys, from all ethnic groups, can make good progress.

3.1.3

They select and prepare resources and plan for their safe and effective organisation, taking account of pupils' interests and their language and cultural backgrounds with the help of support staff where appropriate.
3.1.4

They take part in, and contribute to, teaching teams as appropriate to the school. Where applicable, they plan for the deployment of additional adults who support pupils' learning.

3.1.5

As relevant to the age range they are trained to teach, they are able to plan opportunities for pupils to learn in out-of-school context, such as school visits, museums, theatres, field-work and employment-based settings with the help of other staff where appropriate.

3.2: Monitoring and Assessment
Those awarded Qualified Teacher Status must demonstrate all of the following:

3.2.1

They make appropriate use of a range of monitoring and assessment strategies to evaluate pupils' progress towards planned learning objectives and use this information to improve their own planning and teaching.

3.2.2

They monitor and assess as they teach, giving immediate and constructive feedback to support pupils as they learn. They involve pupils in reflecting on, evaluating and improving their own performance.

3.2.3

They are able to assess pupils' progress accurately using, as relevant, the Early Learning Goals, National Curriculum level descriptions, criteria from national qualifications, the requirements of Awarding Bodies, National Curriculum and Foundation Stage assessment frameworks or objectives from the national strategies. They may have guidance from an experienced teacher, where appropriate.

3.2.4
They identify and support more able pupils, those who are working below age-related expectations, those who are failing to achieve their potential in learning, and those who experience behavioural, emotional, and social difficulties. They may have guidance from an experienced teacher, where appropriate.

3.2.5
With the help of an experienced teacher, they can identify the levels of attainment of pupils learning English as an additional language. They begin to analyse the learning demands and learning activities in order to provide cognitive challenge as well as language support.

3.2.6
They record pupils' progress and achievements systematically to provide evidence of the range of their work, progress and attainment over time. They use this to help pupils review their own progress and to inform planning.

3.2.7
They are able to use records as a basis for reporting on pupils' attainment and progress orally and in writing concisely, informatively and accurately for parents, carers, other professionals and pupils.

3.3: Teaching and Class Management
Those awarded Qualified Teacher Status must demonstrate all of the following:

3.3.1
They have high expectations of pupils and build successful relationships centred on teaching and learning. They

establish a purposeful learning environment where diversity is valued and where pupils feel secure and confident.

3.3.2
They can teach the required and expected knowledge, understanding and skills relevant to curriculum for pupils in the age range for which they are trained.

3.3.2 c
Those qualifying to teach Key Stage 3 pupils teach their specialist subject(s) competently and independently using the National Curriculum Programmes of Study for Key Stage 3 and the relevant national frameworks and schemes of work. Those qualifying to teach the core subjects of ICT at Key Stage 3 use the relevant frameworks, methods and expectations set out in the National Strategy for Key Stage 3. All those qualifying to teach a subject at Key Stage 3 must be able to use the cross-curricula elements, such as literacy and numeracy set out in the National Strategy for Key Stage 4, in their teaching, as appropriate to their specialist subject.

3.3.2 d
Those qualifying to teach Key Stage 4 and post-16 pupils teach their specialist subject(s) competently and independently using, as relevant to the subject and age range, the National Curriculum Programmes of Study and related schemes of work, or programmes specified for national qualifications. They also provide opportunities for pupils to develop the key skills specified by QCA.

3.3.3
They teach clearly structured lessons or sequences of work, which interest and motivate pupils and which:
    Make learning objectives clear to pupils
    Employ interactive teaching methods and collaborative group work
    Promote active and independent learning that enables pupils to think for   themselves and to plan and manage their own learning.

3.3.4
They differentiate their teaching to meet the needs of pupils, including the more able and those with special educational needs. They may have guidance from an experienced teacher where appropriate.

3.3.5
They are able to support those who are learning English as an additional language, with the help of an experienced teacher where appropriate.

3.3.6
They take account of the varying interests, experiences and achievements of boys and girls and pupils from different cultural and ethnic groups to help pupils make good progress.

3.3.7
They organise and manage teaching and learning time effectively.

3.3.8
They organise and manage the physical teaching space, tools, materials, texts and other resources safely and effectively, with the help of support staff where appropriate.

3.3.9
They set high expectations for pupils' behaviour and establish a clear framework for classroom discipline to anticipate and manage pupils' behaviour constructively and promote self-control and independence.

3.3.10
They use ICT effectively in their teaching.

3.3.11
They can take responsibility for teaching a class or classes over a sustained and substantial period of time. They are able to teach across the age and ability range for which they are trained.

3.3.12
They can provide homework and other out-of-class work which consolidates and extends work carried out in the class and encourages pupils to learn independently.

3.3.13
They work collaboratively with specialist teachers and other colleagues and, with the help of an experienced teacher as appropriate, manage the work of teaching assistants or other adults to enhance pupils' learning.

3.3.14
They recognise and respond effectively to equal opportunities issues as they arise in the classroom, including by challenging stereotyped views and by challenging bullying or harassment, following relevant policies and procedures.

Appendix D (i): The Action Research Project PSBA3004

Learning Outcomes

At the end of the module you should have:

- refined the focus for an action research project in the light of a specific teaching/learning context;

- planned and implemented a small scale action research project having identified an appropriate sample of pupils;

- carried out a search of literature relevant to your project focus and to the cyclical process of action research;

- analysed and reflected upon the data derived from your project systematically week by week and modified your action in the light of this reflection;

- produced a report that provides an account of experience of the action research project; summarises and evaluates the techniques employed; explores the insights gained and supports the findings from your analysis of data and review of relevant literature; and, proposes possible areas for further research.

Standards

This module contributes toward the following standards leading to the Award of Qualified Teacher Status:

1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 2.1c, 2.1d, 2.3, 2.4, 2.5, 2.7, 3.1.1, 3.1.2, 3.1.4, 3.2.1,

3.2.3, 3.2.6, 3.3.1, 3.3.2, 3.3.2c, 3.3.2d, 3.3.3, 3.3.4, 3.3.7, 3.3.8, 3.3.9, 3.3.10, 3.3.11, 3.3.14.

Preparation for the Project

The Professional Studies module **The Reflective Teacher (PSBA3001)** introduced you to the aims, definitions, purposes, structure and methodologies of the cyclical process of action research; provided you with opportunities to undertake a literature review; and, to practice using data collection techniques and the analysis of data derived from observation, video, interviews and questionnaires. The modules **Teaching for Learning 1 (PEBA2001) and 2 (PEBA3001),** emphasised relationships between observation, learning outcomes, teaching approaches, differentiation and assessment; and further, were designed to stimulate ideas from which a project investigation could be developed. School Experience may also have raised issues that you wish to investigate further and should have provided practice in observing and evaluating teachers' and pupils' respective patterns of behaviour.

The Nature of the Project

1. **The aim of the project is to improve the quality of the teaching and learning opportunities you provide for the pupils that you teach by identifying, investigating and reflecting upon an area of interest and/or concern.** In broad terms, this might be an investigation into (1) teaching approaches to achieve a pupil

learning goal, or (2) the effective use of a particular teaching skill or approach. Your goal or focus, for example, might be to:

- Introduce pupils to hockey or rugby by using a 'games for understanding' approach

- Develop pupils' observational skills through reciprocal/peer teaching approaches

- Encourage greater pupil participation or facilitate peer assessment through the introduction of group work

- Enhance pupil self-esteem by using different forms of feedback

- Develop an appropriate range of teaching materials and resources to accommodate differentiation and to promote inclusion

- Develop your use and range of questioning techniques to challenge the most able pupils

- Improve the effectiveness of your classroom management skills or non-verbal communication skills

- Develop your use of demonstration or your use of praise to promote pupil learning

A systematic and rigorous approach to your project should be adopted which draws upon the principles and processes of **Action Research.** This method of research is a 'particularly valuable way for teachers to evaluate and critique their own current practice and to move in an informed and principled way towards more effective future practice' (Moore, 2000, p.146).

McKernan (1996) suggests that in seeking to improve practice or personal understanding, inquiry must be carried out by the practitioner, in the first instance to clarify and define the problem and in the second, to specify a plan of action that includes the testing of hypotheses by action to the problem. This is followed by evaluation to monitor and establish the effectiveness of the action taken. In the final stage, 'participants reflect upon, explain developments and communicate results to the community of action researchers' (McKernan, 1996, P.5).

When you become a qualified teacher you may not have the opportunity to carry out an investigation of this nature with the benefit of an observer and time to focus on just one aspect of your teaching or one aspect of pupil learning. Such an opportunity should lead to a greater understanding and appreciation of the relationship between teacher and learner. However, it is anticipated that experiences gained through undertaking the project will equip you with skills of reflective practice that you adapt and apply to your teaching.

3. Once you have identified the focus for your investigation you will need to analyse why you have chosen to investigate that area and begin to read relevant books and research articles. A review of literature should include definitions of key concepts and terms, theoretical underpinnings of focal areas and, demonstrate an understanding of research findings from related studies. The focus will need to be discussed with the school and your supervisor before you finalise the plan of action.

4. **The experimental research design using experimental and control groups is NOT appropriate for this project. You must never act in a way that could be detrimental to the welfare and learning of the pupils with whom you are working; for example, providing feedback to some pupils within your teaching groups whilst denying feedback to others or leaving the class for which you have responsibility.**

5. Your plan of action will need to consider:

    (a)   the way you will work with pupils to achieve the improvement in teaching and learning;

    (b)   the methods you will use to collect evidence about the success of this improvement in teaching and learning (referring to work covered in previous years and modules of your degree course);

    (c)   how you will analyse and interpret the evidence;

    (d)   the nature of the data you are going to collect.

To ensure that your research design is ethically sound you must discuss your plan of action with the school and with your project supervisor.

6. You must monitor from the outset the way you carry out your investigation with the selected group/s of pupils to provide a record of ongoing research. This will be achieved by systematically collecting data/information for the purpose of analysis. The data might, for example, be drawn from:

- Field notes

- Observation schedules

- Pupil questionnaires, diaries

- Reflective journal

- Structured or semi-structured interviews

- Video recordings

This information provides the basis of a lesson-by-lesson account of the experience. Formative evaluation will lead to modifications to the original plan developed for achieving the planned improvement. Presentation of results and discussions thereof will provide opportunities for reflection and cross-reference of findings.

7. The project report should systematically record the progress made throughout the investigation, indicating the basis upon which changes were made to the strategy. The project is not judged by the degree of success with which the aims have been achieved. What is important is the clear explanation of a development based upon sound evidence and the quality of the conclusions drawn. To this end, you are strongly recommended to keep an ongoing reflective journal throughout.

8. **Approval:** due to the nature of this action research project approval to proceed with your investigation once you have clarified its focus and methodology must be gained from key personnel. **Two copies of Appendix 3 should be completed before you undertake your research!** The first copy is to be retained by you and the second should be submitted to your supervisor during your schools' half-term break.

Supervision

Each pair of trainees will have a university appointed project supervisor who will meet you for tutorial sessions by arrangement. You are strongly advised to establish effective channels of communication with your supervisor during your initial meeting and before you begin your school experience – **this is your responsibility.** The supervisor will approve the title and design of your project, and advise you on evaluation procedures and the interpretation of data. You may discuss your plans and ideas with your supervisor. S/he will ask you to submit for approval and discussion:

- a 300 word outline of your project proposal **(date to be confirmed)**

- a preliminary review of literature (approximately 500 words) and plan of action **(during your half term break)**

Your dissertation supervisor will read drafts of your project report of up to 2,000 words. They will write comments on these drafts and provide feedback in relation to the content, structure and writing style. You are advised to submit short extracts from different sections rather than a lengthy extract from just one section – for example, you could receive guidance and feedback on 500 words of your literature review, plan of action, account of experience and analysis of findings sections.

The project report will be marked by your supervisor and also by another supervisor, independently. Both supervisors then meet to discuss and agree the final mark. In exceptional circumstances, your project report will need to be marked by a third supervisor.

Supervisors are drawn from an extended course team and will have between 4 and 8 trainees each. A pair of trainees in one school will normally have the same supervisor.

Preparing the Project Report

1. The report should be 9,000 words in length. The word count does not include data included in the appendices, such as: tables, diagrams, exemplars of pupils' work, observation schedules and questionnaires. Samples of lesson plans and other relevant information, not essential to the reading of the text, should be included within the appendices. Documentation that needs to be examined in conjunction with the text should be easily accessible from the place where the reference is made.

2. Presentation:

   (a) The report needs a title page set out as shown in the example given in Appendix 1;

   (b) The next page should be an abstract outlining the scope of the report, see Appendix 2;

   (c) The third page should identify the contents of your report with page numbers;

   (d) Any acknowledgements should follow the title page. The name of the school should not be given nor should it be possible to identify pupils or any member of staff. **You are required to observe confidentiality and to protect the identity of your school and all individuals by using pseudonyms or other anonymous means.**

   (e) The first person style of expression, appropriate to action research, should be adopted.

   (f) **Two copies of your project report should be submitted to the Student Enquiry Centre by (to be confirmed).** Both copies should be typed or printed (high quality not draft) with double spacing on good quality A4 paper. Spiral binding with a transparent cover should be used. One copy of the report is for the purpose of retention by the university.

The Content of the Report

The following headings and Whitehead's (2003) model of Action Research (pages 13/14) are for illustration only. They are intended as a guide to the content of the report. They should not be taken as offering a prescriptive model. Rather, individual trainees should use their imagination and ingenuity to find the most appropriate ways of structuring their material.

1. Introduction

This section should indicate the nature of the project, what inspired it and, the professional motivation for selecting it. The proposal could derive from your teaching experience in the third year; from a desire to teach a particular subject in an innovative way; from personal philosophy, from readings or from lectures. It could also emerge from discussion with staff at your placement school.

There should be a brief account of the aims of the project, an analysis of the key concepts and an explanation of the action proposed. This should include the reasons for believing that the initiative might lead to an improved educational experience for the children.

The review of literature makes reference to previous research on the topic/concept in relation to established views of a) value of topic, b) definition of concept, c) how this relates to research on teaching. You need to discuss this critically and draw out that which is of value to your research project.

The introductory section should also supply relevant background information about the school, curriculum, resources and class(es).

2. Plan of Action

There needs to be an explanation of the action plan that **must include a discussion of action research.** It must also give a broad definition of the project, which might include the description of units of work, teaching approaches adopted and particular pupils used for your study.

Data collection is crucial. The nature of the data and the collection techniques you selected should be described and justified, along with some indication of their strengths and limitations, and a detailed discussion of how they were applied within the context of your study: for example, a description of the pilot run with an observation schedule or how questionnaires were constructed. There should also be an account of **validity** that reflects upon **'fitness for purpose'** of the quantitative and qualitative methods used for the purpose of data collection.

Two kinds of data should be collected:

(a) that required to monitor what you, as the teacher, do within each lesson and to evaluate how successful you are at putting your plans into practice; and

(b) that which demonstrates the effectiveness of the innovation as a whole, for example: whether pupils' on task behaviour or their ability to engage in peer assessment improves in response to your modified strategy.

Collected data must be evaluated formatively; observations made and insights gained can then be used as the basis for modifications you may make to subsequent action. The report must detail this process both with consistency and with clarity.

3. **Account of experience**

   This section could be presented in diary format, which describes each lesson in

    relation to: key events

   > teacher, pupil and/or observer behaviour

   > problems encountered

   > necessary adjustments to the action plan and/or refinements to data collection techniques employed

   Weekly results and the presentation of your data might be appropriate here. A key element to this section will be an account of how data collected was used to modify and develop your teaching from lesson to lesson through formative evaluation.

4. **Analysis**

   For this section you will interpret and analyse all the data you have collected. You should include summaries of your data rather than the raw data itself, unless you want to discuss a particular piece of data in depth (such as a section from a transcript or exemplars of pupils' work). Your analysis could therefore include: tables, graphs, transcripts of significant conversations and/or records of illuminating incidents. This provides you with the opportunity to survey all the data you have collected over the duration of your study. The validity and usefulness of your findings, as they relate to teaching and learning, should be reviewed realistically. The discussion should also consider your findings in the light of prior reading and relevant research.

5. **Conclusions**

   Through critical reflection this section provides an overall assessment of the project, including the methods of evaluation used. You might suggest changes that, if you were to start the project again, you could have made to improve some aspect of the research. Also, you might consider whether your findings have relevance to other teaching-learning contexts and situations. Perceived limitations of the study could be outlined along with possible suggestions for future research and development.

6. **Bibliography & Reference List**

   An accurate, detailed bibliography should be provided that identifies all source material used for undertaking your project. There should also be a reference list detailing those sources you have cited within your text. The Harvard System of referencing (refer to the module shell on Blackboard) should be adopted.

7. **Appendices**

   Raw data, such as, field notes, accounts of interviews, transcripts and questionnaire responses could be included. The appendices may also contain exemplars of questionnaires, observation schedules and interview questions that you have designed for data collection purposes.

ACTION RESEARCH

Concept of project as an integrated whole

(M. Whitehead, 2003)

Title and Abstract

A GOAL	Background relating to why this goal has been chosen

B JUSTIFICATION	Support for educational value of goal

Ca and Cb REVIEW OF LITERATURE	Reference to established views of (i) value of goal (ii) definition of terms (iii) how in theory it is achieved (*3-4 references) + (iv) record of other research carried out to find out how achieved (*2-3 references) (v) identification of a 'pool' of approaches

D CONTEXT	Brief description of school/class

E PLAN OF ACTION **(a) Teaching Approaches**	Proposal of the approaches that seem appropriate to be used to achieve goal together with a reasoned argument about which approach(es) are to introduced first. Pre-planning of the sequence of approaches to be used is **NOT** appropriate in Action Research
(b) Data Collection	Proposal of data to be collected and by what means. This will involve a detailed justification of what and how data are to be collected concerning both pupil response and teacher actions/approaches.

Both E a) and E b) justified with reference to A (goal) & D (context) and crucially to some of the literature in C (*)

F **RECORD OF ONGOING RESEARCH including week by week results** **Bulk of Project implementing E**	This is the lesson-by-lesson account of the experience - plans, results (probably as a grid or bar chart), reflection, decisions re plans for next lesson re teaching and data collection. Uppermost in your mind should be A and C (*) Explanation needed if you change E (P of A - approaches and/or data collection) but this must be justified in the interests of achieving A. It is very unwise to change or broaden A.

G **DISCUSSION OF OVERALL RESULTS**	In most cases weekly results will have been presented in F. Therefore G is likely to be relatively brief but gives opportunity for reflection of each week's results set alongside the results of all the weeks Reference could be made to C (*) and E (b).

H **FINAL REFLECTION: DISCUSSION AND CONCLUSIONS**	Avoid simply repeating what has already been said. Reflect on G and therefore how far A achieved: Refer to C (*) – agree disagree Refer to E (a) and E (b) – effectiveness and how might change with benefit of hindsight. Qualify findings with reference to D. Assess what you have learnt and propose further research

Possible word allocation:

ABCDE	**3,000**
FG	**4,000**
H	**1,000**
=	**8,000 + 1,000**

This leaves 1,000 to be allocated according to the nature of your project. For example, you might need more words for your Review of Literature; for the Recording and ongoing debate about the actual lesson-by-lesson work; or, for your Conclusions.

Action Research Project – PSBA 3004 – Assessment Criteria

Trainee's Name:

Intrinsic value of the investigation focus as argued in the rationale

Quality of understanding of the literature used to support the investigation

Appropriateness of the project design and data collection techniques employed for the investigation

Quality of reflection on the data, the insights gained and subsequent modifications made to the original plan

How evidence from the analysis of data is used to support judgements made

Quality of the evaluation of the investigation

Clarity and coherence of the reflective account

Use made of tutorials

Final (Agreed Grade)	**First Marker**
	Second Marker

Appendix D (ii): Key Defining terms which shape this study

Action research:

'A form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understandings of these practices, and the situations in which these practices are carried out' (Carr and Kemmis, 1986: 162).

Critical thinking:

The capacity 'to work with complex ideas whereby a person can make effective provision of evidence to justify a reasonable judgement. The evidence, and therefore the judgement, will pay appropriate attention to the context of the judgement' (Moon, 1999: 12).

Professional development:

'the process by which, alone and with others, teachers' review, renew and extend their commitment as change agents to the moral purposes of teaching; and, by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues throughout each phase of their teaching lives' (Day, 1999: 4).

Reflection:

A mode of thought which involves the 'active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and the future conclusions to which it tends' (Dewey, 1933; 7).

Reflecting on practice:

The systematic and deliberate process of thinking back after an event to analyse, synthesise and evaluate information about a particular experience, occurrence or situation which involves 'a self-reflective spiral of cycles of planning, acting, observing, reflecting then re-planning, further action, further observation and further reflection' (Carr and Kemmis, 1986: 162).

Reflective practice:

'a disposition to enquiry incorporating the process through which student teachers' structure or restructure actions, beliefs, knowledge or theories that inform teaching for the purpose of personal professional development' (Zwozdiak-Myers): implicit throughout leading PSBA3001 and PSBA3004, formalised for the purpose of this study.

Appendix E (i): The role of researcher as main research instrument

In this study, the researcher assumed the role of main research instrument to investigate the development of student teachers' reflective practice within the context of action research. While this approach might seem to have a number of distinct advantages, such as familiarity with, and access to, the student teachers, it also creates a considerable number of challenges, which must be addressed if the study is to be valid and have a high degree of credibility.

In light of the limitations which can be associated with researcher bias, subjectivity and power relations, it was important to follow a number of procedures and protocols to reduce and minimise the risk that such limitations could exert and influence the outcomes of this research. To that end, a number of criteria appropriate to the qualitative case study approach adopted for this study were drawn upon in the design, implementation and analysis stages of the research methodology. These comprise: credibility, transferability, dependability and confirmability.

Chapter 4 explicitly details how each criterion was addressed as well as the cautionary measures that were put in place to secure the integrity and validity of this study. It also illuminates the researcher's own positioning and level of reflexivity concerning the challenging issues encountered.

Appendix E (ii): Qualitative distinctions which can be drawn between types of reflective conversation

Reflective conversations	Definition	Typical questions
Descriptive	Describe the matter for reflection. Identify what is happening and how you feel about it.	What am I doing? Is it working, and for whom? For whom is it not working? How do I know? What am I pleased and/or concerned about? What do I not understand? Does this relate to any of my stated goals, and to what extent are they being met? How do I improve my practice here? How do I feel?
Comparative	Analyse and clarify the assumptions underpinning alternative possibilities and solutions. Reframe the matter for reflection in light of multiple perspectives and alternative views. Deliberate over competing views of good teaching.	What are alternative views about what is happening? How do other people who are directly or indirectly involved describe and explain what is happening? What does the research contribute to an understanding of this matter? How can I improve what's not working? What factors inhibit or promote pupil learning and development? How might I do things differently? If there is a goal, what are some of the ways of accomplishing it? How do other people accomplish this goal? For each perspective and alternative, who is served and who is not? How well are goals being accomplished, and what are the possible reasons or explanations: Why are some strategies more effective than others?
Critical	Challenge assumptions and question practice in relation to ideological and equity issues. Having considered the implications of the matter, establish a renewed perspective. Support beliefs, personal theories and judgements with evidence.	What are the implications of the matter when viewed from these alternative perspectives? Given these various perspectives, their implications, and my own morals and ethics, which is best for this particular matter? What is the deeper meaning of what is happening, in terms of public democratic purposes of schooling? What does this matter reveal about the moral and political dimension of schooling? How does this reflective process inform and renew my perspective? How does renewed perspective enhance the quality of pupil learning and development? What contextual forces prohibit or advance my effectiveness as a teacher?

(adapted from Jay and Johnson, 2002: 77, see Table 2.3)

Descriptive reflective conversations

Descriptive reflective conversations are characterised as comprehensive, retrospective and personal accounts of teaching. They serve to locate teaching within a particular context and make reference to what was taught, with whom, when and where. Student teachers might refer to past events and situations that occurred with their current and other teaching groups and recount their version of events and personal view of what happened.

Descriptive reflective conversations provide a firm foundation, based on concrete experience, to examine and frame classroom practice. Through returning to experience and providing a succinct description of that teaching experience (Boud *et al,* 1985), comparing and contrasting it to prior experiences with a particular teaching group and that experienced with other groups student teachers' generate their personal living theory. Whitehead (1993) argues, educational theory should be in a living form comprising descriptions and explanations of student teachers' personal development, which acknowledges the context in which their living theory is generated.

As student teachers endeavour to make sense of personal practice their explanations emerge from addressing such questions as – How do I improve my practice here? Living theory is educational theory based on educational practice as experienced and lived by student teachers themselves and can be evidenced when they stand back, reflect on their authentic lived experience and acknowledge the potential they have for improving how things are within their own teaching. Descriptive reflective conversations give rise to discourse that situates student teachers' experiential learning (Kolb, 1984): for example, the teaching skills, strategies and approaches they considered effective in achieving the intended learning outcomes for a particular group of pupils can be located within their emerging pedagogical repertoire of theories-in-use and drawn upon to frame new teaching situations as they develop their own epistemology of practice (Schon, 1983, 1987).

As student teachers' experience the school environment through their personal sense of reality and particular form of consciousness, descriptive reflective conversations enable them to revisit aspects of their practice to discern emerging patterns and trends as they strive to make sense of their experience as teachers. Steven's (1996: 19) notes 'conscious awareness is constituted and influenced by our cognitions, by our ways of thinking…we attribute meanings to events and responsibility for actions'. Of significance to the ways in which student teachers' see and interpret any given teaching situation are theories associated with different patterns of thinking and of how they construct knowledge(Baxter-

Magolda, 1999; Belenky *et al,* 1986; Dewey, 1910, 1933; King and Kitchener, 1994, 2002; LaBoskey, 1993; Moon, 2005).

Descriptive discourse has potential for making the implicit explicit (Polanyi, 1967; Schon, 1983, 1987) and for student teachers to construct a pedagogical vocabulary of shared meanings and understandings. Student teachers' account for their actions and provide reasons as to why they responded to a teaching situation in a particular way: for example, if intended learning outcomes were achieved by some pupils yet not by others, they question why this was the case. Problem areas can be recognised and identified as student teachers organise their thinking to determine those actions which gave rise to particular consequences and importantly, what the implications are for their future teaching.

Descriptive reflective conversations might convey feelings and emotions student teachers have about themselves, their pupils, colleagues and wider context of the school, which can range from commitment, enthusiasm and appreciation to confusion, disappointment and frustration. As student teachers' deconstruct their teaching, think back to and revisit events and situations they have encountered, reference is made to how they felt, thus links can be discerned between their thinking, actions and their own feelings. They make associations by connecting a particular incident with their prior teaching experience and knowledge of similar incidents. The question 'How did I feel?' (Boud *et al*, 1985; Korthagen and Vasalos, 2005: 48) appeals to the affective dimension of student teachers' practice and arguably, discourse arising from this question provides an important indicator both of accountable and responsible action (Dewey, 1910, 1933; Eraut, 1994; Hoyle and John, 1995) as well as revealing their orientations (Dewey, *ibid*) toward teaching and disposition to enquiry (Gore, 1990; LaBoskey, 1993).

Comparative reflective conversations

Unlike descriptive reflective conversations, which are essentially egocentric in nature and concerned with student teachers' personal perceptions, views and feelings, comparative reflective conversations are evidenced when student teachers' relate personal theories, views and construction of teaching to that of others. Such discourse demonstrates an openness to consider a range of alternative perspectives to teaching (Chetcuti, 2002; Dewey, 1910, 1933; Stenhouse, 1975). Student teachers seek to justify their own practice as they synthesise and integrate personal prior experiences with that of new ideas, insights and understandings gathered from other peoples' views: more experienced teachers, theoretical

literature, findings from practitioner-based research and their own pupils (Brookfield, 1995).

Student teachers make the important transition of moving from the private to the public domain (Polanyi, 1958, 1967; Schon, 1991) as they adopt a reflective posture (Freire, 1972, 1999) to examine their own teaching through dialogical conversations with others (Pendlebury, 1995). In placing aspects of personal practice under the microscope for scrutiny by others, such as a critical friend (Gore, 1990), and examining the minutiae of their teaching and learning in pursuit of new knowledge and understandings, student teachers' demonstrate commitment to research their teaching with a view to improving the quality and effectiveness of future practice.

The complex nature of teaching requires that student teachers build a range of knowledge bases (Shulman, 1986) they can draw upon and relate to their own practice. As student teachers engage in discourse with theoretical literature and findings from practitioner-based research new ideas and insights can be integrated with personal experience and the resolve to experiment with these in their future teaching. Also, as student teachers gain experience and generate their own theories-in-use, they can negate aspects of propositional knowledge, which do not relate to their lived experience in the real world of teaching. Student teachers are not dependent upon categories of established theory (Elliott, 2005; McKernan, 1996) or techniques as they can frame each new teaching situation in unique and creative ways (Schon, 1983, 1987), which Pring (2000: 138) asserts is crucial to the 'growth of professional knowledge'.

Comparative reflective conversations that comprise listening to and discussing issues and situations with pupils, actively giving them voice (Ruddock and Sigsworth, 1985) to seek their opinions, perceptions and views is an important vehicle through which student teachers gain further insights into aspects of personal practice (Korthagen and Vasolos, 2005) and an indicator of their adopting a child centred ethic (Eraut, 1994; Hoyle and John, 1995). Student teachers might, for example, believe they divide time equally between each group of pupils within their class or that teaching resources they have prepared are appropriate for all pupils. However, comparative reflective conversations with pupils might reveal their own perceptions are markedly different from those of their pupils. Engaging in discourse of this nature will show the extent to which student teachers' demonstrate a moral commitment to serve the interests of pupils they teach and willingness to monitor and question aspects of their own understandings and practice to extend their pedagogical repertoire and expertise: attributes Eraut (1994) clearly associates with the accountability of

an extended professional. This highlights the importance of the student teachers'
disposition to hunt personal assumptions and theories as it acknowledges a range of
different discourses concerning one particular aspect of their teaching might emerge
dependent upon whose perspectives are given consideration.

Dewey's (1910, 1933) conceptualisation of reflective thinking is of significance to this
type of discourse as student teachers take the stance of problematising teaching to guide
future action by giving it serious consideration and thought. Having identified what it is
they hope to achieve with a particular teaching group and undertaken a rigorous means-
ends analysis (LaBoskey, 1993) to generate multiple alternative solutions and considered
the potential implications and consequences of each, student teachers' select the strategies
and approaches they perceive most appropriate to realise their goal, translate these into a
plan of action and try them out in practice. Comparative reflective conversations thus
happen on two distinct occasions within the cycle of learning from personal experience as
exemplified in McKernan's (1996) time process model of action research (see section 3.6).
The process of testing new ideas and insights leads student teachers closer toward
validating or refuting aspects of their own practice.

Comparative reflective conversations thus generate practical knowledge, which can be
situated within a wider more complex professional landscape that considers multiple
perspectives as student teachers hunt through personal theories and assumptions and those
derived from others' views (Brookfield, 1995). As student teachers actively critique and
challenge what they claim to know the insights gained are expressed in terms of new
possibilities for teaching and they reconstruct and reframe personal theories and
assumptions about their own practice. Through integrating and securing new insights and
ideas into their own practice student teachers take ownership of their teaching as they
appropriate (Boud *et al*, 1985) this learning to guide, inform and give additional justification
to their future teaching. Thus, comparative reflective conversations not only look
backwards at past experience but importantly also look forward. The plan of action
demonstrates how imaginative solutions to improve particular aspects of teaching have
been realised, enacted and justified in terms of moving student teachers' practice forward.

Critical reflective conversations

Critical reflective conversations are evidenced when student teachers' situate their discourse
about aspects of their own teaching within the cultural, ethical, ideological, moral, political
and social (Barnett, 1997; Carr and Kemmis, 1986; van Manen, 1977) contexts of the wider

professional landscape. The complex issues associated with power and politics as they relate to schools need to be understood by student teachers if they are to meaningfully engage in critical discourse about their practice (Ghaye and Ghaye, 1998). It would be naïve of them for example, to assume they are completely free agents and can do as they please within school and with the pupils they teach. Internal school influences and external agencies require student teachers to situate themselves and their teaching practice within prescribed frameworks, guidelines and policies that serve to enhance the overall quality of education throughout the school. Student teachers have a professional obligation to contribute to the quality of their school and respond appropriately to the diverse needs and interests of all their pupils (DfEE/QCA, 1999; DfES, 2004; GTCE, 2004; TDA, 2007, TTA/DfES, 2003). Although critical reflective conversations can, and frequently do, focus on individual student teachers, they must do so in terms of the part individual student teachers play within the infrastructure of the whole school of which they are an integral part, for example, how their teaching practice might need to be improved and transformed in order to raise the educational standards of all those pupils they teach.

Student teachers question the values and taken for granted assumptions, which might guide teaching within particular school contexts. Student teachers could challenge the status quo of school as they question the classroom practice used by teachers to teach particular groups of pupils or specific routines and rituals adopted within whole school policy. Contradictions might arise between what student teachers' perceive as educational rhetoric and the reality of teaching within the classroom. In such instances, student teachers will need to question and confront personal assumptions, beliefs, theories and values and situate these within the wider professional landscape.

Critical reflective conversations articulate the student teachers' understanding of how the quality of their actions might be constrained, influenced or liberated both by the local school structure within which they work and wider educational system that incorporates government policy and legislation, local authority, teacher unions, school governing body and the parent teachers' association. The systems which operate at local, regional and national levels serve on the one hand, to influence and guide what student teachers can and should do and on the other, provide opportunities for professional development and growth (TTA/DfES, 2003; TDA, 2007). Thus, critical discourse is exemplified when student teachers engage in reflective conversations which address questions concerned with 'why' the educational, ideological, political and professional systems of which they are

an integral part serve either to constrain or empower them (Barnett, 1997; Carr and Kemmis, 1986; Moon, 2005).

The types of reflective conversation outlined above and illustrated in Table 4.1 do not necessarily represent a hierarchy as some reflective discourse might focus predominantly on what student teachers actually do and thus are descriptive in nature whereas others enter into a dialogue to contemplate alternative views and thus are comparative in nature. Each type of reflective conversation is important, serves a particular purpose and represents a dominant way in which student teachers can express and make sense of their own experience.

This said however, it is also acknowledged, reflective conversations can exhibit different qualitative and developmental characteristics: some might be firmly anchored in descriptions of what is or perceived to be and when encouraged to articulate why pupils behaved in a particular way student teachers might struggle to recognise reasons behind the outcomes of their teaching. Others might interrogate an aspect of their practice in great depth and as they detail aspects of pupil behaviour and provide a range of possible reasons behind the outcomes of their teaching demonstrate keen observational skills and a more perceptive, critical, intuitive account of their practice.

Within any discourse more than one type of reflective conversation can be evident as the conversation unfurls: moving from descriptive to comparative to critical. Thus, although each type of discourse has been separated out for the purpose of clarification they should not be viewed as mutually exclusive as reflective conversations can be 'dynamic and fluid' phenomena (Ghaye and Ghaye, 1998: 25).

Appendix F: Questionnaire 1 – Student teachers' action research experiences

Student name: _____

1. What is the focus or title of your action research project?

2. What reason(s) influenced your decision to focus on this particular area?

*(In the left column tick all that apply and in the right column rank those you have ticked in order of importance, with **1 being the highest**)*

Tick if Applicable	Reason(s)	Order of Importance
	Your personal audit of the Standards for the award of QTS	
	To improve the quality of an aspect of your teaching	
	To enhance the quality of pupil learning	
	Personal interest of an aspect of teaching	
	Personal interest of an aspect of pupil learning	
	You had sound subject knowledge in this area	
	You had limited subject knowledge in this area	
	You were inspired from your readings about the research of others	
	It supported an initiative or aspect of inquiry being undertaken by the whole of your school	
	It supported an initiative or aspect of inquiry being undertaken by your PE department	
	It was a particular area of interest or expertise held by your school mentor	
	It was a particular area of interest or expertise held by your dissertation supervisor	
	A need you identified in relation to a specific teaching group	
	You considered it to be easily manageable within an action research project	
	Other *(please explain)*	

3a.What data collection methods did you use, for what purpose and why?

Data Collection methods:	For what purpose:	Why:

3b.   Were these particular data collection methods successful? *(circle one)*

Yes   **Yes**   **not sure**   **No**
(all of them)   (some of them)   (none of them)

3c.Give the reason/s for your response to 3b below:

-

-

-

4. To what extent did the following factors influence the <u>ongoing development</u> of your action research?

(In the left column tick all that apply and in the right column rate the level of influence from: **5 = high** level to **1 = low** level)

Tick if Applicable	Factors that influenced the ongoing development of your action research:	Level of influence High Low				
		5	4	3	2	1
	Knowledge gained from your previous school experiences					
	Knowledge gained from practical PE modules at the university					
	Knowledge gained from Professional studies modules at the university					
	Knowledge gained from your personal search of literature					
	Data collected by observer/s (peer/teacher/mentor)					
	Data collected from pupils					
	Data collected from your personal field notes					
	Discussions with others (peer/teacher/mentor)					
	Suggestions from others (peer/teacher/mentor)					
	Monitoring your own practice					
	Trying out new strategies and/or ideas					
	Seeking solutions to a problem					
	Testing a belief or theory					
	Regular and systematic evaluation of your research evidence					
	Reflecting on verbal feedback received from others					
	Reflecting on written feedback received from others					
	Reflecting on pupil behaviour/s					
	Reflecting on your own practice					
	Searching for reasons behind the outcomes of your teaching					
	Revisiting the focus of your action research project					
	Refining the focus of your investigation					
	Personal commitment and enthusiasm					
	Support, commitment and enthusiasm of others					
	Other *(please explain)*					

5. **Do you think that you will be a more effective teacher in the area that you have researched?** *(circle one)*

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

6. **Do you think that the process you have used, of reflecting on one aspect of your teaching and/or pupil learning, can be applied to other aspects of your teaching and/or pupil learning?** *(circle one)*

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

7. **Are there particular aspects of your teaching and/or pupil learning that you would be interested to research further by reflecting on your practice?** *(circle one)*

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain what these are?   If no, explain why not?

8. In your view, has the process of reflecting on your practice, influenced:

(i) Your teaching? *(circle one)*

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

(ii) Pupil learning? *(circle one)*

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

(iii) Your motivation to search for reasons behind the outcomes of your teaching?
       (circle one)

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

(iv) Your ability to critically reflect on reasons behind the outcomes of your teaching?
       (circle one)

Definitely Yes   Probably Yes   Probably No   Definitely No

If yes, explain why and how?   If no, explain why not?

9. (i) What particular aspect/s of the action research experience have you found to be valuable?

Explain why you think this?

(ii) Would you have liked to have had this experience earlier in the Degree course? *(circle one)*

Definitely yes   Probably yes   Probably No   Definitely No

If yes, explain when and why?   If no, explain why you have this view?

10. Do you believe that your action research investigation has had an impact on any member/s of staff within your placement school? *(circle one)*

Definitely yes   Probably yes   Probably No   Definitely No

If yes, explain with whom, why and how?   If no, explain why you have this view?

Thank you very much for your time in completing this questionnaire

Appendix G: Semi-structured interview schedule

In undertaking your action research project:
(prompts in italics)

1   What area did you wish to investigate?

2   Why did you wish to investigate this particular area?

> *Was it an area of concern, a problem or personal interest? If to bring about change, what was it that you perceived needed changing? What is your view about what a good situation should be? What has led you to think this?*

3   What did you think that you could do about it?

> *What possible solutions did you imagine? Did you discuss your thoughts and ideas with others? Did they provide suggestions? Did they influence your decisions?*

4   What did you do?

> *Which solutions did you select to try out? Why these solutions rather than others?*

5   Did you modify your practice?

> *Did you stick to one path, or did you change your approach/strategy? How? Why? Where did these ideas for change come from? Did you discuss your thinking with others? Did others influence your thinking and subsequent decisions? Explain why and how?*
> *Were there times when you made changes to your approach/strategy 'in situ' during an ongoing lesson? Explain!*
> *Did any particular incidents/ events: surprise you? challenge you? Explain!*

6   What evidence did you produce to show your actions and their impact?

> *(Probe response to Question 3 from questionnaire further)*

> *What data collection methods did you use? How did you use them? Why did you select these rather than others? What features of the data did you select as being representative of change? Why did you choose these features rather than others? Why did you feel that this evidence was important (search here for criteria)?*

7   What conclusions did you draw from your evidence?

Did you believe that you were influencing the situation? Explain how and why? Were your research strategies/modifications having an effect? What evidence did you use to support your claim?

8   How could you judge your own effectiveness?

Were you justified in believing that you had influenced the situation? Had you really done some good? Was this confirmed by a change in your research participants in some way? What was happening to you as researcher?

9   Were your judgements reasonably fair and accurate?

How can you validate your claim that you have influenced the situation? That things have improved, that you have brought about this change, both in yourself and in the situation? What/Who else can validate your claim/s – e.g. evidence base, research participants, observers?

10 Do you believe that this research experience has extended you professionally?

(Probe response to Question 8 from questionnaire further)

What impact did your research have on your professional practice? Did you extend this to other areas of your practice? Can you extend this to other areas of your practice in the future? Will you?

11   Do you believe that this action research experience is valuable in helping student teachers to become more effective practitioners?

Explain why and how?

Appendix H: Informed consent form

Title of research: *An analysis of the concept reflective practice and an investigation into the development of student teachers' reflective practice within the context of action research*

Researcher: *Paula Zwozdiak-Myers*

You are invited to participate in this research study. The purpose of this study is to examine the concept reflective practice and investigate the development of student teachers' reflective practice within the context of action research. You are eligible to participate because of your engagement with action research during your final school experience placement.

You have been asked to contribute toward this study by reflecting on your research experiences and personal professional development in a one-to-one interview with the researcher. The interview will be audio-recorded to facilitate accurate record keeping. The audiotape will be labelled with a pseudonym to ensure confidentiality and erased following the transcription, verification of the transcript and submission of the researcher's thesis. You will be asked to review the transcript of your interview to verify the accuracy and authenticity of its content and given the opportunity to make further comment and amendments, as and where, appropriate.

Any information obtained during this study, which could identify you, will be treated confidentially and your anonymity assured. The information will be used for the purpose of the researcher's thesis and may at some time in the future, be used for publication.

You are free to decide whether or not to participate in this research study and to withdraw at any time without adversely affecting the assessment grade of your action research dissertation or your relationship with the researcher.

Your signature certifies that you have voluntarily made the decision to participate and that you fully understand the purpose behind this research.

Signature: _____ Date: _____

Appendix I: Questionnaire 2 – dissertation supervisor's perceptions of student teachers' action research experience

Dissertation supervisor_____

1   **In your view, what is the most important aspect of the action research experience for year 4 student teachers?**

Give reason/s for your view below:

-
-
-
-
-
-

2.   **How do you guide dissertation students on:**

- **their project focus?**

- **the design and methods they use?**

3. **Do you believe the action research experience has made an impact on your dissertation students in relation to:**

	Yes (all)	Yes (most)	Yes (some)	No (none)
an assessment of their current practice				
Their justification of good practice				
an improvement in the quality of their teaching				
an improvement in their ability to maximise learning opportunities for pupils				
an ability to reflect on their own practice				
How they think, make decisions, and solve problems				
increasing their confidence				
gaining an understanding of the 'rationale of change'				
taking ownership of personal continuing professional development				

4. **What evidence do you look for to substantiate judgments made in the above table?**

-
-
-
-
-
-
-

5. **How well do you think your dissertation students engaged in the process of reflecting on their own practice?**

	All	Most	Some	None
Exceptionally well				
Reasonably well				
Not very well				

6. **What evidence do you look for to substantiate judgments made in the above table?**

   -
   -
   -
   -
   -
   -

7. **In your view, is the action research experience valuable in terms of helping student teachers to become more effective practitioners?**

   (please circle one)

              Yes   **No**

   Give the reason/s for your view below and overleaf:

   -
   -
   -
   -
   -
   -
   -
   -
   -

-

8. **Do you have any further comments about the year 4 students' respective action research experiences?**

Thank you very much for your time in completing this questionnaire

Appendix J: Factors which influenced student teachers' decision to select research focus

A list of 14 possible reasons that might influence decisions to focus on a specific research area was presented in table format and student teachers were asked to tick all those that applied, rank these in order of importance and add further reasons, as appropriate. The number of reasons individual student teachers' identified ranged from between 3 and 8, which generated a total number of 400 response items. Two new reasons were provided as identified in rows 15 and 16 of the table below that shows both the overall distribution of student teachers' responses and total number of responses as a percentage aligned to each reason, in the final column.

	Reasons that influenced decision	*Order of importance*								*Totals*	
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	n=80	%
1	Personal audit of QTS standards	1	1	3	2	0	2	2	0	11	13.75
2	To improve the quality of an aspect of teaching	32	20	9	8	3	1	0	0	73	91.25
3	To enhance the quality of pupil learning	29	22	13	7	2	0	0	0	73	91.25
4	Personal interest of an aspect of teaching	8	15	15	17	4	2	0	0	61	76.25
5	Personal interest of an aspect of pupil learning	2	10	13	20	7	0	1	0	53	66.25
6	Sound subject knowledge in this area	1	1	2	2	5	2	1	0	14	17.5
7	Limited subject knowledge in this area	2	3	12	1	3	1	1	0	23	28.75
8	Inspired from readings about the research of others	0	3	3	2	9	4	0	1	22	27.5
9	Supported an initiative or aspect of inquiry being undertaken by the whole school	0	0	1	0	4	0	2	1	8	10
10	Supported an initiative or aspect of inquiry undertaken by PE department (or member of)	0	0	1	0	0	4	1	0	6	7.5
11	Particular area of interest or expertise held by school mentor	0	0	1	0	1	1	0	0	3	3.75
12	Particular area of interest or expertise held by dissertation supervisor	0	0	0	1	1	0	1	0	3	3.75
13	A need identified in relation to a specific teaching group	3	4	3	2	4	4	3	0	23	28.75
14	Easily manageable within an action research project	2	0	4	6	6	5	1	1	25	31.25
15	Literature available in the area was plentiful	0	1	0	0	0	0	0	0	1	1.25
16	Area had not been researched a great deal before	0	0	0	0	1	0	0	0	1	1.25

	Total number of response items									400	

(extracted from Questionnaire 1, question 2)

Factors which influenced student teachers' decision to select research focus in rank order of frequency, percentage and occurrence at the highest two levels of importance

Item	Reason/s that influenced decision	n=80	100%	n=80 highest 2 levels
	80% > student teachers			
2	To improve the quality of an aspect of your teaching	73	91.25	52
3	To enhance the quality of pupil learning	73	91.25	51
	60% - 79% student teachers			
4	Personal interest of an aspect of teaching	61	76.25	23
5	Personal interest of an aspect of pupil learning	53	66.25	12
	20% - 59% student teachers			
14	Manageable within an action research project	25	31.25	2
7	Limited subject knowledge in this area	23	28.75	5
13	A need identified in relation to a specific teaching group	23	28.75	7
8	Inspired from readings about the research of others	22	27.5	3
	10% - 19% student teachers			
6	Sound subject knowledge in this area	14	17.5	2
1	Personal audit of QTS Standards	11	13.75	2
9	Supported initiative undertaken by whole school	8	10	-
	< 9% student teachers			
10	Supported initiative undertaken within PE department	6	7.5	-
11	Area of interest/expertise of school mentor	3	3.75	-
12	Area of interest/expertise of dissertation supervisor	3	3.75	-
15	Literature in the area was plentiful	1	1.25	1
16	Area had not been researched much before	1	1.25	-

Appendix K: Characteristics of student teachers' research areas

Eleven broad categories into aspects of teaching and five into aspects of pupil learning and development were areas of research selected by the student teachers as detailed below.

Research focus	n=80	%
Aspect of teaching		
• Teaching styles	16	20
• Feedback	14	17.5
• Differentiation	12	15
• Motivation	9	11.25
• Strategies	6	7.5
• Assessment	5	6.25
• Resources	5	6.25
• Classroom management	3	3.75
• Teaching models	3	3.75
• Grouping strategies	2	2.5
Aspect of pupil learning and development		
• Enhancing progress or achievement	49	61.25
• Changing behaviour patterns	44	55
• Changing affective state	31	38.75
• Enhancing perceptions of self	14	17.5
• Increasing social awareness	13	16.25

The most common research focus into an aspect of teaching involved an exploration of particular teaching styles, as in reciprocal teaching and guided discovery, derived from Mosston's (Mosston and Ashworth, 1994) spectrum of teaching styles, 16 (20%); followed by feedback, expressed in terms of praise, positive strategies and the use of questioning, 14 (17.5%). Differentiation by task, teaching style or strategy was the focus for 12 (15%) student teachers; motivation for 9 (11.25%); and strategies that included teaching approaches and goal setting for 6 (7.5%) student teachers. The areas of: assessment, that included formative strategies and evaluation; communication, expressed in terms of verbal and visual guidance, stimulus and demonstration; and, resource-based teaching, including task cards, worksheets and ICT, each provided the focus for 5 (6.25%) student teachers' research, respectively. Classroom management in terms of discipline, organisation and low-level disruption along with the teaching models of 'games for understanding' and 'sport education', were each selected by 3 (3.75%) student teachers, respectively. The least common research focus reported was an investigation into the effectiveness of grouping strategies by 2 (2.5%) student teachers.

When describing their research focus, most student teachers made explicit reference to different aspects of pupil learning or development. Although there is a degree of overlap, and some student teachers indicated more than one aspect, the focal areas were placed into the following five broad categories:

- *enhancing pupil progress or achievement* was identified by 49 (61.25%) student teachers and is sub-divided in terms of improved physical performance, 22 (27.5%); a combination of improved physical performance and the acquisition of new knowledge, understanding and concepts, 15 (18.75%); the acquisition of new knowledge, understanding and concepts, 6 (7.5%) and the achievement of lesson learning outcomes, 6 (7.5%);

- *changing pupils' behaviour patterns* was identified by 44 (55%) student teachers and is sub-divided in terms of increased participation, engagement, effort or academic learning time by 27 (33.75%) student teachers; and, greater responsibility for their own learning through self-assessment, peer assessment, independent learning or assuming leadership roles by 17 (21.25%) student teachers;

- *changing pupils' affective state* was identified by 31 (38.75%) student teachers in relation to increased motivation, enthusiasm, enjoyment and interest;

- *enhancing pupils' perceptions of self* was identified by 14 (17.5%) student teachers in relation to perceived competence, self-efficacy or self-esteem. This includes knowledge of preferred learning style and perceptions of how one learns, perceptions of own activity levels and inclusion versus alienation;

- *increasing pupils' social awareness* was identified by 13 (16.25%) student teachers and is sub-divided in terms of peer observation, analysis and feedback, 5 (6.25%); communication, cooperative learning skills, roles and responsibilities within group processes, 4 (5.0%); and, general social development expressed as maintaining and sustaining a purposeful learning environment, by 4 (5.0%) student teachers.

The year groups involved in research investigations, in rank order of frequency, comprised: year 8 for 22 (27.5%) student teachers; year 9 for 21 (26.25%); year 7 for 20 (25%); year 10 core physical education for 6 (7.5%); year 10 GCSE physical education and year 11 core physical education, each for 5 (6.25%) student teachers, respectively; and, year 11 GCSE physical education for 1 (1.25%) student teacher. Clearly, the majority of student teachers, 63 (78.75%) undertook their research investigations with pupils across the Key Stage 3 year groups. The gender of pupils within the research groups comprised 39 (48.75%) all female; 26 (32.5%) all male; and, 15 (18.75%) mixed gender groups.

The characteristics of pupils that student teachers reported focusing on within their teaching groups include: mixed ability for 62 (77.5%) student teachers; low ability for 13 (16.25%) student teachers; gifted, able and talented for 2 (2.5%) student teachers; and, ADHD, SEN and disaffected pupils each provided the focus for 1 (1.25%) student teacher, respectively. The particular pupil characteristics and groupings noted here were those categorised by staff within the placement schools.

The range of physical activity contexts within which student teachers' research investigations were undertaken comprised: 44 (55%) games; 17 (21.25%) gymnastics; 8 (10%) swimming; 5 (6.25%) dance; 2 (2.5%) GCSE theory; and 1 (1.25%) each for health related exercise and trampolining. There were 2 (2.5%) student teachers that reported teaching both games and gymnastics to GCSE practical groups during the research enterprise. Although this suggests discontinuity in terms of implementing the research strategy

during one discrete unit of work, the focus for the research in both instances, concerned the use of positive feedback to motivate year 10 girls.

Appendix L: Factors which influenced the ongoing development of research

A list of 23 possible factors that might have influenced the ongoing development of research was presented in table format and student teachers were asked to tick all those that applied, indicate the level of influence and add further factors, as appropriate. The number of factors individual student teachers' identified ranged from between 9 and 23, which generated a total number of 1,029 responses items. One new factor was provided as presented in row 24 of the table overleaf that shows both the overall distribution of student teachers' responses and total number of responses as a percentage aligned to each factor, in the final column.

	Factors which influenced the ongoing development of research	Level of influence					Totals	
		High				**Low**		
		5	**4**	**3**	**2**	**1**	n=80	%
1	Knowledge gained from your previous school experiences	10	16	10	2	1	39	48.75
2	Knowledge gained from practical PE modules at the university	6	10	10	1	1	28	35
3	Knowledge gained from Professional studies modules at the university	15	11	13	5	1	45	56.25
4	Knowledge gained from your personal search of literature	19	18	15	4	0	56	70
5	Data collected by observer/s (peer/teacher/mentor)	21	30	13	0	1	65	81.25
6	Data collected from pupils	31	29	7	0	0	67	83.75
7	Data collected from your personal field notes	24	31	8	3	1	67	83.75
8	Discussions with others (peer/teacher/mentor)	14	23	13	4	0	54	67.5
9	Suggestions from others (peer/teacher/mentor)	10	19	10	3	0	42	52.5
10	Monitoring your own practice	10	13	12	5	1	41	51.25
11	Trying out new strategies and/or ideas	22	21	9	0	2	54	67.5
12	Seeking solutions to a problem	8	11	4	1	2	26	32.5
13	Testing a belief or theory	7	6	13	3	1	30	37.5
14	Regular and systematic evaluation of your research evidence	9	10	13	2	0	34	42.5
15	Reflecting on verbal feedback received from others	11	21	8	2	0	42	52.5
16	Reflecting on written feedback received from others	16	19	12	5	0	52	65
17	Reflecting on pupil behaviour/s	28	23	8	3	0	62	77.5
18	Reflecting on your own practice	15	19	5	2	0	41	51.25
19	Searching for reasons behind the outcomes of your teaching	6	8	9	0	1	24	30
20	Revisiting the focus of your action research project	7	7	8	0	0	22	27.5
21	Refining the focus of your investigation	10	15	11	2	0	38	47.5
22	Personal commitment and enthusiasm	24	21	15	6	0	66	82.5
23	Support, commitment and enthusiasm of others	12	12	6	3	0	33	41.25
24	Knowledge gained from course outside university	1	0	0	0	0	1	1.25
	Total number of response items						**1029**	

(extracted from Questionnaire 1, question 4)

Factors which influenced the ongoing development of research in rank order of frequency, percentage and occurrence at the highest two levels of influence

Factor	Description	n=80	100%	n=80 highest 2 levels
	80% > student teachers			
6	Data collected from pupils	67	83.75	60
7	Data collected from personal field notes	67	83.75	55
22	Personal commitment and enthusiasm	66	82.5	45
5	Data collected by observer	65	81.25	51
	60% - 79% student teachers			
17	Reflecting on pupil behaviours	62	77.5	51
4	Knowledge gained from personal literature search	56	70	37
8	Discussions with others	54	67.5	37
11	Trying out new strategies/ideas	54	67.5	43
16	Reflecting on written feedback received from others	52	65	35
	40% - 59% student teachers			
3	Knowledge gained from professional studies	45	56.25	26
9	Suggestions from others	42	52.5	29
15	Reflecting on verbal feedback from others	42	52.5	32
10	Monitoring your own practice	41	51.25	23
18	Reflecting on your own practice	41	51.25	34
1	Knowledge gained from previous school experiences	39	48.75	26
21	Refining the focus of your investigation	38	47.5	25
14	Regular and systematic evaluation of research evidence	34	42.5	19
23	Support, commitment and enthusiasm of others	33	41.25	24
	20% - 39% student teachers			
13	Testing a belief or theory	30	37.5	13
2	Knowledge gained from practical PE modules	28	35	16
12	Seeking solutions to a problem	26	32.5	19
19	Searching for reasons behind the outcomes of your teaching	24	30	14
20	Revisiting the focus of your action research project	22	27.5	14
	< 19% student teachers			

24	Knowledge gained from course outside university	1	1.25	1

Appendix M: Student teachers' perceptions of how their research influenced personal development and pupil learning

	Definitely Yes N=80 (%)	Probably Yes N=80 (%)	Probably No N=80 (%)	Definitely No N=80 (%)	N=80	(%)
More effective in area researched?	33 (41.25)	46 (57.5)	1 (1.25)		80	100
Has reflecting on practice influenced your:						
• **Own teaching?**	36 (45)	35 (43.75)	7 (8.75)		78	(97.5)
• **Pupil learning?**	37 (46.25)	38 (47.5)	4 (5)		79	(98.75)
• **Motivation to search for reasons behind the outcomes of your teaching?**	15 (18.75)	34 (42.5)	21 (26.25)	2 (2.5)	72	(90)
• **Ability to critically reflect on reasons behind the outcomes of your teaching?**	15 (18.75)	49 (61.25)	10 (12.5)	1 (1.25)	75	(93.75)
Did your research have an impact on staff within your placement school?	5 (6.25)	25 (31.25)	33 (41.25)	13 (16.25)	76	(95)

Appendix N: Dissertation supervisors' perceptions of important aspects of student teachers' research experience

Most important aspects of student teachers' action research experience	n=13	(100%)
Reflect on themselves and their own practice	12	(92.3)
Empowerment	8	(61.5)
To develop thinking skills	8	(61.5)
To test a theory or strategy	6	(46.2)
Critically reflect on their teaching and learning environment	6	(46.2)
Self-discipline [and clear method building]	1	(7.69)
Total number of response items	41	

Appendix O: Dissertation supervisors' guidance to student teachers' for gaining clarity of research focus and design

Guidance principles	n=13	(100%)
Personal journal to inform plan of action	11	(84.5)
Discuss areas of personal interest	10	(76.9)
Discuss proposed research design	10	(76.9)
Personal search of literature	8	(61.5)
Appropriate to the context and setting	5	(38.5)
Discuss student teacher developmental needs	4	(30.7)
Total number of response items	**48**	

Appendix P: Dissertation supervisors' perceptions of how the research experience influenced student teachers' personal development

	Areas of student teacher development	Yes			No	Total
		All n=13 (%)	**Most** n=13 (%)	**Some** n=13 (%)	**None** n=13 (%)	n=13 (%)
1	An assessment of their current practice	2 (15.4)	8 (61.5)	3 (23.1)	0 (0)	13 (100)
2	Their justification of good practice	1 (7.7)	3 (23.1)	8 (61.5)	1 (7.7)	13 (100)
3	An improvement in the quality of their teaching	0 (0)	4 (30.7)	7 (53.8)	0 (0)	11 (84.5)
4	An improvement in their ability to maximise learning opportunities for pupils	0 (0)	6 (46.15)	6 (46.15)	1 (7.7)	13 (100)
5	An ability to reflect on their own practice	4 (30.7)	6 (46.2)	2 (15.4)	1 (7.7)	13 (100)
6	How they think, make decisions, and solve problems	0 (0)	7 (53.8)	6 (46.2)	0 (0)	13 (100)
7	Increasing their confidence	2 (15.4)	7 (53.8)	3 (23.1)	1 (7.7)	13 (100)
8	Gaining an understanding of the 'rationale of change'	0 (0)	3 (23.1)	10 (76.9)	0 (0)	13 (100)
9	Taking ownership of personal continuing professional development	0 (0)	6 (46.2)	7 (53.8)	0 (0)	13 (100)