

THE RELATIONSHIP BETWEEN BEGINNING TEACHERS'
PRIOR CONCEPTIONS OF GEOGRAPHY, KNOWLEDGE
AND PEDAGOGY AND THEIR DEVELOPMENT AS
TEACHERS OF PRIMARY GEOGRAPHY

FRAN MARTIN

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Abstract

This research examines the relationship between primary postgraduate (PGCE) students' conceptions of geography, knowledge and pedagogy and their development as teachers of primary geography over two years – the primary PGCE course and the first year of teaching. The methodology is essentially qualitative and based on the principles of grounded theory. Personal Construct Theory (PCT) has also informed the choice of research techniques, PCT being seen to be appropriate for a research project that aims to access and therefore examine a range of alternative constructions. Concept mapping was used at the beginning and end of the geography component of a PGCE Primary course to elicit all students' conceptions of geography, teaching and learning. Analysis of the concept maps from the whole cohort (n=79) show that primary students' conceptions of geography are generally rather simplistic and reflective of the descriptive-rich and scientific persuasions identified by Barratt Hacking (1996). Only a few students' maps reflected environmental or humanistic/welfare persuasions. The concepts maps were also sorted into four categories from most sophisticated to least sophisticated conceptions of geography. It was noted that of the eight students in category one (most sophisticated) only one had a geography degree.

A sample of 11 students was then interviewed (using a stimulated recall technique (Calderhead 1986)) about their conceptions using the elicitation data as a stimulus for the discussion. This enabled the researcher to both probe students' conceptions in greater depth, and to validate initial analysis of the elicitation data. Finally, three students – one a geographer (with a geography degree) and the others non-geographers – were observed teaching geography and interviewed directly after the observations on three occasions over the two years. A coding system was developed from all the data, and was then used to analyse the interviews using Microsoft Word index and cross-referencing functions. These analyses, along with elicitation data, formed the basis of case studies of the development of three students as geography teachers over two years.

A model for beginning teacher development in the field of primary geography is then proposed. The model emerged from interpreting and synthesising the evidence from the three case studies, and through the use of the constant comparison technique (Strauss & Corbin, 1998). The model is applied to the series of lessons observed for each case study providing an overview of their development as teachers of primary geography. Comparison of the three cases over two years shows some startling similarities as well as some differences in their development. It seems that each of them, whether they held a geography degree or not, discounted the geographical knowledge they have gained from life experiences as a valuable base to work from, despite the relevance of this knowledge to their teaching. It also seems that each of them, when observed during their PGCE course, were most likely to draw on their memory of geography lessons from when they were a pupil as a model to inform their teaching. As the two years progressed, and their pedagogical knowledge developed, they began to replace these early experiences with ones more suited to effective teaching – that is, their more recent experiences as teachers. Of the three beginning teachers, only David, who had a geography degree, developed to become an effective geography teacher during the research period. However, it is considered that, for the majority of primary teachers, the most that can be expected is that they will develop into effective teachers of primary geography because it is unlikely that they would have opportunities to develop the depth of subject knowledge required to be an effective geography teacher.

The thesis concludes by offering some thoughts for the development of primary geographical education. It proposes that primary geography could be usefully conceptualised as ‘everyday’, or ‘ethno-‘geography, that is a geography that recognises and seeks to address the ‘false split between practical, everyday knowledge and abstract, theoretical knowledge’ (Frankenstein & Powell, 1994). This is a geography that explicitly values the geographical knowledge that we all build up from everyday experiences in the world and that, in conjunction with the development of a geographical imagination, might form the basis of a primary geography framework.

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1. Introduction.

From an early stage in my career I was keen to reflect on, and develop, my professional knowledge and skill in order to improve the quality of learning experiences for the pupils in my care. As my career progressed and I became an advisory teacher for primary humanities my interest in learning began to focus on geography, the subject I studied at university. When I moved into Initial Teacher Education (ITE) the focus of my interest, while continuing to be geographical education, shifted to the learning of undergraduate and post-graduate student teachers. My Masters dissertation (Martin, 1997) examined the relationship between students images of geography and the teaching styles they adopted in the classroom. The research was philosophically and practically rooted in Kelly's (1970) Personal Construct Psychology (PCP), which had been part of the Masters programme and appealed for two main reasons:

1. Images have been used in research as representing both cognitive and affective 'ways of knowing'(Johnson, 1992; Leat, 1996) and PCP has been shown to be a useful tool in eliciting constructs that have both affective and cognitive dimensions.
2. As a theoretical framework PCP seemed to offer plausible explanations for the ways in which people construe situations and phenomena which I could apply to the notion of images and their impact on learning.

As the research progressed it became clear that PCP theory and techniques were also being useful as a metacognitive teaching approach. In other words, the act of doing the elicitation exercises and discussing the results encouraged students to become more aware of their images and their effects on learning, with (in many cases) beneficial results. For ethical reasons I had chosen to conduct research in such a way that it was beneficial to the participants as well as myself; therefore I was keen to adopt a similar approach to this current project.

In brief, the results of the Masters research suggested that there was little relationship between a student's image of geography and the teaching style adopted in the classroom. This partly challenged my own assumptions that a complex image that has breadth as well

as depth would lead to more successful geography lessons. It seemed as though something more fundamental than images of geography and subject knowledge was affecting these students' teaching styles and that this might relate to the ideological positions that underpin these images. In addition to the questions about the apparent lack of relationship between students' images of geography and their teaching style, many other questions were raised as a result of the research.

- How could I, during the time span allocated for geography on the PGCE Primary course (14 hours), develop students' knowledge and skills sufficiently that they could begin teaching geography with some degree of success?
- How could I take account of students' differing starting points / experiences before coming on course?
- What effect would students' images of the subject and of teaching have on their learning and development?
- How would all this affect the difficult choices that would have to be made about the geography component programme?
- Should the programme aim to enhance subject knowledge and an understanding of how children learn in geography, or would it be more effective to present students with a series of 'tips for teachers' so that they had 6 or 7 examples of what constitutes 'good' teaching in geography?
- In short, would it be more appropriate to go for a 'surface' or 'deep' approach to learning (Askew & Carnell, 1998)?

These questions led to my wish to use the Masters dissertation as the foundation for this research project. In the early stages of formulating the research proposal I spent time reading and talking with colleagues in order to clarify what I intended to focus on. My research diary at this time shows an entry (4/12/98) where I played around with a number of possible titles, analysing and evaluating each in turn. This involved considerations of both the feasibility of each study (in terms of research methods, time and access) and the relevance of the study to current research and professional knowledge in the field. The title decided upon at the time was:

An analysis of the relationship between primary student teachers' professional values and their development as effective teachers of geography.

and the research aims (appendix 1) were:

1. To critically review previous research into the relationship between teachers' values and effective professional practice.
2. To identify student teachers' values about geographical education in ways that allow them to be appropriately represented, understood and acted upon.
3. To explore the impact of student teachers' values on their development as effective teachers of primary geography.
4. To consider the impact of the findings for ITE course design and implementation

As the research got under way, a pilot study was completed and ideas were discussed in various fora (National Geographical Teacher Educator conferences, a seminar held at the Centre for Research in Environmental Education), it became clear that values, and professional values, as a focus for research was problematic both conceptually and methodologically, and so there was a shift away from values to conceptions and the title became:

The relationship between beginning teachers' prior conceptions about geography, knowledge and pedagogy and their development as teachers of primary geography.

The rationale for this focus will now be discussed by reference to the need within the geographical education community, and the gaps that exist in our knowledge of how to meet this need.

1.1 Why is this research needed?

This research is needed for two key reasons:

- Geography, as a school subject, is in some crisis. Numbers of pupils choosing geography as an option for GCSE are dropping for the first time in many years,

and the standard of geography teaching and learning in primary schools, as reported by OFSTED, is generally only satisfactory. There is an urgent need to train teachers who will present the subject as exciting, dynamic and relevant to pupils in today's society.

- A key solution to standards of subject teaching in primary schools has been seen, since the early 1990s, to be the development of teachers' subject knowledge (Alexander et. al. 1992)

Ofsted reports (2002, 2004) show that the quality of geography teaching in primary schools is good in only just over a third of classrooms, and pupils' achievements are good in only just over one fifth, while 'very much of the rest of geography teaching and learning is regarded as satisfactory' (Catling, 2004:1). Catling lists some of the features of good geography teaching, identified from the Ofsted reports, and these include:

- appreciating the key ideas to develop in a geographical topic
- supporting children in their geographical enquiries
- indicating confidence in his/her geography teaching, and
- recognising 'geography's distinctive contribution to the wider primary curriculum' (Ofsted, 2004:8)

all of which imply secure subject knowledge. As part of their monitoring role, the Qualifications and Curriculum Authority (QCA) commissioned two small-scale research studies on monitoring primary geography (Catling et. al. 2002 & 2004). The first study gathered data from 25 primary schools in 2001-2 and the second study revisited 15 of these in 2003-4; these schools were selected to be representative of five regions across England, but the small-scale nature of the research means that generalisations must be viewed with caution. Data were gathered through in-depth interviews with the geography subject leaders, and analysis of school documentation. The key findings that emerged were that, for these schools, there is a high turn-over among geography subject leaders, they receive little support for their role, geography is often one of several posts of responsibility held, the subject leader does not necessarily have a geographical background and often receives no In-service training (Catling et. al. 2004). Ofsted (2002) has identified the crucial role a

subject leader plays in raising the status and standards of their subject in primary schools. Good geography teaching requires certain levels of subject knowledge and it appears as though subject leaders are often not in a position to offer levels of support required to staff who are, in the main, non-specialists in the subject. This potentially leads to standards of teaching in primary schools which do not enthuse the pupils, coupled with a drop in pupils' achievements in geography at KS3 (Catling et. al. 2003) who are then less likely to select it as a subject for GCSE and beyond. There is therefore an urgent need to improve standards of geography teaching in primary schools.

A key focus for the development of effective subject teaching is seen to be the enhancement of teachers' subject knowledge (Smith & Neale, 1989; Alexander et. al. 1992; Summers & Kruger, 1994; Ofsted 2002). However, 'this supposition has been brought into question in recent years' (Parker, 2004:832) and it is now accepted that it is not sufficient to have a subtle and detailed knowledge of a subject, but that teachers also need to combine this 'with a complex array of various types of knowledge to promote learning' (ibid), a combination known as pedagogical content knowledge (PCK). Without certain levels of subject knowledge primary teachers are not going to be in a position to identify key geographical ideas, ask appropriate geographical questions, recognise misconceptions in pupils' knowledge or show confidence in their geography teaching. However, my own experience and conversations with colleagues at conferences indicate that geography is offered as a taster course in most Primary ITE courses. There has been a reduction in the numbers of Higher Education Institutions (HEIs) offering primary geography as a specialism in ITE, and in PGCE primary courses the norm is for the geography component (if it exists) to receive between 4 – 16 hours taught time on the course. In a content-rich subject, working with students who are not geographers, the challenge of developing their geographical subject knowledge to a sufficient level is great. There is therefore a great need to better understand the factors that affect beginning teachers' development as teachers of primary geography.

1.2 What gaps in knowledge does the thesis address?

The types of professional knowledge that beginning teachers need to develop has been well documented (Shulman, 1987, Bennett & Carré, 1993; Turner-Bisset, 1999) and of these

subject content knowledge and pedagogical content knowledge are those that are pertinent to an understanding of subject teaching. Parker (2004) emphasises how, if relevant subject knowledge is concerned with how to represent subject matter ‘at the teaching/learning interface’ (p.832) knowledge of learners’ perspectives becomes paramount. By this he meant not just the learners in classrooms, but student teachers as learners themselves. Research by Walford (1996) and Barrett Hacking (1996) has examined PGCE secondary geography students’ conceptions of geography, Leat (1996) has examined PGCE secondary geography students’ conceptions of teaching & learning, and Barrett Hacking and Leat have also briefly considered the relationship between these conceptions and action in the classroom. Many researchers (Bennett & Carré, 1993; Collinson, 1996; Calderhead & Shorrocks, 1997; Hauglustaine-Charlier, 1997; Sugrue, C, 1997; Entwistle et. al., 2000) have examined primary students’ conceptions of teaching and learning and their impact on teaching, but no studies have been found that examine PGCE primary students’ conceptions of geography and pedagogy and the relationship between these and their classroom practice.

Entwistle, et. al.’s (2000) research (with primary PGCE student teachers) showed that students’ ideas about ‘good teaching’ were heavily influenced by prior experiences in the family, culturally and in school. As a result of the PGCE course their

‘conceptions seem to retain their core earlier beliefs ... [and] none of the students felt that the course had fundamentally changed their way of thinking about ‘good teaching’, rather it had enabled them to articulate their beliefs better and had shown them how to ‘operationalise’ their ideas during teaching practice’ (Entwistle et. al. 2000:13)

‘The lack of fundamental change in students’ prior beliefs about teaching during the course must cause concern to teacher educators’ (ibid), particularly when beliefs strongly interfere with effectiveness in the classroom. Entwistle et. al. suggest that it is important to explore

‘ways of identifying students’ beliefs and conceptions’ because it would lead to a ‘greater understanding of the process by which conceptions develop in teacher education’ and ‘it should become easier to help students reflect on a range of alternative conceptualisations ... [and allow] them to think more imaginatively and flexibly in their future teaching careers, without being constricted by a fixed and unconsidered belief about ‘good teaching’” (Entwistle et. al. 2000:14).

If this is true for conceptions of teaching the same must be the case for conceptions of geography. These beliefs and conceptions have been identified by some (Naish, 1996; Brookes, 2004) as going beyond those about the subject itself to include conceptions about the nature of knowledge and the purpose of education.

Gamache (2002) points out that university students often have inappropriate conceptions of learning and what it involves. They tend to see knowledge as an external body of facts, and learning as the recapitulation of this data. He suggests that development of an alternative epistemological view would help students to see themselves as creators of 'personal knowledge'. (Parker, 2004:834)

Parker and Gamache were working in the field of primary science, but no completed research has been found that has investigated the relationship between conceptions of knowledge and learning in the field of geographical education.

Little is known, therefore, in the primary sphere, about the conceptions of geography and knowledge that student teachers hold or the relationship between these, their conceptions of pedagogy and their professional practice. In addition, we do not know how primary student teachers' conceptions change over time or what processes might enable this to happen. While research into primary beginning teacher development has focused on stages in development of students' ideas about teaching and learning (John, 1996; Furlong & Maynard, 1995; Calderhead & Shorrock, 1997; Wood, 2000) none could be found that focuses on stages in development of their subject knowledge and how this relates to changes in their pedagogical knowledge. In addition, all the research found into beginning teacher development on PGCE courses stops at the end of the PGCE year and, in the context of continuing professional development, there is a need to better understand how development in one phase (Initial Teacher Education) relates to that in another (Induction for Newly Qualified Teachers).

To sum up, not enough is known about:

- primary student teachers' conceptions of geography and knowledge
- the relationship between their conceptions of geography, knowledge and pedagogy

- the relationship between their conceptions and their development as teachers of primary geography
- the processes that support the development of subject and pedagogical content knowledge
- how this development continues in their first year of teaching

1.2.1 How does this thesis fill these gaps?

The overall aim of the research is to understand better the factors affecting beginning teacher development in the field of primary geography and the focus is therefore on geographical education and learning to teach geography in the primary school – that is, are there any special aspects to teaching geography in a primary school rather than a secondary school context? Students’ professional knowledge – subject content knowledge and pedagogical knowledge – is affected by their prior conceptions about geography, pedagogy and knowledge and underlying these conceptions are also beliefs, or assumptions about, the purpose of education. The proposal is built on the notion that a relationship exists between all these conceptions and students’ practice in planning, teaching and assessing children’s geographical learning in the classroom. Because we are not usually called upon to articulate our conceptions or beliefs, they are often tacit and research (Entwistle et. al. 2000) shows that we are more likely to change them if they are explicitly examined and compared with alternatives. For this reason the thesis not only examines beginning teachers developing conceptions about geography, pedagogy and knowledge, it also focuses on the context within which this development takes place. In addition, it gathers data for the three case studies over two years enabling analysis of their development over time. The overall research question can therefore be broken down into several supplementary questions which have also helped to frame the research focus and research design:

1. What conceptions about geography, knowledge and pedagogy do student teachers hold? (Cognitive component)
2. What beliefs about geography, knowledge and pedagogy do student teachers hold? (Affective component)
3. What is the relationship between these conceptions and beliefs?
4. How do these conceptions and beliefs change over time?

5. What is the relationship between conceptions, beliefs and action in the classroom?
6. How do student teachers develop as teachers of primary geography?

2. Geographical Education

‘The starting point is the belief that subjects should not be viewed as monolithic entities but as social communities containing groups with conflicting loyalties and intentions and with variable and changing boundaries. The major groups or factions of subject communities often ally themselves to particular traditions and three main traditions have been tentatively discerned: the academic, the utilitarian and the pedagogic’ (Ivor Goodson, 1983:3)

Geography is a subject about which people hold many different conceptions. Like other disciplines, it is dynamic and developing. Goodson’s framework for analysing the nature of geography and its development defines the academic tradition as one that values those aspects of the subject not ‘immediately useful in vocation or occupation’ (1983:29), the utilitarian¹ tradition as one that values those aspects of the subject useful in society (for living and working), and the pedagogic tradition as one that values those aspects that contribute to children’s development and learning through active, enquiry-based methods.

Different geography traditions have led to a multiplicity of ‘geographies’ with debates about which ‘geography’ should be the focus of the statutory curriculum, not least among those who were members of the National Curriculum Geography working group. In addition, politicians, Non-Governmental Organisations (NGOs), and the media (amongst others) all had particular ideas about what they thought the geography curriculum should include.

Perhaps the pressure from those outside the academic community led Kent (1999:103) to call for geographers ‘around the world ... to research the perceptions [of the discipline] held by non-geographers in our respective societies and based on these, propose, share and carry out strategies for promoting an up-to-date and accurate knowledge, understanding and thus perception of the study of geography’. Although this implies agreement within the subject community, which is far from the case, it nonetheless echoes a concern among many geography educators that the image of geography among non-geographers is often perceived as being ‘a burden on the memory rather than a challenge to the mind’ (Kent, 1999:103). This, what might be called, utilitarian view of geography as a body of

¹ Utilitarian is used by Goodson as an adjective, relating to usefulness or function in society; it should not be confused with utilitarianism, the philosophy of the greatest happiness for the greatest number

knowledge about locations, products, landforms and so on, has had a powerful effect on the development of the National Curriculum for Geography precisely because non-geographers had a role in the decision-making process. The initial draft for geography in the national curriculum included values (DES, 1990) but the final orders (DES, 1991) were content-laden, over-prescriptive and, as perceived by some, less relevant to children and education than certain other subjects. The debate did not stop there. There were opportunities at each major review (DFE, 1995; DfEE, 1999) for the various communities to have another chance at influencing the curriculum.

As a subject geography has also suffered from two further government interventions. The first, a letter sent in 1998 from the then secretary of state for education, invited primary schools to 'relax' the primary curriculum during the period in which they were coping with implementing the National Literacy and Numeracy Strategies (DfEE, 1998b). The second, a circular from the Teacher Training Agency (TTA, 2001), set out revisions to the framework for Initial Teacher Training in England (DfEE, 1998a) which allowed ITE providers to develop primary courses which could offer students a choice of studying history *or* geography, art *or* design and technology, music *or* Physical Education. With these continuing pressures on subjects vying for a place in the curriculum there is an urgent need to present geography as an exciting, dynamic subject which is highly relevant in today's society and can help to inform issues which are of 'widespread concern' (Kent, 1999).

For these reasons, where a geography component exists in primary ITT courses it needs to focus as much on developing students' understanding of the subject as it does their understanding of how to teach it. Many teachers of primary geography are non-geographers and may well have an image of geography that is partial, out-of-date, ill-formed and mis-informed. These are the teachers of tomorrow and if we are to influence the subject's image in school, with parents, and with the public and the media, it is paramount that Initial Teacher Education challenges primary student teachers' ideas about geography and gives them sufficient opportunities to explore the nature of the subject, its benefits to children's development and its role in modern society.

Changes in its substantive and syntactic focus are, in part, a reflection of the influence of a number of dynamic traditions from within and beyond the geographical community,

influenced by broader social and educational theory. This chapter explores the nature of academic geography and its recent development, and relates these developments to changes in the primary school curriculum. It explores key influences from within and beyond the subject community that have contributed to it being such a hotly contested subject, before outlining research relating these influences to student teachers' conceptions of geography.

2.1 The Nature of Geography

2.1.1 Terminology (1)

Term - used by	Meaning (researcher's interpretation)
Conception – Leat (1996), Walford (1996), Naish (1996), Corney (1998, 2000) Image – Johnston (1993), Leat (1996) Persuasion – Barrat Hacking (1996)	A way of construing 'reality' which allows for the perspective of the individual. In some cases 'conception' is more cognitive in nature, whereas image and persuasion are more holistic allowing for both cognitive and affective ways of knowing.
	A conception, or persuasion, tends to be influenced by more than one tradition and ideology and is thus <i>inclusive</i> . Individuals are often not aware of the influences on their conceptions so they are likely to be tacit, and, as such, <i>fluid</i> , and <i>open to change</i>
Paradigm – Slater (1992) Tradition – Goodson (1983), Hacking (1992), Reid (1998)	A way of construing reality by academic communities, leading to a classification of types of geography and enabling changes in a subject to be tracked over time. Paradigm differs from tradition slightly in that it is possible to see the influence of more than one paradigm within a tradition (Hacking, 1992).
Ideology – Fien (1993, 1998), Slater, (1992) Orientation – Fien (1993, 1998)	A philosophical stance, or 'system of beliefs, concepts and values' (Fien 1993) which provide a way of looking at the world. This has been likened to a lens which affects the ways in which the world is conceived and perceived. Ideology will, consciously or unconsciously, inform and underpin traditions and conceptions.
	Paradigms, traditions and ideologies are developed within a community and, once defined and articulated in the public domain, tend to become, by definition, <i>fixed</i> and <i>exclusive</i> . This is not to say that they are not open to different interpretations.

Table 2.1: Terms used in the literature on geography and education.

One of the challenging aspects of analysing and synthesising the literature on the nature of geography is trying to understand what each author intends to convey by the terms that are used to describe the influences on, and perceptions of, the subject. What is called an ‘image’ by one (Johnson, 1992) is called a ‘conception’ by another (Corney, 1998), whereas some use both terms apparently interchangeably (Leat, 1996). Table 2.1 provides a summary of these terms, indicating the authors who have used them on the left, and their meanings as I have interpreted them on the right.

The focus of this thesis is on student teachers’ conceptions – about geography and about teaching and learning. However, for most students, these conceptions will have been formed within the context of a British educational system and so have been influenced by paradigms, traditions and ideologies. Reference will therefore be made to these when appropriate.

2.1.1.1 Critical Theory

A second, more fundamental, challenge has been to understand the ways in which the term ‘Socially Critical’ is used in the literature. Since the term is used throughout this thesis, it seems imperative to discuss its meaning from the outset and to be clear about the way in which I intend to use it.

In geographical education circles the term ‘socially critical’ has currency. It is a term used by many writers (Greig, et. al. 1987; Barratt Hacking, 1992; Slater, 1992, 1995; Steiner, 1996; Fien, 1999; Hicks, 2003; Sterling, 2003) without an accompanying explanation of its antecedents, with the exception of Fien (1993). However, as used in these contexts the term socially critical has little connection with the Critical Theory of the Frankfurt school which has its roots in social and educational theory developed by those such as Adorno, Benjamin and Habermas (<http://www.uta.edu/huma/illuminations/> 2004). Socially critical, as it is used within geographical and environmental education, draws on aspects of Critical Theory but applies it in a new educational context.

For example, Fien, writing in the context of environmental education (1993) which he then applies to geographical education (1999) puts forward his understanding of socially critical

as it relates to Habermas and Critical Theory. Fien uses Habermas’s ‘concept of human interests’ as a means of analysing three orientations in education –vocational/neo-classical, liberal-progressive and socially critical.

<p>Habermas Empirical-analytic disciplines (sciences) are guided by an interest in manipulation and control – the concepts used, data collected and explanations generated are orientated by the assumption that knowledge would enable us to control the world of nature.</p>
<p>Fien <i>The Technical interest involves the need for mastery and control over the physical world, giving rise to the need for instrumental knowledge (and education) which can satisfy physical and economic needs and allow one to fit into society as it is presently constructed. This underlies the vocational/neo-classical orientation in education.</i></p>
<p>Habermas Hermeneutic or interpretive disciplines (humanities) are guided by a practical interest in reaching an intersubjective understanding, rather than control. Orientated by the need to communicate with, and convince others about, what our community or tradition was really like.</p>
<p>Fien <i>Humans inhabit a social as well as a physical world, so they have a Practical interest in understanding and participating in the cultural traditions that shape social life; this is satisfied by approaches to education which provide for personal and social development as well as induction into the major traditions of academic and cultural thought. This underlies the liberal-progressive orientation in education.</i></p>
<p>Habermas Emancipatory disciplines (Marxism and psychoanalysis, and ‘into which category Habermas wanted to place Critical Theory’) are guided by a reflexive interest that enabled human beings to have a greater autonomy and self-determination. These recognise the importance of causality and hermeneutic understanding but see the need to go beyond understanding of tradition to, through a process of conscious reflection, ‘take up a different attitude towards things we previously accepted in an automatic way’ (How, 2003:126). Critical Theory is therefore ‘both hermeneutically sensitive and aware of how external (unconscious) forces ‘cause’ different behaviours at the level of everyday life. If it is successful it breaks up these distortions by bringing them to consciousness, allowing individuals to be more self-determined and less governed by external factors in what they think and do’ (ibid)</p>
<p>Fien <i>The emancipatory or critical interest derives from a desire to be free of the constraints of ignorance, authority and tradition upon human reason. This is satisfied by socially critical orientation in education which seeks to educate students to be aware of the ideological origins of their existing beliefs and purposes in life, conscious of the inequalities and other problems created by unequal power relations in society, and willing and empowered to think and act in the interests of social justice and democratic principles.</i></p>

Table 2.2: The relationship between Habermas’ ‘Knowledge constitutive interests’ (How, 2003) and Fien’s (1993, 1998) educational ideologies

Habermas contends that humans have three distinct categories of needs and interests which he terms ‘knowledge constitutive interests’ (Fien 1993:19). Habermas identifies these as being empirical-analytic, hermeneutic, and emancipatory (How, 2003). Fien identifies them as being technical, practical and critical and relates them in turn to vocational/neo-classical, liberal-progressive and socially critical orientations in education. The table above (table 2.2) shows how these two appear to relate to each other, starting with How’s (2003:116-118) interpretation of Habermas, and then stating Fien’s interpretation (Fien, 1993:19) (*the latter shown in italics*).

Whilst acknowledging that these are brief summaries which cannot properly represent the complexities of Critical Theory, there would seem to be broad similarities between the two sets of ideas. Like Habermas, Fien represents a critical approach as one that questions the status quo. ‘It is a challenge to the way that uncritical educational practices accept and reproduce the Dominant Social Paradigm as a taken-for-granted and ‘natural’ way of interpreting people-environment relationships’ (Fien,1993:16). In this sense it seems similar to the notion of being able to ‘take up a different attitude towards things we previously accepted in an automatic way’. However, this may be where the similarities end. Fien, and others like him, have taken from Critical Theory those elements that best suit his own goals – radical change through a process of challenging the Dominant Social Paradigm, which he perceived as being counter to any real change for ecological sustainability. This is the meaning which will be ascribed to the term throughout the thesis. How Fien, and others, then relate critical and socially critical approaches to different educational or subject paradigms, and the implications of this for pedagogical practices, will be explored in greater detail in the sections below.

2.1.2 The development of academic geography since 1960

All subjects have a set of organising principles and frameworks which set them apart, but for geography this is a more complex matter than for some other subjects. It has been observed (Walford, 1996) that for as many geographers as you ask for a definition of the subject you will get as many answers. Geography is a subject that embraces the arts on one hand, and the sciences on the other; ‘there are geographers who are, at heart, scientists, geographers at heart humanists, and geographers who are social reformers, which is not to

say that some geographers are not all three!’ (Slater, 1992: 100). With such a variety of views one might question whether there are core aspects of the subject that all geographers can agree upon. One might also question whether consensus is important – perhaps its very breadth is a strength in the way it contributes to the dynamic nature of the subject on the one hand, and reflects the diversity of the world it seeks to represent on the other. To understand why this variety exists it is necessary to give a brief overview of how the subject has developed during the last 50-60 years.

Geography as an academic subject has undergone several stages in development over the last century. Slater (1992) and Hacking (1992) have provided useful overviews of these developments which can be broadly related to each other, and a summary of which is shown in Table 2.3. Although this is evidence that there have been significant changes to the nature of geography over the years, it is also possible to identify some common strands that run throughout – for example, the centrality of the spatial dimension whether it is being described, explained, hypothesised about, or critically investigated. Other common strands that can be identified are the human, physical and environmental components. However, the relationship between them and the extent to which any one is emphasised varies according to the tradition. Thus the way in which geography is ‘the study of material and human phenomena in space’ ... and the identification of ‘patterns of, and variations in, these phenomena’s distribution in space, at a variety of scales, at particular times or over time’ (Reid,1998: 70-71) is a common thread; it is the *approach* to the study of this central thread that alters depending on your view from within a paradigm. When it comes to relating academic geography to school geography (see 2.1.3 p.17 for further detail), in Shulman’s terms (1987) there is some degree of consensus over the core substantive element of content knowledge [the facts, concepts and organising framework of the subject, ‘knowing that’], but a variety of perspectives on the syntactic element [its procedures and processes, ‘knowing how’].²

² Shulman’s knowledge bases for teaching (1987) are referred to in greater detail in chapter 2

Major periods	Paradigm (Slater, 1992)	Characteristics of paradigm	Tradition (Hacking, 1992)	Emphases of tradition
Pre 1965	Descriptive-rich	Detailed descriptions of places based on careful observation Strong on locational knowledge and study of regions	Areal	Natural regions Descriptions of areas and regions of the world and their distinctiveness Empirical knowledge ('capex and bays')
1960s-1970s	Scientific	Makes use of scientific methodology Gathering of objective, measurable data Focus on spatial distribution and interaction Use of models to explain the 'real' world	Spatial	Attempts to find patterns in space using quantitative techniques Abstract models to simplify reality and explain patterns and processes
1980s – present	Humanistic	A reaction against scientific approaches Considers subjectivity of personal experiences as they relate to places Place-feeling, sense of place are key concepts	People-environment	Humanistic approach: feelings, perceptions and values of people are essential in order to study changing environments Bridging physical and human geography Ecological approach Management strategies
Late 1980s - present	Radical-welfare Also referred to as the 'social critique' paradigm	Who gets what, how and why? Studies impact of power and vested interest on spatial patterns and processes Raises awareness of individual, societal and organisational opportunities and constraints Sometimes takes historical approach to analysis	Critical	Welfare and radical approaches: focus on social inequalities (explanation and action)
1990s	New paradigm?	Shift from people/environment relationships to people/people relationships at individual levels, groups and society at large.		

Table 2.3: Development of different geographical paradigms 1960s - 2000 [my summary of Slater (1992) & Hacking (1992)]

The development of each successive paradigm or tradition is largely in response to a mixture of dissatisfaction within the geographical community with the previous tradition, and the influence of developments in education and social studies beyond the geographical community. The influence of a critical approach can be seen in the radical-welfare paradigm and the critical tradition and, although neither Slater nor Barratt Hacking identify the possible source of this more critical approach to geography, it is possible that it stems from Peet's (1978) 'Radical Geography' ...[which was] ... a collection ... of essays of

scholars who had become disillusioned with the “scientific” approach to human geography espoused since the 1950s, largely because of the perceived inability of this approach to initiate major social changes’ (Goodson, 1983:81). Parallel influences that have affected the school geography curriculum can be identified in the Environmental Education and Development Education movements in the 1980s (see section 2.1.4) underpinned, perhaps, by broader critical theorists such as Freire (1972).

There is now a move towards a reconceptualisation of geography, represented in the ‘new paradigm’ in table 2.3, but which has yet to be formalised and publicly articulated. This is evident in the activities of organisations such as the Qualifications and Curriculum Authority (who commissioned work on Geography in the 21st century as a deliberately blues skies thinking piece) and the Geographical Association (who, led by the new Chief Executive, began a series of meetings to consider the future of geography in 2003). The move to reconceptualise geography is perhaps the reason for the controversial debate (see section 2.2.2.1, p.30) started by Standish (2002) that has appeared in recent issues of Geography (GA 2003; Standish, 2004). Whatever the outcome of these discussions, it seems as though there is a desire to move away from the eclectic ‘mix’ that is geography towards defining what it is that makes geography distinctive (and thus, presumably, justifies its place in the curriculum).

2.1.3 The development of school geography since 1960

Academic geography, as reflected in Higher Education, is broader and more inclusive of different traditions than the school geography curriculum with the latter generally lagging behind in responding to the nature of the subject as it evolves. Although it is evident, through changing geography curricula, that these shifts *have* been reflected in school geography (Rawling, 2001), this has mainly been identified in the context of the secondary phase, particularly post Key Stage 3. But Rawling (1999) also observes that, due to ‘change fatigue’, there has been little development or innovation in the curriculum and its delivery over the last ten years or so because efforts have been focused on the impact of change at two levels: firstly, at school level, on coping with and implementing almost continuous change within the National Curriculum (DES 1991; DFE 1995; DfEE/QCA 1999); and secondly, at national level, with ‘fighting battles over status and resources’

(Rawling, 1999:276). Where she does see gains are in (a) the higher status of geography in primary curriculum compared to the 1980s, (b) the confirmation of the importance of geographical enquiry in curriculum 2000, and (c) the re-emphasis of the importance of geography's contribution to environmental education in 1991, 1995 and 1999 documents.

The development of geography in the primary phase has been a little different to that in the secondary phase. From my own knowledge of the history of geography in the primary curriculum I have identified a development which is summarised in table 2.4. The shifts in emphasis between different geographical paradigms can be seen to be as much to do with government intervention as developments in academic geography. During 1985-1991 the humanistic and radical-welfare traditions are evident and, with their focus on people, social justice and active involvement in change, these could be said to reflect Goodson's pedagogic tradition. During 1989-1991 there was an attempt to incorporate these more radical, pedagogic traditions into the National Curriculum Geography orders, but this was over-ridden by concerns of government and the nature of geography as viewed by the general population. At this time, and over the last 10-15 years, a significant amount of media time was devoted to airing the views of pressure groups such as the 'Real Education' group and the publishing of test results revealing pupils' lack of locational knowledge, all of which fuelled the non-geographer's view of the subject as one which concerns itself with 'the height and length of various features' ... 'gazetteer information about the location of places' and 'lists of the products grown or made in various towns, regions or countries' (Kent, 1999: 103). As a result the earlier, more utilitarian traditions prevailed. During the last revision period the pedagogic tradition has had some impact once more but, since the brief for the Qualifications and Curriculum Authority (QCA) has been to not substantially alter the nature of the original orders (Rawling, 2001) this has led to a rather eclectic representation of the subject which, it is possible to say, has no central guiding ideology and which, therefore, leaves itself open to many interpretations.

Whatever the reason for the eclectic mix of paradigms, the fact that the geography curriculum is open to different interpretations has implications for teacher and trainee teacher education.

Primary geography curriculum	Characteristics
	Link to paradigms – strong <i>weak</i>
Geography integrated into ‘Topic Work’ <i>Post Plowden (1967)</i>	Process of planning ‘Topics’ focuses on content and therefore teaching and learning is largely knowledge based. Very often not explicitly recognised as geography. Nature of the subject blurred with History and/or science, and later R.E. Descriptive-rich, scientific
Introduction of HMI Curriculum Matters Series <i>1985-1991</i>	Areas of learning and experience identified – geography and history linked under the area ‘Human and Social’. Introduction of the ‘Elements of Learning’ – knowledge, concepts, skills, attitudes – for each area. Suggests that sometimes it is more appropriate to teach subjects separately in upper primary, but the reality continues to be content-led topic work. Humanistic, people-environment
Geography 5-16 (DES 1990) draft proposals for the National Curriculum <i>1989-1991</i>	‘Geography explores the relationship between the Earth and its peoples through the study of place, space and environment. Geographers ask the questions where and what; also how and why’ (DES, 1990). Geography is identified as a foundation subject and is to be taught as a separate subject. The geography working party’s proposals suggest a curriculum in which skills, places and themes are integrated; which aims to provide clarity about the character and value of enquiry in teaching and learning of geography; and which places equal emphasis on knowledge & understanding and values & attitudes. Humanistic, People-environment, Radical-welfare
National Curriculum Statutory orders for Geography <i>1991-1995</i>	‘Geography is concerned with the study of places, the human and physical processes which shape them and the people who live in them. It helps pupils to make sense of their surroundings and the wider world’ (NCC, 1991). The curriculum emphasises separate elements rather than the integrated nature of human-physical-environmental relationships. Enquiry, as an element of the programmes of study, has been removed. Locational knowledge to be learnt at each key stage is specified. Descriptive-rich, scientific, humanistic
Dearing review: Revised Geography Orders <i>1995-1999</i>	The nature of geography remains unchanged, however there is a clearer emphasis on the Programmes of Study and the need to integrate the study of skills, places and themes. Reduction in the number of themes, particularly at Key Stage 1, results in a heightened focus on Place study at different scales. Descriptive-rich, scientific, humanistic
Government ‘relaxing’ of the primary curriculum <i>1998-2000</i>	In order for primary school to focus on the newly introduced National Literacy and National Numeracy Strategies, primary schools are given the freedom to reduce the amount of time given to foundation ³ subjects, and to teach them without making reference to the statutory orders. Where expertise is low, and due to pressures of the core subjects and ICT, status of geography diminishes.
Revised Curriculum for KS1–3 <i>2000</i>	Statutory requirement to follow the National Curriculum Programmes of Study is reinstated. The organisation of the geography orders makes the syntactic framework much more explicit, and for the first time of <u>Geographical Enquiry</u> is included as a key approach. Global Citizenship is referred to in the orders, and ‘Environmental Change and Sustainable Development’ is identified as a key area of knowledge and understanding. This could be interpreted as a reinstatement of the values and attitudes element contained in the original draft orders of 1990. Specified locational knowledge remains. Humanistic, radical, environmental, scientific, descriptive-rich

Table 2.4: The development of geography in the primary curriculum 1960s-2000

³ The National Curriculum for England distinguishes between core subjects (English, maths and science) and foundation subjects (art, design and technology, geography, history, music and Physical Education)

2.1.4 Influences on the development of school geography

As mentioned earlier, Slater (1992) discussed how, as geography develops a greater number of paradigms is evident; it is not simply a matter of one paradigm being replaced by the next. Changes in geographical paradigms are therefore gradually reflected in the school curriculum, and it is now possible to find elements of all paradigms (albeit with different emphases) in different schools and geography schemes across England. Slater also points out that paradigms are linked to certain ideologies which will, in turn, have their own priorities and values.

This section will outline those influences that are considered to have had most impact on the primary school geography curriculum, and attempt to relate them to their ideological foundations.

2.1.4.1 Environmental Education

Environmental education has been an explicit element of the Geography National Curriculum since its inception in 1990. This close relationship between geographical and environmental education is also evident in publications such as ‘Understanding Geographical and Environmental Education’ (Williams, 1996) and ‘International Research in Geographical and Environmental Education’ (research journal sponsored by the International Geographic Union [IGU]). Environmental education has been described as ‘an area of learning which seeks to interest and involve students in issues of environmental quality’ (Tilbury & Walford, 1996:64), and environmental geography as studies that ‘pull physical and human themes together and remind us ... that the ... survival of the human race depends on our maintaining the health of ... the biosphere’ (Bailey & Fox, 1996:22). Due to the close relationship between Environmental Education (EE) and Geography it seems appropriate to trace EE’s development since the 1960s (table 2.5).

As for geographical education, environmental education has shifted from a focus that is predominantly scientific, to one that encompasses social and economic issues and is more change orientated. Again, as for geographical education, as each new development emerged it built on, rather than replaced, the previous one. This has resulted in all traditions continuing to be evident today in stances that exist in a spectrum from the

technocentric, with its belief in the rights of human scientific intervention on the one hand, to the ecocentric, with its belief in the rights of nature and notions of stewardship on the other. (Fien, 1993).

Development of environmental education in the English curriculum	Characteristics
Plowden report (DES 1967) has section describing 'Use of the environment' <i>1967</i>	<i>Link with geographical paradigm (ref. Table 2.2)</i> Emphasis is on exploring the local area and the focus is mainly on physical aspects of the environment <i>scientific</i>
The environment provides the context for cross-curricular topic work <i>1970s</i>	Emphasis remains on local and takes on an 'active learning through enquiry and investigation' approach where schools' local environments provided the context for topic work. Focus on visual aspects – physical and human features – and begins to incorporate notions of environmental quality. <i>scientific</i>
Schools Council series 'Project Environment' introduce <i>1974</i>	Underpinned by the need to 're-educate society to its responsibility' and focuses on issues such as resource use, pollution, environmental quality. The emphasis is on understanding issues, not indoctrination. <i>People-environment</i>
Environmental Education / Environmental Studies <i>1980s</i>	Learning in, through and about the environment. At this time it was also not uncommon for Environmental Studies to be an umbrella term for history and geography. <i>scientific</i>
Environmental Education / Environmental Science <i>Late 1980s</i>	Caring for the environment and notions of conservation are emphasised. At the same time, John Huckle, writing in 1988, argues that EE should not just focus on learning in, through and about, but also <i>for</i> the environment. This encouraged consideration of social justice and equity – implying a broader conception of environment. <i>People-environment, radical-welfare/critical</i>
Environmental Education as a cross-curricular theme. <i>1990</i>	The National Curriculum Council introduces Environmental Education as a cross-curricular theme (NCC, 1990). Distinctions between education about, in and for the environment are explicit.
Curriculum 2000 Education <i>for</i> sustainable development	Cross-curricular themes are given less emphasis. The geography national curriculum orders make specific reference to environmental change and sustainable development. The emphasis now is on enabling pupils to take action in positive ways for sustainable change which takes account of peoples' social and economic needs, as well as those of the environment. The aim, supported by a curriculum for Citizenship, is to promote informed and critical understanding of issues and to develop the skills to debate and act responsibly. <i>Environmental, radical-welfare/critical</i>

Table 2.5: The development of Environmental Education in the English curriculum (source Kimber et. al. (1995) for the period 1967-1993).

It was in the 1980s that a more radical stance on environmental education appeared. This has been related to events during the late 1970s that were a reaction to environmental education's 'narrow focus ... [which] ... tended to concentrate ... upon the local environmental, natural and human-made, or upon the purely biological or geographical aspects of environmental study' (Greig et al. 1987). There was a call for a much broader and more holistic approach leading to the statement of three key goals for environmental education at the Intergovernmental Conference in Environmental Education at Tbilisi in 1977:

1. To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas
2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment
3. To create new patterns of behaviour of individuals, groups and society as a whole towards the environment

(Tbilisi Recommendations, cited in Greig et. al. 1987:26)

Whilst there is still a clear conservationist agenda, these goals seem to represent a move towards what is now a sustainable development perspective on environmental education, in that they recognise the importance of a holistic approach to any considerations of action for the environment. The third goal is also transformative in its focus, taking a much stronger and more radical view of the purpose of education than previously. Like developments in geographical education, whether this is directly the influence of Critical Theory is hard to say, but it does seem to imply a principle of challenging the status quo and seeking change, not only in individuals, but at societal level. In this sense it seems to be a socially critical approach to education.

The direct influence of EE on the geography curriculum can be seen in the inclusion of an environmental strand (DES 1991), which became a theme, 'Environmental Change', in the 1995 orders, (DFE, 1995) and a key area of knowledge and understanding, 'Environmental Change and Sustainable Development' (DfEE/QCA, 1999) in the most recent review. Whether a strand, theme or key area, each reflects the focus on the issues

and environmental quality identified by Tilbury & Williams (1997) and, in this respect, provides a values dimension to the geography curriculum, and as the nature and purpose of environmental education changes, so will the values that underpin it.

2.1.4.2 Development Education

In the late 1970s Development Education (DE) ‘grew out of a mounting concern ... over ‘Third World’ poverty’ (Greig et. al. 1987:23) and has as its focus an understanding of development processes, at a range of scales from local to global and individual to societal, that lead to the marginalisation of groups within society. The aim is to understand these processes from a variety of perspectives, including non-Western, with a view to encouraging people to play their role in bringing about ‘change for the betterment of the individual, the society within which the individual exists, and the world at large’ (Greig et. al. 1987:25), clearly reflecting the radical-welfare paradigm. DE was not the only response to concerns of social injustice – others include human rights education, peace education, and anti-racist education – but it is highlighted here because it was more visible in that, from the late 1970s onwards, a number of Development Education Centres (DECs) were established in the UK with the express purpose of influencing both the curriculum and teaching and learning approaches in the classroom.

The Development Education Association (DEA), established in 1993 to support the work of, among others, DECs, defines development education as lifelong learning that

- explores the links between people living in the "developed" countries of the North with those of the "developing" South, enabling people to understand the links between their own lives and those of people throughout the world
- increases understanding of the economic, social, political and environmental forces which shape our lives
- develops the skills, attitudes and values which enable people to work together to take action to bring about change and take control of their own lives
- works towards achieving a more just and a more sustainable world in which power and resources are more equitably shared.

(DEA, 2004)

The fourth point has a clear social justice agenda and incorporates sustainability in the same way environmental education has in the 1990s. DE has been extremely influential in the work of Non-Governmental Organisations (NGOs) such as OXFAM and Save the Children, who support the work of DECAs, through funding, and schools, through resources and it is clear that DE is about a particular approach to teaching and learning (the pedagogic tradition (Goodson, 1983)) as much as it is about educating for social justice. It is possible to link these approaches to the seminal work of Freire who, in his pedagogy of the oppressed (Freire, 1972) set out an approach to education (and particularly informal and popular education) which promoted informed action, was transformatory in nature, and based on collaborative learning in which the roles of teacher and learner would become blurred Smith (1997).

The importance of this movement is that, for those geographers who were adopting a more humanistic and then radical-welfare approach to their subject, it had much to offer and was therefore, prior to 1991, influential at both individual and curriculum level, although not an explicit element of the GNC (DES, 1991; DFE, 1995). However, in the late 1990s the publication of the Citizenship programmes of study (DfEE/QCA, 1999) and ‘Developing a Global Dimension in the School Curriculum’ DfEE/QCA (2000), provided a clear opening for the inclusion of DE again, through what has become Global Citizenship Education (OXFAM, 1997; Hicks, 2003). So while DE appears to have no influence on the 1990 and 1995 versions of the geography curriculum, in 1999 the revised curriculum made explicit reference to global citizenship where, at KS2, pupils are expected:

‘3g to recognise how places fit within a wider geographical context [for example, as part of a bigger region or country] and are interdependent [for example, through the supply of goods, movements of people]’ (DfEE/QCA 1999:19).

The note for 3g in the margins states that ‘this provides a basis for pupils’ understanding of global citizenship at KS3’ where there is ‘at least a recognition (if teachers are able to appreciate this) that global is a scale *and* a perspective’ (Rawling, 2001:132). Furthermore, when the addition of sustainable development in the revised GNC is combined with the focus on global citizenship it suggests that the agendas of the EE and DE movements are coming together in what has been called ‘*the* issue of the twenty-first century ... whether we can create a more just and ecologically sustainable society for ourselves and future generations’ (Hicks & Holden, 1995). In this respect the GNC 2000 arguably ‘owes more

to the curriculum development movement of the 1970s than it does to the 1991 order' and 'flexibility now exists for innovation to occur' (Rawling, 2001:82). What that flexibility might be, and the ideologies underlying alternative interpretations will now be discussed.

2.2 Ideology and Geographical Education.

'How a teacher teaches is based on assumptions about how people learn ... drawn from a combination of deeply held values about other people and education [and subjects], as well as memories of their own learning experiences' (Claxton et. al., 1996:174) [my addition]

The literature reviewed above suggests that there is a distinction to be made between academic geography and school geography. Rawling (2001) looks briefly at the relationship between the school subject and the academic subject and identifies how, despite the lag between developments in academic geography and those in school geography, there is a dialectic relationship between the two and that 'they are related by common aims and broad principles' (Rawling 2001:21). This type of relationship existed until the inception of the National Curriculum, when curriculum development became centralised and no longer influenced primarily by the academic community.

There is a similar distinction to be made between that of Geography and Geographical *Education*. As a student stated, the academic discipline, geography, 'doesn't prepare you for teaching school geography at all' (Barratt Hacking, 1996:85). Certainly students' knowledge about 'the structure, the ways of knowing the disciplines, even that which they graduated in' is often poor (Bennett et. al., 1993 p.212). Research by Catling (2003a, see section 2.4 for detail) suggests that the question 'what is geography?' elicits a response that is fairly narrow and focuses on content knowledge whereas the question 'why do we teach geography?' elicits a response that is broader and encompasses the educative benefits for children, and in order to consider what is valued in geography one has to consider the purpose of education. Geographical education therefore brings the purpose of geography and the purpose of education together. The following section thus relates geographical traditions to educational ideologies, and how this has led to the current debate within primary geography. First of all, the concepts of 'ideology' and 'values' are briefly explored.

2.2.1 Terminology (2)

Fien (1993:16) recognises that ‘ideology is a central concept in nearly every modern discipline’. As a concept it is elusive and ‘... like many concepts, its meaning changes according to the context in which it is used’. Nevertheless he identifies two general but fundamentally different meanings for the term which are not mutually exclusive. The first is a ‘system of concepts, beliefs and values’ which together provide a way of looking at, and behaving in the world. In this respect ideology contributes to a sense of personal and group identity, provides a view of what the world ‘should be like’ and thus a set of criteria against which to judge or evaluate phenomena, and the values that underpin the ideology ‘act as a guide to, or control upon, the actions of individuals or groups that subscribe to it’ (Fien, 1993:17). In this respect values are conceived almost as guiding principles.

An alternative (Marxist) understanding of ideology ‘sees it functioning as a system of beliefs which legitimate and render ‘natural’ asymmetrical relations of power and wealth in society’. In this way a prevailing ideology can exercise cultural domination over society and promote the vested interests of society’s most powerful groups’ (Fien, 1993:17). This notion of ideology can be seen in the purpose of education as espoused by the government who, it might be said, has applied a particular ideology to the National Curriculum for schools and Initial Teacher Training – the former representing an ideological position on the nature of subjects and the latter an ideological position on the nature of teaching and education. As Fien states, these two definitions of ideology are not mutually exclusive and the way in which ideology is enacted will relate, perhaps, to *intent* – whether to guide personal or group actions, or to exercise social or cultural control.

Clearly in both these cases ideologies set out what is ‘valued’, and indicate that there is a relationship between values (or principles), perception and action. But, as Morgan (2000) demonstrates, values themselves are not well understood. He suggests that there is a need to examine the way in which values are conceptualised – they tend to be portrayed as entities which can be accessed, but this is not necessarily the case. People can ‘hold ambivalent and contradictory views about issues’ (Morgan, 2000: 81); this often appears to be the case in education when a teacher might profess to value a particular approach to teaching, or a particular aspect of a subject, but in practice demonstrates otherwise.

However, ‘values’ as a term is often used in the literature and, during the 1990s some journals devoted whole issues to them (IRGEE, 1998), even the phrase ‘Values Education’ began to appear, with the implication that it is possible to teach particular values. In addition, there is the complex matter of how values, beliefs and attitudes relate to each other – something there is not space to discuss here. Suffice to say that, when the term ‘values’ is used in this thesis it refers to things that are perceived to be of value by an individual or a group. These may be represented by principles or assumptions that underpin a particular way of thinking, for example about subjects or teaching, which may in turn lead to expression in action.

2.2.2 Ideology and Education.

A number of educators (Naish, 1996; Fien, 1993, 1998; Rawling, 2001, Sterling, 2003) have set out classifications of ideologies (sometimes called orientations) in education. Here I examine two that occur geographical education literature and relate them to Goodson’s educational traditions (shown in italics, tables 2.6, 2.7) and Habermas’ Critical Theory.

Utilitarian <i>Utilitarian</i>	Progressive <i>Pedagogic</i>	Liberal <i>Academic</i>	Reconstructionist
Work centred, focuses on development of skills, processing information and learning ‘how’.	Values development of the whole person. Takes child-centred approach, with emphasis on personal growth and relevance. Uses experiential, discovery and problem solving approaches; helps pupils make sense of experience etc.	Focuses on subject and study of disciplines, passing on of culture, rational thinking and cognitive development. Values development of the mind.	Students encouraged to develop a critical consciousness so as to understand notions of power, vested interests; become aware of alternative viewpoints and question the status quo. Values social change.

Table 2.6: Slater’s classification of educational ideologies (Naish 1996))

Vocational / neo-classical	Liberal/progressive	Socially critical
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<i>Academic, utilitarian</i>	<i>Pedagogic</i>	
Sees education as a preparation for work; it views socialisation, education and training as similar processes and seeks to help students to find their place in society by providing them with the skills required to fulfil their work roles. It is an education which accepts technocratic and managerial values and, insofar as it uncritically accepts existing social structures and hierarchies, may perpetuate injustice, inequality and the status quo.	Sees education as preparation for life rather than work. It seeks to help students fulfil a wide range of life roles through a broad general education based as much upon the humanities and liberal arts as upon science and technology. This orientation seeks development and improvement of society through the education of autonomous individuals. It values individual excellence and achievement and adopts a reformist approach to social change.	Sees education as a challenge to social injustice and the status quo. It is founded upon a belief in the need for education to play a role, along with other social institutions and agencies, in creating just and democratic societies. Personal development is valued, but seen to be insufficient in a world that is structurally unequal.

Table 2.7: Fien’s classification of orientations in education (Fien, 1993: 17-22)

An observation that could be made of the two educators is that Slater presents her ideologies straightforwardly, while Fien, (true to his stated preference) defines his orientations by the extent to which they do, or do not, compare favourably with the socially critical perspective. When compared with Goodson’s academic, utilitarian and pedagogic traditions, all three are evident in both classifications. However, neither Slater’s reconstructionist nor Fien’s socially critical ideologies seem to have a parallel in Goodson’s traditions, perhaps because he was writing in the early 1980s and this ideology has had an impact in the field of geographical education since then. This is the ideology that appears to have its roots in Critical Theory and which, whether called reconstructionist or socially critical, has had quite an impact on geographical, environmental and development education over the last 20 – 30 years. If one accepts the term as defined by Fien (table 2.7) it is possible to see its influence on the radical-welfare / critical geographical paradigms of Slater and Barratt Hacking (table 2.3), on education *for* the environment and sustainable development (table 2.5) and on the whole development education movement as outlined in section 2.1.4.

Slater has made loose connections between ideologies and paradigms (1992:104). ‘Some may see a correspondence between ... a humanistic viewpoint and a child-centred position, and a social reconstructionist position and a radical geography ... To what extent, we may ask, can scientific geography be linked with the utilitarian position?’. Implicit in this proposition is that this is not a connection that has been explicitly recognised by either individuals or, perhaps, groups of people who subscribe to a particular paradigm.

When related to the Geography National Curriculum (GNC) 2000, all of the ideologies can be identified (table 2.8). All of the elements of geography have been present since the 1990 GNC with the exception of sustainable development and global citizenship which emerges here for the first time (Rawling, 2001). As Rawling indicates in the table, it would be possible to take both a socially critical or a utilitarian perspective on sustainable development and citizenship education – thus the *potential* for a more socially critical approach to geography has been explicitly introduced in the curriculum 2000 programmes of study, but it is questionable whether this will be seen in practice, particularly within the primary context (Slater and Fien’s ideas have been developed in the secondary context).

Elements of the geography curriculum 2000	Ideological tradition
Map skills Locational knowledge Literacy/numeracy references	Utilitarian, vocational / neo-classical
Physical and human geography - patterns, processes and spatial analysis	Liberal humanism
Geographical enquiry Values and attitudes Issues and questions	Progressive
Sustainable development education Citizenship Global perspectives	Reconstructionist / socially critical (or New Labour’s more utilitarian agenda?)
Key skills	Utilitarian, vocational

Table 2.8: The Geography National Curriculum in England, 2000 – a mixture of ideologies (adapted from Rawling, 2001: 145)

A view is emerging of the importance of exploring ideology and, an integral part of this, epistemology as influential factors on the curriculum and pedagogical practice. The need to grapple with the relationship between epistemology and pedagogy is important because, as Claxton (1996) says:

‘The implicit epistemology embedded in the presentation [of knowledge] influences the learning strategies that people select, and this in turn influences the kind of knowledge base that is established in the learner’s mind’ (Claxton, 1996:51)

In other words, if a teacher's actions in geography lessons are to be understood they must be viewed in the context of the influences of ideology, persuasions and conceptions of geography, education and pedagogy. These will, in part, be expressed in both the curriculum that the student is learning to teach, and the curriculum provided for the subject within the ITE course. With evidence of ideological confusion in the GNC programmes of study it is not surprising that there is currently great variation and some contention over the nature of geography affecting both secondary and primary schools and the ways in which the curriculum is interpreted.

2.2.2.1 Primary Geography: Curriculum Contested in the 21st Century.

That there is by no means agreement *within* the geography community about the nature of the subject and its role in the curriculum is evident in a recent debate played out, in the first instance, in the geography forum pages of a web-based geography network (Staffordshire Learning Network, 2003) and subsequently in the pages of *Geography* (2003-4), the Geographical Association journal. The debate was on the subject of 'Teaching values rather than skills' and led the Chief Executive of the Geographical Association to question whether 'the source of geography's uncertain position in the curriculum is the lack of clarity not only among the public but also teachers of geography, as to the identity of the subject' (Lambert, 2003). There is not space to go into detail here, but at its core the debate concerned the revised curriculum's (DfEE/QCA 1999) focus on global citizenship, environmental change and sustainable development – known as the 'New Agenda' (Grimwade et. al., 2000a, b). The thrust of the argument (Standish, 2003) is that the revised curriculum promotes 'green politics' where the 'knowledge content of the geography curriculum is being replaced by the New Agenda of values and attitudes and personal life skills' in which teachers 'are more concerned with telling pupils how to think and act in relation to the world around them' (Standish, 2003:149). In response, Morgan (2003a) points out that Standish is making a false distinction between factual geographical knowledge, and a geography that focuses on values and attitudes. In Morgan's view, 'the apparently 'factual' always involves particular ways of selecting, valuing and understanding experience' (2003a:151) so Standish's argument is therefore about the replacement of previously agreed sets of 'facts' with new sets of 'facts'. Ellis (2003), on the other hand, criticises Standish's narrow portrayal of values education and specifically

the pedagogical approaches that might be employed by teachers. He identifies five distinct objectives for teaching about values – values inculcation, values analysis, moral reasoning, values clarification and action learning – and suggests that Standish focuses on values inculcation and ignores the other, more complex, approaches (Ellis, 2003:234).

The debate continues in a later issue of *Geography* (Standish, 2004) with misunderstanding between the different viewpoints appearing to remain. Whilst debate within a subject community is no doubt healthy and a reflection of the dynamic nature of the subject, it does seem as though there is a difference of opinion which is not helpful in the context of a climate in which geography has very low status and a poor image in terms of its relevance in a curriculum for the 21st century, concerns highlighted by many authors in a recent publication (Catling & Martin, 2004). Perhaps the lack of clarity and degree of misunderstanding is because the debate is really about something more fundamental than geography's identity. It is about the purpose of education itself.

Fien (1993) has expanded his three-fold classification of educational orientations to demonstrate the impact of each orientation on epistemology, learning theory and teachers' and learner's roles in a learning situation (table 2.9). If this classification is applied to the debate about knowledge or values in geography, the criticism of New Agenda geography (Standish 2003, 2004) appears to come from a vocational/neo-classical position:

...the only value that matters is knowledge. Other values, such as concern for the environment, social justice and a respect for diversity are about moralising and have no place in a curriculum with the goal of intellectual and personal development of the individual'. (Standish, 2004:89)

It is made clear that this is knowledge held by teachers and other authoritative sources. Implicit in this is criticism of both the liberal/progressive ideology (the geography curriculum should be adult, not child-centred) and the socially critical ideology (which is tantamount to indoctrination).

	Vocational / neo-classical	Liberal / progressive	Socially critical
Educational orientation	Sees education as a preparation for work; it views socialisation, education and training as similar processes and seeks to help students to find their place in society by providing them with the skills required to fulfil their work roles. It is an education which accepts technocratic and managerial values and, insofar as it uncritically accepts existing social structures and hierarchies, may perpetuate injustice, inequality and the status quo.	Sees education as preparation for life rather than work. It seeks to help students fulfil a wide range of life roles through a broad general education based as much upon the humanities and liberal arts as upon science and technology. This orientation seeks development and improvement of society through the education of autonomous individuals. It values individual excellence and achievement and adopts a reformist approach to social change.	Sees education as a challenge to social injustice and the status quo. It is founded upon a belief in the need for education to play a role, along with other social institutions and agencies, in creating just and democratic societies. Personal development is valued, but seen to be insufficient in a world that is structurally unequal.
Nature of knowledge	Knowledge is objective - a public matter; exists in books; mostly described as skills and information, (facts, concepts) which have their meaning and significance in occupational or disciplinary contexts; special concern is for the technical/rational/scientific/managerial interest of knowledge (knowledge for control).	Knowledge is subjective, a 'private' or individual matter; exists in accomplishments or 'in the head' of the individual; mostly described as learning, attitudes and living skills which have meaning and significance in individuals' life context and culture; special concern is for the practical / expressive / cultural interests of knowledge for communication, deliberation and refinement.	Knowledge is dialectical, an interplay of subjective views of the world and the historical and cultural frameworks in which they are located. Sees knowledge as socially constructed. Thus, knowledge is not easily specified: its meaning is context specific. It places a central value on the role of knowledge in social action: the emancipatory interests of knowledge.
Learning theory	Behaviourism: deficit models of the learner, transmission theories of learning	Constructivist-interactionist: sees the learner as building cognitive structures through interaction	Social constructivist-interactionist: sees the learner as reconstructing a social reality that is socially constructed and subject to reconstruction through historical and political processes
Teacher's role	An authority, transmitting knowledge, structuring and sequencing what is known to allow the learners to achieve mastery	A 'mentor' or facilitator, organising learning opportunities to allow the learner to take advantage of opportunities and achieve autonomy	A project organiser and resource person, organising critical and collaborative projects in negotiation with learners and community
Learner's role	A receiver of transmitted knowledge, more or less prepared or motivated to achieve within the framework of what is taught	An active constructor of knowledge through experience and opportunities to discover and enquire, more or less able to take advantage of opportunities in terms of preparation and own previous experience	A co-learner, using available knowledge through interaction with others in socially significant tasks of critique or collaborative social action

Table 2.9: Classification of orientations in education: implications for learning theory, teachers and learners (Fien, 1993: 17-22)

These criticisms focus on (a) the *perceived* content focus of the New Agenda geography, and (b) the teaching approaches he assumes this will imply. Because of a lack of understanding of (a) assumptions about (b) are mistaken. If the *only* focus of the New

Agenda were values and beliefs then this *might* lead to values inculcation because the knowledge that originally led to those values and beliefs would be hidden; pupils might be asked to behave in certain ways without having access to the ‘facts’. This would be action predicated on stereotypical beliefs, not knowledge. These are the approaches Standish is critical of, and he has some evidence to suggest that these *are* approaches used by some geography teachers. However, as Morgan highlighted (2003a, and refer back to p. 31), this is *not* what the New Agenda, or a liberal/progressive or socially critical ideology, implies. The shift is not from facts to values and beliefs, it is from one set of facts to another.

Both liberal/progressive and socially critical geographers have as their goal that pupils should consider the values and attitudes that underpin certain geographical phenomena, but the means by which they seek to achieve this is on the basis of knowledge. The question is whose knowledge. Both groups seek to ‘problematise’ knowledge by providing a number of different perspectives, including those that are non-Western and that draw on children’s geographies (Catling, 2003b; Morgan, 2003c); the purpose is to raise awareness that not everyone ‘knows’ the world in the same way and, as a result, to encourage pupils to revise their frames of reference or ‘... to travel with a different view’ (Slater, 1992). Up until this point the goals of liberal-progressive and socially critical geographers are similar.

However, a liberal-progressive would take a more liberal stance and see individual, rather than societal, development as a key purpose of education, whereas a socially critical geographer would ultimately privilege societal over individual development because of a belief that there are some actions that are fundamentally wrong (for example, in the context of human rights) since they lead to injustice in the world. For this reason they go further to encourage pupils to identify social, economic, political and environmental structures that have led to these inequalities and injustices, with a view to encouraging individuals to work for social change. This is *informed* action for social change that involves the agent of change in a critical analysis of the sources of this information, and is very different to indoctrination. It is akin to values analysis, clarification and action learning and, as such, focuses on learners ‘having a *reasoned* base for whatever actions they might take in relation to specific social and environmental issues’ (Ellis, 2003:234).

To summarise, the geography curriculum continues to be hotly contested, each argument being underpinned by sets of assumptions and principles that relate to particular ideologies and paradigms. These assumptions and principles are not always acknowledged and, in the

case of the everyday practice of classroom teachers it could be argued that the level of awareness of the relationship between ideology and practice outlined by Fien is not necessary. However, in the case of educators who are responsible for the development of geography teachers, whether at the stage of initial or in-service training, such a level of awareness and understanding could be considered crucial. Also, as suggested by the literature (Askew & Carnell, 1998; Connor, 1998; Corney, 2000; and see also chapter 4), students need to be explicitly aware of their conceptions and why they hold them in order to change them into forms more appropriate for teaching.

2.3 Student teachers' conceptions of geography.

If teachers can interpret the geography curriculum in a variety of ways it is possible to see that it can be interpreted in a variety of different ways by the learners. Students on PGCE secondary geography courses, for example, tend to hold conceptions of geography that will have been influenced by their experiences in school, their geography degree and the tradition(s) and paradigm(s) that are reflected in each. It may be expected, therefore, that student teachers at the beginning of a PGCE secondary ITT course will have a range of conceptions of geography. This is certainly borne out in the literature and is why Barratt Hacking used the term 'geographical persuasion' to describe her students' conceptions – because they represented a number of different paradigms or traditions.

Barratt Hacking's (1996) research investigated the 'nature of a novice teacher's geographical persuasion and its influence on professional learning' (p. 77) in several stages. The initial stage of the research collected information on novice teachers' geographical persuasions and classified them according to geographical schools of thought (table 2.10). In this context, 'geographical persuasions appear to be multi dimensional and to include an individual's subject content expertise interests; approaches to the study of the subject; relationship with schools of thought; subject ideology; political ideology; and environmental ideologies' (Barratt Hacking, 1996: 81). The student teachers were able to validate the researcher's view on their persuasion through involvement in a process of cross-checking. In this respect the terms used reflect those used by the students themselves.

School of Thought	Number of novice teachers (n=16)
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Environmental/people environment	9
Humanistic	5
Welfare	3
Post-modern	3
Other	3
Regional	2
Spatial	1
Radical	1
Eight novice teachers were influenced by one school of thought, five novice teachers were influenced by two schools of thought, three novice teachers were influenced by three schools of thought.	

Table 2.10: The influence of schools of thought on novice teachers (Barratt Hacking, 1996: 81)

Barratt Hacking reports how these combine for six student teachers:

1. Environmental – physical
2. Welfare
3. Humanistic – perception
4. Environmental – humanistic
5. Environmental – humanistic – regional
6. Environmental

Clearly there is a variety of persuasions, as might be expected, although the strongest influence seems to be the environmental school of thought. No explanation is offered for why this might be the case.

In another study Walford (1996), during the period 1990-1994, asked his secondary PGCE students at the beginning of the course ‘What is Geography?’. Walford, although identifying alternative categories to Barratt Hacking, notes that the traditions most evident are environmental and humanistic but that also, within the majority of definitions the traditional linkage of the human-physical elements of geography is still evident, despite the diversity of degree courses attended.

Primary student teachers, on the other hand, will mainly be non-geographers and may well have elected not to study geography beyond the age of fourteen so clearly their conceptions, and the influences on their conceptions, of geography will be different from

those of secondary student teachers. However, Martin showed that, while their images were quite simplistic, PGCE primary students' images of geography were predominantly 'knowledge-based ... [and] within the knowledge category these students have an image of geography that focuses on the traditional human-physical linkage' (Martin, 1997:61) and Catling found that primary students' images 'appear to be limited to an information-oriented sense of geography as a subject that studies physical and human geography and the interrelationship between them' (Catling, 2003a:16), confirming Walford's research. It is acknowledged that all learners learn from informal as well as formal experiences, but these students did not appear to draw on their informal experiences when setting down their image of geography. In addition, their formal educational experiences may affect what they perceive as geographical in informal 'life' experiences with the result that these may be discounted when asked what 'geography' is. This lack of recognition of an experience as 'geographical' (Martin, 1997) may indicate the need, during the process of this research project, to take a more grounded approach to the classification of student teachers' conceptions. However, when asked to complete the sentence 'the purpose of primary geography education is to ...' almost 60% provided a reason that emphasised environmental knowledge and understanding, mirroring Barratt Hacking's findings (1996). Clearly the question posed will elicit different responses and, in the context of this research, it will be important to ask questions about the purpose of geography in the curriculum as well as about its nature.

If primary student teachers' early experiences in secondary school are the lasting influence on non-specialist primary students' conception of geography, it is possible to hypothesise that their conceptions are more likely to be difficult to articulate and perhaps more deep-seated and resistant to change. Depending on the age of the student their conception may also be out-dated and not reflect the more radical elements of the National Curriculum at all. As Catling suggests, it is necessary to enable students 'to widen their conception of geography to take into account all the aspects of the subject that make up geography in the primary curriculum' (2003a:14). It can be seen, therefore, that it is important to help students articulate their conceptions and to have opportunities to compare them in an explicit way with other conceptions – both with peers, geography educators and that in the National Curriculum.

The implication is that, when examining people's conceptions and the values that underpin them, consideration of context is important. Mair (1977) has offered a theory of the 'community of self' as a means of explaining how people can hold contradictory views about issues, which has context at its core in the sense that, in the context of acting as an environmentalist I might hold a view about an issue that is different to that which I might hold in the context of acting as a teacher or friend. Mair refers to these different contexts as 'bases' and her theory was used to help explain how a student might conceive of geography differently from the base of learner than from the base of teacher (Martin, 1997). An understanding of bases from which people act and how this might apply to becoming a geography teacher is expanded in chapter 4.

2.3.1 Student teachers' conceptions of geographical education in practice.

If students' conceptions of geography are likely to be those outlined in section 2.3 above, are these what are also evident in practice in the classroom? While Barratt Hacking notes that experienced teachers' subject perceptions and their subject matter knowledge base influence their approach to planning and teaching, the data gathered from PGCE secondary student teachers shows that 'students suspend their geographical persuasion in their thinking and planning in school' and that 'the novice teachers' ideas are remarkably similar given that different geographical schools of thought appear to have influenced them' (Barratt Hacking, 1996:82-85). This led her to conclude that, at an early stage of the course students' lack of experience of teaching, and corresponding lack of confidence, results in their adoption of the school department's own approaches and planning schemes rather than the development of their own.

Martin (1997) also explored the relationship between PGCE primary students' conceptions and their teaching styles and the findings mirrored those of Barratt Hacking in the sense that students' choices in content were remarkably similar and did not reflect their 'image' elicited at the beginning of the course. A possible explanation for this, given that these were primary trainees, is that due to the stress of initial school experiences they fall back on a conception of geography and teaching gained from their long apprenticeship as pupils, which may be stronger than their current conception. The results also showed that while

few students held a broad, complex image of geography (represented by constructs elicited for the full range of geographical knowledge, concepts, skills and values) those who did were *not* those who had a geography degree. Equally, it was a student who had a very narrow image of geography who employed the most interactive style when teaching geography at KS1. The conclusion tentatively drawn at the time was that perhaps pedagogical content knowledge is a more important factor than subject knowledge, in which case all students are novices at the beginning of their PGCE course.

More recently Corney (1998) has reported research on secondary student geography teachers conceptions within the field of environmental education. At an early stage of data analysis Corney noted that the evidence suggested, in contrast with Barrett Hacking and Martin, a clear relationship between conceptions of geography and environmental education and action seen in the classroom. A brief case study is given that shows how, for one student in particular, his 'beliefs in liberal and child-centred education ... and his beliefs that environmental subject matter is complex' (Corney, 1998:102) are evident in the level of pupil involvement in lessons through the use of role-play and in the selection of roles that would represent a number of 'interest group viewpoints emphasising 'conflicts within conflicts'. In a later article (Corney, 2000) he is more tentative and makes a distinction between the relationship between conception of subject and action in the classroom, and the relationship between pedagogical conception and action in the classroom, the former of which appears to be clearer. The extent to which these students develop and their conceptions change during the PGCE course will be considered in chapter 4.

2.4 Summary

This chapter has set out aspects of the literature on the nature of geography and geographical education. It has identified values inherent in different conceptions of the subject and that these, implicitly or explicitly, derive from educational ideology and understandings of epistemology. It has made distinctions between conceptions and values held by individual teachers, novice and expert, and conceptions and values evident in the school curriculum and how these have developed and changed over the latter part of the 20th century. The chapter finishes by considering whether there is a relationship between

student teachers' conceptions and values, in a subject context, and their action in the classroom.

Some useful classifications of geographical persuasions, educational ideology and epistemology have been identified and these will be adapted and used as tools for gathering and analysing data (see chapter 6).

Some key points about student teachers' conceptions and values have also been identified which have informed the range of factors to be explored (chapter 4) in this research project, and which will be revisited in the analysis and discussion (chapters 7-11)

3. Learning to Teach

Teaching is a complex process. During the 1980s and 1990s research into teaching and learning to teach has had a number of foci. Calderhead (1996) provides a useful summary of some of this research. Some studies have focused on the professional knowledge and skills required to teach (Bennett and Carré, 1993) while others have focused on stages in a teacher's developing competence from beginning to experienced teacher, or from novice to expert (Fuller & Bown, 1975; Furlong & Maynard, 1995). Yet other studies have examined the process by which these skills and knowledge are acquired (Bennett and Carré, 1993) and how this varies at different stages of development (Turner-Bisset, 1999; 2001).

Professional Knowledge
Subject matter knowledge
Curricular knowledge
Pedagogical knowledge
Interpersonal Knowledge
Human relationships with students
Educational community
Local community
Intrapersonal Knowledge
Ethics
Dispositions
Reflections

Table 3.1: A Triad of Knowledge for Becoming an Exemplary Teacher (Collinson 1996:8)

In one study, Collinson (1996) proposes 'a triad of knowledge' (Table 3.1), informed by Gardner's theory of multiple intelligences, and asserts that 'developing this triad of knowledge – professional, interpersonal, and intrapersonal knowledge – is necessary for becoming an exemplary teacher' (Collinson 1996:7).

The purpose of this research, however, is to examine the relationship between students' conceptions of subject, knowledge and pedagogy – in other words their professional knowledge – and their development as teachers of primary geography. Subject knowledge

and curricular knowledge have already been discussed in chapter 2. This chapter therefore focuses on pedagogical knowledge and reviews the literature under the following headings:

1. Knowledge bases for teaching
2. Learning to teach
3. Students conceptions of teaching and learning

3.1 Knowledge bases for teaching.

It is clear from the literature that different groups of people place different emphases on the importance of certain types of professional knowledge. In particular this discussion has focused on the form in which it is useful to ‘know’ about a subject. For example, government reports and recent legislation in England and Wales (DFE 1993, DfEE 1998, TTA 1998) provide evidence of the value placed on subject content knowledge, while other publications emphasise the importance of pedagogical content knowledge (Shulman, 1987; Bennett & Carre, 1993; Turner-Bisset, 2001). A number of research projects in the late 1980s and early 1990s looked at the effect of developing subject knowledge with practising teachers – particularly in the area of science concepts - on teacher and pupils’ performance (Smith & Neale, 1989; Summers & Kruger, 1994; Carré, 1993). As a result educators began, on the basis of the evidence, to believe ‘that development of content knowledge by itself is not sufficient to guarantee any substantial improvement in the quality of classroom teaching. It is also necessary to identify appropriate pedagogical content knowledge in relation to the particular ideas and concepts being taught’ (Summers & Kruger, 1994, p. 517).

Shulman (1987) has been influential in this shift from content knowledge to pedagogical content knowledge. His work on knowledge bases (table 3.2) has informed educators’ thinking about the knowledge that teachers need in order to teach effectively, and therefore the knowledge that needs to be included in initial teacher education.

Knowledge base	Characteristics
Content knowledge	The amount and organisation of knowledge in the mind of the teacher. This includes both substantive and syntactic structures of a subject, i.e., the variety of ways in which the basic concepts and principles of the discipline are organised, and the ways in which truth or falsehood, validity or invalidity, are established.
General pedagogical knowledge	With special reference to those broad principles and strategies of classroom management and organisation that appear to transcend subject matter
Curriculum knowledge	With particular grasp of the materials and programmes that serve as 'tools of the trade' for teachers.
Pedagogical-content knowledge	That form of content knowledge that embodies the aspect of content most germane to its teachability. It includes, for any given subject, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations and demonstrations. In other words, the ways of representing and formulating the subject that make it comprehensible to others.
Knowledge of learners and their characteristics	Knowledge of pupils' social and cultural backgrounds, knowledge of how children learn.
Knowledge of educational contexts	Ranging from the workings of the group or classroom, the governance and financing of schools, to the character of communities and cultures.
Knowledge of educational ends	Purposes and values, and the philosophical and historical grounds.

Table 3.2: Shulman's 7 knowledge bases for teaching (Bennett & Carré, 1993: 7)

Whilst some of these knowledge bases have been identified in one form or another by others (Cooper & McIntyre, 1996), Shulman introduced a new element, that of Pedagogical Content Knowledge (PCK). The nature of PCK has been summarised by Calderhead (1987b):

'... the ability to represent the subject matter is an important aspect of an individual's subject matter knowledge. If teachers want to develop understanding in their students, they must be concerned with the representations students develop in their effort to comprehend the content of instruction. To facilitate the development of powerful, appropriate representations, teachers need to evaluate their own understanding of the subject matter' (Calderhead, 1987b:109)

That PCK is (a) different to subject content knowledge and (b) a necessary element of knowledge for teachers has been demonstrated in research. For example, the need to evaluate their own understanding of subject matter has been powerfully stated by a student teacher:

‘I don’t think even people with an undergraduate degree have enough [subject matter knowledge] ... they’ve studied it but it’s just not really available to them.’ (Wilson, Shulman and Richert, cited in Calderhead, 1987b:121)

This notion of ‘availability’ is drawn on by Bennett & Carré (1993) who suggest that the *form* subject matter knowledge takes is not, *in itself*, enough for effective teaching and that Pedagogical Content Knowledge is a crucial part of this process.

Since 1987 Shulman’s model of knowledge bases for teaching has received some criticism. These criticisms are summarised by Turner-Bisset (1999) who also states how, with Neville Bennett (1993), she found that ‘it was impossible to distinguish between content knowledge and pedagogical content knowledge; in the act of teaching, all knowledge was presented pedagogically in some way’ (1999: 42). Turner-Bisset’s (1999, 2001) dissatisfaction with Shulman’s model led to the development of a ‘more comprehensive model’ (appendix 2). Where this model varies from Shulman’s is in its detail (knowledge of learners is further sub-divided into cognitive and empirical aspects), in its connectedness (as outlined above), and in its inclusion of ‘Knowledge of Self’ which was not present in Shulman’s categories. It also varies in the way in which PCK is shown as being so fundamental that, rather than it being seen as one base among several, it should be construed as an overarching base which feeds into and draws from the others.

Several other studies have shown that, in the act of teaching, a number of different types of knowledge and skills are integrated and often unconsciously (Calderhead and Shorrock, 1997; Medwell et. al., 1998) so it would be natural to expect that subject knowledge and pedagogical content knowledge would also be hard to separate in the act of teaching. Using this model as a tool for analysing beginning teachers’ practice Turner-Bisset showed that, at an early stage of development as a teacher, ‘only some of the knowledge bases are combined; for example, a teacher may have good subject knowledge in science, but ... limited pedagogical content knowledge, so that she may not be able to share her scientific knowledge with her learners’ (1999:48). More recently, Parker (2004) has shown how, if student teachers are

... to become expert in synthesising subject and pedagogy they will need to build up their own personal knowledge of not only the subject itself but also the difficulties for learners inherent within the relevant conceptual area. (Parker, 2004: 830)

The implication is that through situated learning – i.e. placing the students themselves in active learning situations which focus on specific concepts – pedagogical content knowledge is more effectively developed. However, Parker suggests that students need to be explicitly aware of both the domain-specific (subject) and generic (pedagogic) features of the learning process in order to understand how they relate to each other and combine to become PCK. This will be returned to in chapter 4.

Knowledge bases of effective, experienced teachers has been the focus of research conducted by Medwell et. al. (1998). In the context of exploring what makes an effective teacher of literacy they observed that, while educators had a fair amount of empirical evidence to draw on that informed understanding of effective *teaching*, there was little on effective *teachers*. Their decision to focus on the latter led to a shift in emphasis from the process of teaching to the knowledge, skills and qualities of the teacher. In particular they focused on the subject knowledge that effective teachers have that novice teachers do not. In addition, their research investigated how this subject knowledge is utilised by teachers in ways that make them effective. For these reasons the bulk of their data were gathered from teachers identified as effective teachers of literacy by their head teachers and, to a lesser extent, from novice teachers to enable some form of comparison to be made.

Their results suggested that ‘it did not seem to be the case that the teachers selected appropriate ways to represent (pedagogy) pre-existing knowledge (content) to children. Rather, they appeared to know and understand the material *in the form in which they taught it.*’ (Medwell et. al. 1998:76, my italics). In other words, effective teachers’ knowledge about content and teaching and learning strategies was integrated, ‘the knowledge base of these teachers thus was their pedagogical content knowledge’. This supports the views of Turner-Bisset (1999) in differing from Shulman’s idea of selecting content and then thinking about how to best transform it. However, Medwell et. al. (1998) did find that *novice* teachers were more inclined to act in a way described by Shulman and Parker (2004), suggesting that this sequence is a necessary stage before Content Knowledge can become embedded in practice as Pedagogical Content Knowledge as it is with expert teachers.

Setting aside the inter- and intra-personal aspects of teacher knowledge (Collinson, 1999), it is clear that conceptions about teaching and learning, and their associated beliefs, will

affect how learning to teach is conceptualised. These conceptions and beliefs will be held by both the educators and the student teachers and it is the ways in which those interact that will affect students' development as teachers. The following section will examine how teacher educators conceptualise learning to teach in the context of ITE, and the final section (3.3) will examine student teachers' conceptions of teaching and learning to teach.

3.2 Learning to teach

The literature on teacher educators' conceptions of learning to teach relevant to this study fall into two broad categories: models of teaching and learning to teach, and stages in student teacher development while learning to teach. These will be examined in turn.

3.2.1 Models of teaching and learning to teach.

Higgins and Leat (2001) have attempted to map the various models of teaching and teacher development and found that 'although the mapping process failed, it reinforced an understanding that the models are not mutually exclusive. ... they represent different perspectives, generated by different contexts and insights.' (Higgins & Leat, 2001: 60) Some of these models seek to describe, for example, the difference between expert and novice teachers, stage models of development, or the types of knowledge deemed necessary for teaching; others are more explanatory, for example socialisation and enculturation as an explanation for teacher development and effectiveness, or the impact of teachers' beliefs and images on development.

Turner-Bisset (2001:2). has discussed what she calls the 'multiplicity of paradigms, which claim to be good ways of conceptualising teaching'. These, along with a useful summary of each, are listed as: teaching as a common-sense activity; teaching as an art; teaching as a craft; teaching as an applied science; teaching as a system; teaching as reflective practice; and teaching as competence. More detailed accounts can be found in, for example, Schön (1987), Elliot (1993), Cooper & McIntyre (1996), and Calderhead & Shorrock (1997). Turner-Bisset acknowledges that 'these paradigms do not always manifest themselves in pure or discrete form, whether at the level of teachers' professional work, or at the level of national trends and policies. However, they can be detected in various writings about teaching.' (2001:2). There are also elements of similarity between paradigms, for example

teaching as craft can be said to have led to the teaching as competence view held by government and portrayed in the first of the circulars (DFE, 1993) designed to provide a clear framework for Initial Teacher Training. The continuing influence of this paradigm can be seen in subsequent publications (DfEE, 1998a; TTA, 2002). The model adopted for developing these competences could be said to be the apprenticeship model, as evidenced by the increasing amount of time student teachers are now required to spend in the classroom. Criticisms of this model include that of John (1996) who suggests that, because the knowledge, understanding and skills of ‘good’ teachers are not [necessarily] visible to the apprentice, she/he focuses on personal characteristics of the teacher instead – warm, friendly, and enthusiastic – with the result that they place undue emphasis on the development of these qualities, rather than knowledge bases required to teach.

The influence of these paradigms can be seen in the two contrasting models of professionalism (or professional knowledge) put forward by Fish (1995) (table 3.3). While other models could clearly be proposed, these deliberately contrasting ones serve to illustrate how the way in which teaching is conceptualised can affect what counts as professional knowledge. Here the technical-rational model has elements of the teaching as common-sense, craft, system and competence paradigms, while the professional-artistry model has elements of the teaching as reflection and teaching as art paradigms. Professional-artistry seems to be similar to the ‘new’ paradigm that Turner-Bisset proposes – that of teaching as a knowledge-based profession, where knowledge ‘encompasses concepts, facts, processes, skills, beliefs, attitudes and values’ (Turner-Bisset, 2001:159) and in which teaching knowledge is not static but constantly under revision.

As table 3.3 shows, each model puts forward a view of, for example, what counts as professional activity, and what constitutes quality in teaching. Each will, in turn, lead to a model of teacher education: the technical-rational giving rise to the competency-based approach to Initial Teacher *Training* and the professional-artistry view underlying the reflective practitioner philosophy of Initial Teacher *Education*. In the former, practice in the instrumental sense is all important. In the latter, what is important is ‘an approach to teaching and learning to teach which enables teachers “to work at their practice, modify it and keep it under critical control” (Eraut, 1989, p.175)’ (Fish, 1995:50). The term reflection is central to this approach.

The Technical-Rational view	The Professional-Artistry view
Follows rules, laws, schedules; uses routines, prescriptions	Starts where rules fade; sees patterns, frameworks
Uses diagnosis/analysis to think about teaching	Uses interpretation and appreciation to think about teaching
Wants efficient systems	Wants creativity and room to be wrong
Sees knowledge as graspable, permanent	Sees knowledge as temporary, dynamic, problematic
Theory is applied to practice	Theory emerges from practice
Visible performance is central	There is more to it than surface features
Setting out and testing for basic competences is vital	There is more to teaching than the sum of the parts
Technical expertise is all	Professional judgement counts
Sees professional activities as masterable	Sees mystery at the heart of professional activities
Emphasise the known	Embraces uncertainty
Standards must be fixed; standards are measurable; standards must be controlled	That which is most easily fixed and measurable is also trivial – professionals should be trusted
Emphasises assessment, appraisal, inspection, accreditation	Emphasises investigation, reflection, deliberation
Change must be managed from outside	Professionals can develop from inside
Quality is really about quantity of that which is easily measurable	Quality comes from deepening insight into one's values, priorities, actions
Technical accountability	Professional answerability
This is training	This is education
Takes the instrumental view of learning	Sees education as intrinsically worthwhile

Table 3.3: Two models of professionalism (Fish, 1995:43)

While Fish is unequivocal in her assertion that teaching should be viewed as professional artistry, Higgins and Leat (2001:60) believe that being aware of the full range of models of teacher development, and the assumptions that underlie them, enables a more informed and deliberate selection appropriate to context or person. In this context, Higgins and Leat would view the ‘multiplicity of paradigms’ (Turner-Bissett, 2001) in ITE positively.

Perhaps this accounts for the number of ideologies, or orientations that Calderhead and Shorrock (1997) say are evident in Initial Teacher Education courses in the UK. They provide a summary of conceptual orientations in Initial Teacher Education (derived from Zeichner, 1983 and Fieman-Nemser, 1990):

- **Academic orientation** – the emphasis is on subject expertise; liberal arts education background is a crucial part of teacher preparation

- **Practical orientation** – teacher as craftsperson; apprenticeship models of learning to teach
- **Technical orientation** – behaviourist view; favours micro-teaching, competency view
- **Personal orientation** – emphasises the importance of relationships; favours personal development through experimentation and discovery
- **Critical enquiry orientation** – schooling is a process of social reform; promotion of democratic values; social context of learning is important; teachers are seen as agents of change.

Because ITE often reflects aspects of all five orientations, it leads to courses that employ a range of types of *learning experiences* for student teachers – knowledge accumulation, performance learning, practical problem-solving, learning about relationships and the process of assimilation – which arguably provides them with mixed messages about pedagogy. Indeed, how teacher educators themselves conceptualise pedagogical knowledge has been largely under-researched (Higgins and Leat, 2001). Teacher educators’ own beliefs and the ways in which they impact on course design is implicit rather than explicitly acknowledged and, from personal experience, it is a matter for individual reflection rather than for course team discussion. This may seem a rather strange state of affairs for ITE departments or schools of education, but it is possibly the product of a number of factors including external influences on courses, the enormous pace of change within ITE over the last decade, and the subsequent workloads of course tutors. However, it is clear that the variety of models of teaching described would, if providing theoretical underpinning, lead to a variety of different course designs and roles for universities, schools & tutors, and potentially enormous philosophical and practical tensions within these courses. This is usefully explored by Klein (2001) who recognises that ‘pre-service teachers are faced with enormous conflicts and contradictions’ in courses where tutors ‘appeal to hearts and minds while students’ lived reality of learning their subject is very different’ (2001: 263). In the English ITT context an example of this might be where the government imposes a curriculum set around competences & standards (practical orientation), some tutors’ teaching reflects a socially critical perspective on the curriculum (critical enquiry orientation), and yet other tutors and school mentors may adopt a style that reflects a mixture of practical and personal orientations. The question of whether it is

more effective to devise ITE courses on the principles of a common, agreed ideology or to take a more eclectic approach selecting ‘horses for courses’ will be revisited in chapter 4.

3.2.2 Stages of development in learning to teach

There has been criticism of models and paradigms that conceptualise learning to teach because they are ‘ideologically rather than empirically derived’ and ‘they take into account neither the complexities nor the developmental nature of professional learning’ (Furlong and Maynard, 1995:179). The contention is that students typically go through different stages in the process of learning to teach and therefore any initial teacher education course needs to take these into account. Calderhead & Shorrock agree that stage models are useful ‘heuristics in highlighting the complexity of teaching and the possible routes of professional development’ (1997:186). They add a cautionary note that, while such models are useful they are also generalisations, can oversimplify data, and that each case must be seen in its context.

In 1975, Fuller & Bown conducted a study which identified four stages in student teacher development. At the beginning of the course students often had simplistic ideas about teaching and learning, felt confident and therefore displayed *no concerns*. Once in school and with responsibility for children in their class, they displayed *survival concerns* such as keeping children on task and managing behaviour. As their understanding of the nature of teaching developed they moved on to *teaching concerns*, and finally, they displayed *pupil learning concerns* characterised by deep thinking about how to plan, teach and manage the learning environment in ways that enabled all pupils to learn.

Berliner, in 1988, developed cognitive performance model, which identified five stages of development from ‘novice who has difficulty identifying classroom situations to the expert whose performance is fluid and responsive as the teacher’s perceptions and actions appear to be remarkably coordinated’ (Calderhead and Shorrock, 1997:186). Berliner (1987) makes a useful distinction with regards to the notion of ‘expert’ teacher. Expert does not mean more experienced, it means those who have *learnt* from more experience. Berliner noted that novices are still concerned about the detail of students and classroom because they have not had sufficient experience to know what is or is not important to focus on and

therefore they make haphazard choices when planning. Expert teachers, on the other hand, because they have developed schemata about students and classrooms and are confident in their ability, they can generalise and be more systematic in their planning. Furlong and Maynard (1995) criticise the notion of ‘novice’ in that no student, when they enter the classroom on teaching practice for the first time, is a complete novice because they all have prior experience as learners in classrooms to draw on. Since these experiences have the potential to be vastly different, some may move along the development from novice to expert more quickly than others. However, the terms novice and expert are, as least, useful as a meta-language to talk about teacher development if one takes these reservations into account.

Furlong & Maynard (1995) conducted their own research into student teacher development and identified five stages in student learning: early idealism, personal survival, dealing with difficulties, hitting a plateau and moving on. They note that in this development students ‘did not so much think about different things as they grew; they thought about things differently’ (Furlong & Maynard, 1995: 97) and the things they thought about differently were pupils and content of activities (table 3.4).

Stages in development →			
Pupils viewed as	Children and allies	En masse, as a class, even as enemies	As individuals and learners
Content of activities viewed as	Medium of control	Chance to impress (teacher, supervisor)	Vehicle for learning

Table 3.4: Student teachers’ changing perceptions of pupils and activities during their training

Furlong & Maynard note that this movement from one stage to another is not simply linear and that students may demonstrate more flexible, differentiated and complex thinking in one situation but not in another; in other words their level of expertise in practice is context dependent. Among the contextual factors identified are those such as the nature of pupils’ behaviour, personal beliefs and the way these interact with the school and supervisor, and the nature of the initial teacher education programme.

While no stage models for students' developing subject and pedagogical content knowledge were found in the literature, Calderhead and Shorrock (1997) do ask why 'student teachers' understanding of subject matter and children's learning appear to remain at a superficial level throughout initial training' (p.208). As shown above, at the ITE stage students seem to focus mainly on learning to manage activities rather than on becoming more proficient in subject content knowledge and the pedagogy associated with it. Possible explanations offered by Calderhead and Shorrock (1997) are that, with the introduction of the National Curriculum and the increasingly sophisticated resources available to students (particularly with access to resources and lesson plans in the web), the need to think about subject matter has been partially removed with the result that managing children and resources becomes the focus of attention. On the other hand, it could be that 'learning about subject matter and the teaching and learning strategies associated with it ... is an extremely demanding task ...[and] such a task is only likely to be achieved over a lengthy period of time' (Calderhead & Shorrock, 1997, p. 209). They conclude that perhaps research that aims to examine teachers' understanding of subject and pedagogical content knowledge should be longitudinal and not just focus on Initial Teacher Education such as studies by Summers & Kruger (1988) and Bennett and Carré (1993) have done. A further factor not identified by Calderhead and Shorrock is the impact of students' prior conceptions of teaching and learning on their development during the process of learning to teach.

3.3 Students' conceptions of teaching and learning

Two studies have taken a grounded theory approach to the generation of classifications of students' conceptions of teachers and teaching. John (1996) conducted some research with primary PGCE student teachers in which he identified a four-fold classification of 'theories of teaching' held by the students.

Transfer Theory – the pupil is a container to be filled, the teacher sees content as a commodity to be transferred, knowledge is seen as certain, unproblematic. Knowledge is separate from individuals, there is a natural hierarchy and the focus is on intellectual development.

Shaping Theory – the pupil is inert material (e.g. clay), the teacher is a skilled craftsman who 'models / shapes' pupil using knowledge as a blueprint. Methods are

more experiential, often like following a recipe / workshop style. Through learning ‘how’ a body of knowledge is built up.

Travelling Theory - knowledge is a ‘terrain’ to be explored by pupil alongside an expert companion / guide (teacher), methods often use independent learning, discussion, simulations etc. Knowledge is not independent of the senses and pupils are able to choose which route to take through the terrain.

Growing Theory – the pupil is developing personally, like a plant, with the teacher acting as a resource provider. Knowledge and experience is to be incorporated into the developing personality. Methods are experiential / spontaneous, enquiry and making sense of experience are important. Knowledge is socially constructed and therefore constantly open to change; education is lifelong and contributes to democracy.

(John, 1996)

In this classification it is possible to identify a more transmissive, behavioural view of learning in the first three theories, while the growing theory reflects a more constructivist view of learning. What this classification does is allow for a finer-grained distinction within a behavioural theory, rather than a direct comparison between behavioural and constructivist theories, and this is arguably a more appropriate classification to apply to beginning teachers than the more usual three-fold classification of behaviourist, constructivist and social constructivist theories.

In another study Wood (2000) identified a three-fold classification of student teachers’ conceptions of teaching which, while similar in some respects to the four-fold classification mentioned above, were then used to analyse students’ practice at various points during a PGCE year, enabling changes in conceptions to be identified and thus providing further insight into this factor. Towards the beginning of the PGCE course analysis of elicitations led to the development of the following models of teaching:

- A. Focuses on the agent of teaching: the emphasis is on the teacher and teaching is seen as imparting knowledge to students. Learning is seen as an increase in students’ knowledge.
- B. Focuses on the act of teaching: the focus is on the communication process between teacher and students with an emphasis on learners understanding and using knowledge.
- C. Focuses on the object of teaching: the emphasis is on changing the way students understand phenomena. Here teaching is understood as preparing students to understand and to be aware of their own thinking and learning. This implies the teacher discovering what and how others think and to work pedagogically with that thinking. In this model the teacher is also the learner.

(from Wood, 2000)

As the course progressed some individuals adhered to their original conception, but for the majority of the group (n=27) there was a shift from predominantly conceptions A + B at the beginning of the year, to B + C at the end of the year. The biggest shift was in the number who conceived teaching as C. This positive shift (as judged by the researcher) is conceptualised as a shift in focus from self as teacher to student learning, or ‘bridging the gap between teachers’ knowledge and students’ understanding’. How the PGCE course enabled this shift is summarised as ‘the development of theoretical tools – variation and metacognition – for improving initial teacher-education programmes’ (Wood, 2000: 91); these tools enabled student teachers to explore their own conceptions and approach to learning and, in turn, to do the same with students in secondary classrooms. Central to this process was reflection and collaboration – both of which suggest a social constructivist approach to learning to teach. However, the data also showed some resilience to change within category B which ‘appears to be closer to the view of teaching as craft knowledge ... and is in practice, perhaps, the one that is most easily observed. Quite why this was the case is the subject for further investigation.

3.3.1 Factors affecting conceptions of teaching

It is fairly well documented that their prior experiences as learners affects students’ cognitive and affective elements of ‘knowing’ about subjects, teaching & learning and that these can act as enablers or inhibitors to learning to teach. For example, Brown et. al. (1999) found that students’ experiences as pupils informed their models for teaching often in a negative sense, where students would aim to be different from their own teacher – to make maths more enjoyable, more active, better pitched and so on. However, it was also noted that in the reality of the classroom, where pragmatic concerns over-rode theoretical ones, these students often reverted to the model apparently reviled, although now in a form ‘hybridised by the intervention of other narratives’ (Brown et. al. 1999: 310).

There is also a growing awareness of the need to take these preconceptions and beliefs into account if learning to teach is to be effective and go beyond surface to deep learning (Sugrue, 1997). In critiquing the ‘Sitting with Nellie’ apprenticeship model and those approaches in ITE which seek ‘to supplant unarticulated tacit images of teaching by

privileging what are regarded as more scientific, and more adequately grounded research based versions' (1997: 223) Sugrue calls for the development of alternative approaches which 'recognise student teachers' and practitioners' embodied knowledge as an indispensable dimension of how they construct their teaching identities ... while simultaneously recognising that the process of renewal needs to be situated much more critically and broadly than a mere focus on practice' (ibid). Although there has been very little research conducted into how this might be achieved, some ideas are outlined in chapter 4.

3.4 Summary

This chapter began by setting out what are considered by some to be essential knowledge bases for teaching. Within these bases, Turner-Bisset proposes that the Pedagogic Content Knowledge base underpins all other forms of knowledge required to teach effectively. If subject matter is taught without the knowledge of how to transform it into forms that are understandable to children, then the teaching will be ineffective. The chapter then goes on to review the literature on learning to teach, focusing on models of teaching and learning to teach (with their underlying principles and assumptions) and stages of development in students when learning to teach. The chapter concludes by outlining research on students' conceptions of learning and teaching and how, in the case of Wood (2000) changes in conceptions were evident and that a social constructivist approach to learning to teach was instrumental in these changes. Social constructivist approaches are those identified by Fien (table 2.9, p.32) as being suited to a socially critical orientation to education. How this might be applied to the geography component of a PGCE Primary course is explored in the next chapter.

4 Becoming a geography teacher

This chapter aims to link ideas emerging from the previous two chapters, about geography (subject knowledge) and about teaching and learning (pedagogy), to the process of becoming a teacher of primary geography within ITE. The overall aim of the chapter is to set out the local context within which the participants in this research were developing – i.e. the geography component of the PGCE Primary course and the principles that underpin both the selection of content and the pedagogical approaches employed.

The chapter begins by examining the evidence for whether student teachers' conceptions and beliefs can change over time and relating these ideas to the models that appear to be successful in supporting change. It then proposes a Transformatory Approach to learning and teachers' professional development (Askew & Carnell, 1998) as one suited to teaching for change, and concludes by showing how this has been applied to the PGCE geography programme. Inherent in this are my own conceptions of geography, and of what makes a 'good' geography teacher and the value I attach to them. It therefore seems appropriate to recognise my own ideological position and its potential influence on the research. This is important because, as the researcher and the ITT primary geography tutor I am a participant in the research project rather than an observer. The conceptions of geography and education that I hold will undoubtedly find expression – not always explicitly – in the course design, selection of content, and teaching approaches employed. The students are therefore experiencing 'reality' as filtered out by the tutor who also, as researcher, provides a further filter when analysing the data

4.1 Can conceptions and beliefs change over time?

Chapter 2 suggested that primary student teachers' prior conceptions of geography are likely to be formed on the basis of their apprenticeship as pupils, and the popular conception held by those outside the geographical community. The research reviewed confirmed this showing that primary students' prior conceptions are narrow, and focus on content rather than process. This is not a helpful conception to hold because it can

arguably lead to transmissive approaches and attempts to go for surface breadth rather than in-depth understanding. Coupled with the concern about the lack of status of geography and falling numbers taking it at GCSE and A level, there is the need to portray the subject as one in which pupils see its relevance to their own lives. The National Curriculum for geography has now incorporated the New Agenda (Rawling, 2001) and if primary teachers are going to be able to interpret these elements of the programmes of study successfully, their conceptions need to change. It is therefore important to consider whether there is any evidence that, during an Initial Teacher Education course, it is possible to change student teachers' conceptions and beliefs.

Changes in conceptions of geography have been found to occur (Connor, 1998) in the context of long courses (20 days over a year) with primary teachers in England. The teachers displayed an increase in subject knowledge with a corresponding increase in confidence in planning and teaching and that this was not only the case for geography but also for other curriculum areas. For some the significant change was from a conception of geography as book-based to geography as an enquiry-based subject. This was true whether the teacher had a background in, or previous competence in, the subject or not. When discussing factors that affected these changes, Connor notes that the application of pedagogical knowledge is crucial but impossible to achieve without the confidence that comes from subject knowledge. In other words, the two need to be developed at the same time. Two other important factors identified were the collaborative nature of learning on the course – time and meeting with other professionals being significant – and the status of geography in the teachers' schools. Where the status was high the teacher was more likely to develop, change and become a more effective teacher of geography. With the status of geography in the primary sector in England currently being generally low (Rawling, 2001; Catling, 2003b) this can be a significant problem. Indeed, due to government intervention in the English curriculum (DfEE, 1998b) all foundation subjects (art, D&T, geography, history, music and P.E.) are suffering from low status and struggling to recapture some of the ground achieved prior to 1998.

Corney (2000) presents evidence to demonstrate that students' conceptions and practice *did* change during a PGCE secondary geography course. One case study shows evidence of growth in already rich subject matter understanding that 'mirrors general teacher

education literature ... which suggests that subject matter understanding grows through the process of thinking about it for teaching' (Corney, 2000:321). This same student, unlike the other two whose case studies are reported, showed significant changes in his subject orientation. What Corney does not appear to acknowledge in his explanation of this is the effect of the researcher in influencing the *lack* of change in the other two students, which could be because their conceptions at the beginning of the year were more aligned to the researcher's own conception than the student whose conception changed significantly. Corney reports that all three students showed some signs of growth in their pedagogical conceptions – contrary to what has been reported in some of the other literature. He stresses reflection as a key element in this process, but does not expand on what type of reflection this is. A possible pedagogy for this is suggested, namely the active involvement of student teachers, use of constructivist approaches by tutors, collaborative learning in the university *and* school-based elements of the course, and that school mentors need training to enable them to do this more explicitly. In a primary, non-specialist course the constructivist and collaborative learning approaches are particularly relevant, since primary school mentors are usually generalists rather than specialists.

Corney's report concludes by suggesting that 'student teachers should be given opportunities to become explicitly aware of their pre-conceptions and their reasons for holding these, and then to consider other interpretations of geography and pedagogy' including those of their peers (2000: 322). He also makes a helpful distinction between expert and novice geographers and expert and novice teachers. In his research these were students on a secondary PGCE course who could therefore be characterised as expert geographers but novice teachers. In this respect they were coping with a transition from expert geographer to novice teacher in which their subject knowledge, for a while, was not helpful. In this research students are (in the main) both novice geographers and novice teachers which may make the transition easier, although lack of confidence and knowledge in the subject may act as a counterbalance to this.

Leat (1996, 1998), on the other hand, finds little evidence of change in conception of geography over a PGCE secondary course. Where there is change it tends to be in conceptions of teaching and learning rather than the subject. In a paper on critical reflection and cognitive and attitudinal change among student teachers Leat et. al. (1997)

discuss dissonance and self-concept theories and put these forward as possible explanations for the lack of change. So, for example, if there is dissonance between a student teacher's conception of him/herself as an interactive, stimulating teacher and the feedback received from pupils, other mechanisms step in to protect the self-concept:

... there are many alternative routes that an individual may take that avoid cognitive change, and ... frequently these are the preferred routes. So ... the events that lead to dissonance may be reinterpreted by the individual, so that the dissonance is attributed to a different external cause that the individual has no control over and thus cannot be responsible for. (Leat et. al. 1997:15).

This would point towards the need, as suggested by Corney, to help students become aware of their conceptions and beliefs in a more realistic way, focusing on what their practice is, but not losing sight of what they would ideally like their practice to become, and giving tutorial support for how to move from one to the other.

Tillema & Knoll (1997) describe a project that aimed to promote teacher learning through conceptual change: 'the pre-existing beliefs of student teachers [were used] as a starting point for their active enquiry into relevant educational knowledge bases for teaching' (Tillema & Knoll, 1997: 597). In their research the conceptual change programme was compared with a direct instruction programme. The results showed that while the teaching performance of those on the conceptual change programme improved, there was no knowledge gain or change in belief or reflectivity of students on either programme. This was contrary to expectations and explanations offered included the programme not being long enough to generate belief change, and the conceptual change programme delivery not being strong or intense enough to change beliefs. An explanation for the improvement in the teaching of those on the conceptual change programme (which seemed to baffle the authors) could be because the students were, through the process of making their conceptions explicit, enabled to operationalise them. The study is of interest to this research because the length of time of the primary geography programme is 14 hours over 10 weeks. It has been designed to incorporate raising students' awareness of their beliefs and conceptions within an alternative construction model of learning, but it may be that this is not sufficient time for change to take place.

To sum up, the research points to the following factors being important if ITE is to effect changes in conceptions and beliefs:

- The status of the subject in partnership schools needs to be high
- Subject knowledge needs to be transformed through an explicit process of thinking about it for teaching (subject and pedagogical knowledge need to be developed together)
- Students need to be explicitly aware of their conceptions of subject and pedagogy and why they hold them
- Programmes need to be either spread over a sufficient period of time, or use approaches that are strong or intense enough to enable students to change beliefs

4.2 A transformatory approach to learning to become a geography teacher.

The impact of different educational ideologies on how knowledge is conceptualised and the implications for learning and the teacher and learner roles was outlined in chapter 2 (table 2.8). My own view was outlined in section 2.2.2.1, where I argued for a socially critical approach to geographical education which incorporates the New Agenda of sustainable development and global citizenship. In this respect I believe that, in terms of the geographical persuasions outlined in appendix 3, both environmental and humanistic/welfare persuasions allow for, although do not require, a socially critical perspective, but the scientific/descriptive-rich one does not (for a fuller discussion of this view see Martin, 2004). Previous research (Martin, 1997; Catling, 2003a) shows that the majority of primary students hold an image of geography that is similar to the scientific/descriptive-rich persuasion. I therefore believe that it is important for the geography component of the PGCE primary course to develop a curriculum and pedagogy that enables students to develop an environmental and a humanistic/welfare dimension to their geographical conception.

Theoretically the implications of this and the research into students' changing conceptions are the need to recognise the context of experience that has constituted individual student's

knowledge while at the same time ‘fostering new and creative approaches to teaching ...[the subject]’ (Klein, 2001: 264). One might consider whether, if students’ preconceptions and beliefs are not examined when there is the opportunity to do so, they might enter the professions with conceptions and beliefs that are less than helpful and that then become ingrained in practice and subsequently far harder to change. For example, Brown et. al (1999) in a study of student teachers’ understanding of mathematics teaching shows that if a student teacher’s transition from scholar to practitioner is to be successful it must, for most,

... involve a considerable degree of ‘unlearning’ and discarding of mathematical baggage ... Lack of attention to this potential impediment may help to account for why teacher education is often such a weak intervention – why teachers ... are most likely to teach math just as they were taught. (Brown et. al. 1999: 301).

However, the importance of the tutor’s conceptions as an influence should not be ignored as illustrated by Klein (2001) who describes how she thought she had been modelling collaborative, discovery and problem-solving approaches that students would enjoy and wish to replicate in their own teaching. When it became evident that students were not replicating these approaches she reflected, over a number of years, on why this might be the case and drew the conclusion that, if her practice ignored the power-knowledge relationship then students’ experiences of investigative approaches would be ‘severely limited’. Despite her best efforts it seems as though, unconsciously, messages about the nature of knowledge (and where the power to create knowledge lies) disempowered the students.

‘Analysing my actions now I can see how teachers, like myself, ‘act’ according to their ‘knowing’ (as constituted subjectivity) about subject knowledge and how learning happens’ and her explanation for this is that ‘I was blind to the White, middle-class European appropriation of the ‘real world’ in the way I spoke in lectures and tutorials and the Anglo-European genesis of journal writing as a means of making sense of experience’ (Klein, 2001:262).

In other words, the socio-cultural element of knowledge construction was not explicitly acknowledged – students might be invited to construct their own meanings, but the curriculum, pedagogical approaches and assessment criteria were determined by the tutor.

Roth (2001) also questions the power-knowledge relationship as it exists in the dominant paradigm evident in the Canadian education system. He critiques the ‘authentic school science’ paradigm on the basis that:

‘enculturating students to a particular world-view (and the associated knowledge and knowledge representations) without also reflecting on the epistemology involved appears to be more akin to indoctrination than to democratic education’ ... secondly, why should the scientists’ image of science be the one we want students to experience rather than ‘the science of naturalists, community activists, environmental activists, organic gardeners and so forth’? (Roth, 2001: 20)

It is possible to see how, in the English context where both the school and ITT curriculum is largely determined externally, this creates an even greater challenge. On the one hand teacher educators are encouraged (Brown, 1999; Corney, 2000) to use constructivist approaches to knowledge transformation, while on the other hand others (Klein, 2001; Roth, 2001) raise the question of whose knowledge should be offered as an alternative. If both these are taken into account it reinforces the idea that we need to be explicitly aware not only of our conceptions of subjects and pedagogy, but also of epistemology and educational ideologies. It also suggests that an alternative to constructivist approaches might be required. Roth argues for a social constructivist approach which allows students ‘to participate in open and democratic debates in which a diversity of world-views are negotiated rather than subject to particular epistemologies’ and that this ‘can be addressed by including a ‘radical doubt’ towards the pre-constructed concepts and common sense that always and already permeate any discipline’ (Roth, 2001: 21). Thus it is possible to incorporate a prescribed curriculum, but to do so in a way that raises students’ critical awareness of how such a curriculum was created, which geographical paradigms are evident and which are not, and as a result to question and debate about the dominant paradigms both geographically and educationally. In this sense I think my approach is deliberately transformatory.

Askew & Carnell (1998) propose a ‘transformatory approach to learning and teachers’ professional development’ in which transformatory means learning that leads to change in individuals, groups, organisations and society. They acknowledge the influence of Friere’s liberatory education and feminist pedagogy, both of which have a view that consciousness contains a critical capacity that allows us to transcend the dominant discourse. Briefly, they describe how a transformatory approach to learning ‘embodies principles which include:

meta-learning ... holistic learning ... self-actualisation ... and collaborative learning contexts' (Askew & Carnell, 1998:153) where explicitness and subjectivity are clearly valued. In relation to these principles, they suggest that it is the interconnection of understanding on three levels – personal, theoretical and practical – that creates such a powerful base for teachers' professional development. The focus for learning is not the substantive areas of the curriculum, but the learner, the learning context and the learning process and the key values that underpin this approach are equality and justice.

In the context of working with PGCE students, John (1996) suggests a number of strategies which can support a transformatory approach to ITE, three of which seem particularly pertinent here:

1. Students can be 'liberalised' by ensuring an open learning environment 'where values, feelings, beliefs, ideas and practices are presented, explored, examined and evaluated in an open, relaxed and constructive manner' (p. 102)
2. Tutors need to encourage students to rethink their basic understandings of their subject and the pedagogy which supports it. 'Knowing and understanding a subject in the academic sense is ... very different from understanding it in a pedagogical sense' (p. 102). We need to help students to make the transition to pedagogical thinking.
3. 'Prospective teachers can be helped to reconfigure their existing beliefs if they are presented with a variety of alternative models' (p. 104). This 'modelling' of practice can help them see things from the perspective of learner. Modelling needs to reflect beliefs of the tutor and this should be done explicitly in order for students to see value of reflecting on practice in this way.

The proposal is therefore that a transformatory approach to ITE is most appropriate if the goal is to expand and elaborate student teachers' conceptions and beliefs. The following section shows how this was applied to the geography component of the PGCE Primary course at my HEI in 1999-2000.

4.3 A curriculum for becoming a primary geography teacher.

In her knowledge bases for teaching Turner-Bisset, (2001) identifies three bases that relate to subject knowledge:

1. Substantive knowledge is the substance of the discipline: the facts and concepts of a subject and the frameworks used to organise these facts and concepts. In terms of teaching it relates to the question ‘what am I going to teach, or what would I like the children to learn?’
2. Syntactic knowledge concerns the ways in which the substantive knowledge is generated and established. In academic terms this might be new knowledge, or new ways of organising established knowledge. In teaching this relates to the question ‘how am I going to teach it?’
3. Beliefs about the subject are also influential as they influence one’s understanding, or lack of understanding, of the substantive and syntactic aspects of knowledge as well as the values placed on what and how subject knowledge might be taught. Beliefs help one answer ‘why am I going to teach it, and why in this way?’

The ways in which these three knowledge bases inter-relate can be illustrated by looking at the geographical persuasions of scientific/descriptive-rich, on the one hand, and environmental and humanistic/welfare on the other.

The substantive knowledge emphasised by the descriptive-rich or scientific geographers is a breadth and depth of knowledge about the world and the way in which it works. Key concepts or organising frameworks would be those of spatial pattern and scale, the processes of change, cause and effect, and comparisons within and between these. The syntactic knowledge emphasised would be that of scientific investigation, focusing on skills such as observation, careful & quantifiable measurements, data manipulation and analysis. The pedagogy required to teach this conception of geography effectively is arguably one in which the teacher is expert, the holder of knowledge that has to be passed on to the novice pupils. A range of teaching approaches might be used to make learning

enjoyable, such as role play, simulations, and fieldwork but the teacher will be in control of the knowledge; the predominant teaching approach might be characterised as ‘delivery’ and be akin to Fien’s (1993) neo-classical / vocational ideology. Knowledge is unproblematic, ‘conceived to have an objective reality without reference to a ‘knower’’ (Posch & Rauch, 1998) and has supremacy over values and attitudes, which are downplayed.

The substantive knowledge emphasised by radical/welfare or environmental geographers would be the knowledge to inform issues such as social and economic inequality or environmental degradation respectively. While the content for each might be different, the organising frameworks would be similar. Like the scientific persuasion, concepts of spatial pattern, scale, change, cause and effect would continue to be relevant, but to these might be added the concepts of power and control, social justice, interdependence and sustainable development. The syntactic knowledge for both persuasions would be one of geographical enquiry that would incorporate critical thinking skills and the skills required for taking action. The pedagogy required to teach this conception of geography effectively is akin to Fien’s socially critical ideology. Knowledge is uncertain, problematic, open to interpretation, constantly open to change and ‘conceived as a construct, actively made by each learner as he/she revises a conceptual map he/she uses to interpret the world’ (Posch & Rauch, 1998).

As already mentioned, I believe the second scenario is the one to adopt if education is to equip children to actively engage in working for a more just and sustainable future for all. What does this mean, in detail, for the substantive and syntactic knowledge that might be appropriate for the curriculum of the geography component of a PGCE Primary course, and does the Geography National Curriculum (DfEE/QCA 1999) offer sufficient scope for such a curriculum?

Chapter 2, Tables 2.4 and 2.8 showed how the Geography National Curriculum 2000 has elements that reflect a number of geographical paradigms and educational ideologies. This is aptly demonstrated in the ‘Importance of Geography’ statement placed just before the programmes of study. It states that geography:

- Provokes and answers questions about the natural and human worlds, at different scales
- Develops knowledge of places and environments throughout the world, an understanding of maps and a range of investigative and problem-solving skills both inside and outside the classroom
- Prepares pupils for adult life and employment
- Is an important link between the natural and social sciences
- Is a focus within the curriculum for understanding and resolving issues about the environment and sustainable development

These elements have similarities with the descriptive-rich, scientific, and aspects of the environmental persuasions and could be said to require both neo-classical/vocational, and liberal-progressive pedagogies. However, it also states that geography:

- Provokes and answers questions about the world, using different scales of enquiry to view them from different perspectives
- Studies different societies and cultures and helps pupils realise how nations rely on each other
- Can inspire pupils to think about their own place in the world, their values, rights and responsibilities to other people and the environment

(DfEE/QCA, 1999: 14)

which seems to reflect the radical-welfare paradigm and arguably require a socially critical pedagogy. It is possible, therefore, to see how the subject could be interpreted from a number of ideological positions.

The challenge for the geography component of the PGCE course is therefore to raise students' awareness of their conceptions and preconceptions, on the one hand, and broaden their view of the subject to incorporate alternative conceptions on the other. The way in which this was applied to the geography component (appendix 4) is best summed up by the following extract from the course programme:

“The Geography component aims to develop students’ deep, flexible knowledge of geography in order to enhance their capacity to plan, question and assess pupils’ geographical knowledge, understanding and skills. Within a primary setting this will mean developing an understanding of the distinctive features of geography as well as an awareness of common ground it has with other subjects.

The nature and scope of geography ranges from elements which combine with the arts on one hand to those that combine with the sciences on the other. The National Curriculum for Geography (DfEE/QCA 1999) represents a view of geography that focuses largely on developing a sense of place and considering physical, human and environmental elements

that contribute to the character of places. Within the confines of the time available, the course has been designed to reflect both the breadth of scope of the subject as well as the nature of NC geography in such a way as one complements the other. It also aims to reflect a view of geography as a dynamic subject in which geographers are engaged in a process which attempts to understand the world we live in - there is therefore an emphasis on **active learning through geographical enquiry**.

Children, students, teachers and geographers are all learners of geography. The ideas we each construct about the world will differ according to previous experience and may be alternative to standard geographic accounts. Accordingly, the course promotes a challenging yet supportive learning culture in which personal meanings can be acknowledged and evaluated openly. (PGCE Primary Geography Component Programme, 1999-2000).

While the framework for the geography component broadly takes a place focus as the heading for each session, the approaches taken within the sessions were selected to develop students' own subject knowledge at the same time as their pedagogical content knowledge. In terms of Leat et. al's (1997) richer schemata, a number of organising frameworks were used explicitly with the students, as a means of encouraging them to conceptualise the subject matter in alternative ways. The substantive organising frameworks included the NC headings for the geography programme of study (DfEE/QCA 1999, appendix 5) the key concepts, values and attitudes for global citizenship (OXFAM, 1997, appendix 6), key geographical concepts (adapted from Leat, 1998, appendix 7) and the Development Compass Rose (Birmingham DEC, 2000, appendix 8).

The syntactic frameworks used are based predominantly on the enquiry process (NCC, 1993, appendix 9). As outlined by Roberts (1996, appendix 10) there are a number of approaches to enquiry which relate to the balance of control between teacher and learner, and that all effective enquiries have a values component. The enquiry approach also recognises that information sources represent partial, biased, perspectives which are open to question. Therefore when interpreting sources there is a need to develop pupils' skills of weighing up the evidence and reaching conclusions on the basis of this evidence. For this reason, critical thinking skills frameworks such as those for global citizenship (OXFAM, 1997, appendix 6) were also used.

In addition to these substantive and syntactic frameworks, some generic pedagogical frameworks that would help the students to view their subject from the base of teacher

were also used. The intention is that students would be able to use a combination of all three when working from the base of geography teacher.

In common with other PGCE Primary courses in England, pedagogical knowledge is developed through a separate, central programme (called Pedagogy and Management at my HEI) that covers all generic aspects. It is the role of the subject components to apply these generic aspects in ways that are appropriate for the subject. In the geography component outlined the pedagogical frameworks used were the key elements of learning (DES 1985, appendix 11), and Bloom's Taxonomy for the cognitive domain (appendix 12)

The key elements of learning are used as a means of reorganising the geography curriculum in such a way that is useful to teachers when:

- Planning to ensure a balance of learning objectives across all four key elements
- Considering which teaching approach is most appropriate according to the type of learning to be developed

Bloom's Taxonomy is helpful when planning for different kinds of cognitive processes and how to help children move from lower order, to higher order thinking. It is a useful organising framework for both short and medium term planning as well as for scaffolding children's learning through, for example, teacher questioning. It is the way in which these frameworks are used in conjunction with the geographical frameworks that then make the Pedagogical Content Knowledge explicit - in other words, 'how to represent subject matter in forms most germane to its teachability' (Shulman, 1987). It is also the intention that, as Corney (2000) identified, students' subject knowledge will grow through the process of thinking about it for teaching.

4.4 Summary

This chapter has related conceptions about geographical education to those about pedagogy and considered the implications for the PGCE geography component that provides the context for this research. It was proposed that a conception of geography that incorporates

environmental and humanistic/welfare persuasions would be appropriate for a curriculum that aims to develop pupils as global citizens who will be able to contribute towards a sustainable future. Previous research has noted that many primary ITE students do not hold conceptions that incorporate these persuasions and that their conceptions are often limited to a scientific / descriptive-rich view of geography. As a result the PGCE geography component needs to develop approaches that will enable students to expand and elaborate their conceptions and their underlying assumptions and beliefs about geographical education.

The evidence presented in section 4.1 suggests that it is possible to change students' conceptions and beliefs *if* constructivist and social constructivist pedagogies are employed. Section 4.2 then describes a 'Transformatory Approach' to teacher development which uses these pedagogies but that goes further to actively promote change by making connections between understanding on three levels – personal, theoretical and practical. The PGCE geography programme therefore has a substantive focus that not only mirrors the National Curriculum, but also provides environmental and humanistic/welfare perspectives on this content. The substantive and syntactic organising frameworks are therefore also drawn from Citizenship and Development Education. These frameworks are all used explicitly with the students, and constantly related to their own personal experiences and, where possible, the practical experiences they have in school. To facilitate these connections students are encouraged to ask themselves three questions when thinking about the subject for teaching: what am I going to teach, how am I going to teach it and why am I going to teach it and in this way? As they progress, and confidence grows, the focus of their attention (see chapter 3 section 3.2.2) will begin to move from teaching and managing to children and learning and these questions can become: what do the children need to learn, how might they best learn it, why do they need to learn it and in this way? In this respect the geography programme takes a transformatory approach at two levels: for the students at their own level of understanding the subject, and for them at the level of transforming the subject into forms suitable for teaching.

5 Methodology

This chapter aims to set out the rationale for the methodological approach taken for this research and to discuss in detail the research tools that were chosen, why they were chosen, and how issues such as reliability and validity were taken into consideration.

There is an ongoing debate about the nature and purpose of educational research and the methodologies that are therefore perceived as being appropriate (BERA, 2003). Cohen and Manion (1994), in their introduction to research methods in education, use a table which has been elaborated on here, and which helped to inform some of the early thinking upon which the research project was built.

The subjectivist approach to social science	Areas about which assumptions are made	The objectivist approach to social science
Nominalism: there is no external 'reality' that is independent of the 'knower'	Ontology	Realism: Objects have an independent existence; reality is of an objective nature.
Anti-positivism: Knowledge is personal, subjective, and unique to the individual	Epistemology	Positivism: Knowledge is hard, objective and tangible
Voluntarism: Human beings are creators of their environments, beings of 'free will' able to control rather than be controlled	Human Nature	Determinism: Human beings are products of their environments, conditioned by external circumstances
Idiographic: see the social world as being personal and humanly created, recognises the subjective experience of individuals, seeks to understand the way in the which an individual creates, modifies and interprets the world in which s/he finds herself	Methodology	Nomothetic: treats the social world like the natural world – it is hard, real and external to the individual. Scientific methods of e.g. surveys, experiments etc. are used

Table 5.1: A scheme for analysing assumptions made about the nature of social science (adapted from Cohen & Manion, 1994: 9: after Burrell & Morgan, 1979)

Table 5.1 deliberately presents a binary view, showing assumptions made at either end of the scale from subjective to objective, which can be seen as a continuum along which social scientists can place themselves. A belief in a subjective view of social science would lead to an interpretive, qualitative research paradigm, whereas a belief in an objective view of social science would lead to a normative, quantitative research paradigm

(Cohen & Manion, 1994). Denzin and Lincoln, in a discussion about the distinction between qualitative and quantitative research discuss how

... both perspectives are shaped by the positivist and postpositivist traditions in the physical and social sciences. ... In the positivist version it is contended that there is a reality out there to be studied, captured, and understood, whereas postpositivists argue that reality can never be fully apprehended, only approximated. (Denzin & Lincoln, 1998: 8-9).

When selecting the methodology appropriate for any research project the relationship between the researcher and the object of the research needs to be openly discussed because, as stated by Somekh (2000): ‘researchers bring to the process of enquiry their own prior knowledge, values and beliefs, and ... these, as much as any other research data, construct their research outcomes’. The discourse of the research paradigm therefore determines ‘what “counts” as knowledge, and how we decide that knowledge is sufficiently trustworthy for us to act on it’. (Somekh, 2000:119). As Denzin & Lincoln (1998: 23) point out,

The gendered, multiculturally situated researcher approaches the world with a set of ideas, a framework (theory, ontology) that specifies a set of questions (epistemology) that are then examined (methodology, analysis) in specific ways’ ... ‘Every researcher speaks from within a distinct interpretive community, which configures, in its special way, the multicultural, gendered components of the research act. (ibid.)

In the context of this research project, identification of my own ideas which have led to the generation of the research questions is all the more important because I have the dual role of researcher and tutor.

The aims of this research have their root in previous research (Martin, 1997, 2000) and the literature reviewed in chapters 2-4. In brief, the research I conducted at masters level (Martin, 1997) was based on Kelly’s Personal Construct Theory (Kelly, 1955). The theory of PCP, developed by George Kelly, is one of *constructive alternativism*. That is, there is a reality and therefore there are such things as ‘facts’, but all facts are subject to alternative constructions. Each person puts his or her own interpretation on what s/he sees and these interpretations are anchored in ‘antecedents and consequents’ (Kelly, 1970). The application of PCP uses techniques that help others to gain an insight into what sense each makes of their world and what their construct systems are with a view to helping them

change (for further detail on Kelly's theory see appendix 13). At its heart this research is therefore about 'understanding the internal dynamics of learning' (Claxton et. al., 1996:6). The learners are student teachers and the aim is to begin to understand how they construe the world of primary geography, the process they go through as they learn from a PGCE course and their first year of teaching, the factors that affect this and the impact on their development as teachers of primary geography. Among the many factors affecting this development that it is possible to investigate, this project focuses on students' professional knowledge – that is, their conceptions of geography, knowledge and pedagogy.

This study is therefore descriptive and explanatory in nature, and seeks to generate rather than confirm theory. In this respect it is idiographic (focusing on a particular case and the unique traits or functioning of individuals within that case) and naturalistic. It seeks to describe and offer tentative explanations for things as they appear in that /moment in time' (therefore describing the context is as important as describing students' conceptions), seeks a range of perspectives (both in the field and from the literature), and through interpretation aims to identify patterns that may offer useful insight applicable to future practice. The most appropriate strategy to use therefore seems to be that of the case study and the most appropriate method of data analysis that of grounded theory (e.g. Strauss & Corbin, 1998).

The following sections will begin by discussing case study and grounded theory and their effects on the research process in general, and the impact on the design of this research project in particular. The tools used for gathering and analysing data will then be discussed, making reference to issues such as ethics, reliability and validity where appropriate.

5.1 Case Study Research

Yin (1994) suggests that the research question itself will determine whether case study is an appropriate strategy to use. According to Yin's analysis of research strategies (1994: 3-9) case study is appropriate for this research because the question seeks to identify what

students' conceptions of geography, pedagogy and knowledge are, how students develop as teachers of primary geography over time, and, through the grounded theory approach to analysis, to offer some explanations for why that might be the case. How and why questions can also be investigated using experiments or histories, but this project is not about exercising control over behavioural events (experiments) or about historical events. It seeks to offer description and explanation for contemporary events. Having established that case study is an appropriate strategy, three questions then need answering: how do you define the case, how do you determine what data are relevant to be collected and what should be done with the data once collected?

The type of case study chosen here is an instrumental study in which 'a particular case is examined to provide insight into an issue' (Stake, 1998:88). Writers on case study research emphasise (Yin, 1994; Roberts, 1996a; Stake, 1998) the importance of clearly identifying and bounding the particular case from the outset. In this particular instance the boundaries are:

1. The PGCE Primary cohort at my HEI
2. A focus on students' development as teachers of primary geography
3. The context of the period of 1999-2001, the English ITT and National Curricula, the design of the primary PGCE course at my HEI, and the geography component within it
4. My own interests (as discussed in previous chapters and provided by the focus of the research title)
5. Constraints such as 14 hours taught time for the geography component and the opportunity (or lack of) to teach geography during block school experiences (which will be discussed further as appropriate)

In this respect the unit itself – a primary PGCE cohort of 79 students – was relatively simple to identify. The question then arises of what data to collect that will be relevant to the issue under investigation. The research focus itself, and the questions posed on page 8 of this thesis, identify the need to elicit students' conceptions of geography, pedagogy and knowledge before and after the geography component of the PGCE course (see 5.3 and then chapter 6 for detail of data collection tools). However, it was not feasible to focus in

depth on the relationship between these conceptions and students' development as teachers of primary geography for the whole cohort and so the decision was taken, at the design stage, to select a smaller group that would be representative of the cohort from which to gather data over a period of time. As representatives of the cohort they have the potential to support better theorising about beginning teacher development in the field of primary geography in the context of my own institution, but not of PGCE Primary courses in England as a whole. The advantage of collecting, presenting and analysing individual students' data is that one can learn from both the individual example and from ways in which it is similar to or different from another example. However, Stake warns that 'damage occurs when the commitment to generalise or create theory runs so strong that the researcher's attention is drawn away from the features important for understanding the case itself' (Stake, 1998: 91), something that is discussed in relation to the approach to data analysis described below.

Both Yin and Stake also see the purpose of an instrumental case study to be to test and refine previous theory. Yin goes further to suggest that 'theory development as part of the design phase is essential, whether the ensuing case study's purpose is to develop or to test theory' (Yin, 1994:27) and that grounded theory is therefore inappropriate as an approach to analysing the data because it 'typically ... avoids specifying any theoretical propositions at the outset of the enquiry' (ibid). This initially caused a problem for me because the data did not seem to match some of the theoretical frameworks that had been identified during the preliminary stages of developing the research proposal and design. I was keen to let the data speak for themselves and grounded theory was the most obvious tool to use for this purpose. However, some proponents of grounded theory (Strauss & Corbin, 1998; Lankshear & Knobel, 2004) *do* allow for grounded research to be informed by ideas and concepts from previous research *if* they are relevant to the current focus and do not become privileged during the data analysis. The research question, as discussed in the introduction, grew out of my own previous research (Martin, 1997) as a result of which I developed some personal theories about the relationship between PGCE students' conceptions, their prior experiences and their development as teachers of primary geography. It did not seem appropriate to ignore this or research reviewed in the literature but, as will be discussed under 5.2 below, I would need to consider its role during the data analysis very carefully.

5.2 Grounded Theory

‘Every investigation should start with a general analytical strategy – yielding priorities for what to analyse and why’. (Yin, 1994:102)

There are many approaches to analysing case study data but, as Yin acknowledges, this aspect is one of the least developed and difficult of case study research. Yin (1994) goes on to describe how, if the case study relies on theoretical propositions, the common elements that need to be present in the analysis are pattern-matching, explanation-building, time-series analysis and program logic models. Yin has been criticised for his adherence to the use of previous theory and conceptual frameworks in the analytical process (Fetterman, 1998; Lankshear & Knobel, 2004). For example, Fetterman (1989 cited by Lankshear & Knobel, 2004) takes a difference stance on identifying patterns during analysis. Lankshear & Knobel describe how Fetterman ‘emphasises the process of patterns emerging from the data itself’ (305) suggesting that a grounded approach is appropriate. I therefore decided to use grounded theory as my analytical tool because it seemed to offer the possibility of not only including the perspectives and voices of the participants but also ‘assum[ing] the further responsibility of interpreting what is observed, heard or read’ (Strauss & Corbin, 1998: 160). In other words, to develop concepts and theory that emphasised the students’ perspectives rather than concepts from previous studies.

Grounded theory consists of ‘*plausible* relationships between *concepts* and *sets of concepts*’ (Strauss & Corbin, 1998:168). Strauss & Corbin refer to production of theory that is “conceptually dense” in the sense that it has many conceptual relationships (i.e. is complex). Grounded theory researchers are therefore interested in *patterns* of action and interaction between and among various types of social units (i.e. actors). While this necessarily involves studying individuals, the aim is not to create theory about these individual actors but rather to make comparisons between them and look for changes in patterns of action and in the relationship between these and changes of conditions either internal or external to the process itself. By taking account of the conditions within which these changes occur, it is possible to claim ‘predictability ... in the limited sense that *if* elsewhere approximately similar conditions obtain, *then* approximately similar consequences should occur.’ (Strauss & Corbin, 1998:169). Important aspects of grounded theory are that the theories are always traceable to the data that give rise to them; the

theories are very fluid because they embrace the interaction of multiple actors and emphasise temporality and process; and each new situation is evaluated to see if it fits, how it might fit, and how it might not fit (ibid). In addition, grounded theory strives for verification of hypotheses (statements of relationships between concepts) *throughout the course* of the project and, in the interpretation, there is a need to identify ‘the conditional features for each level [national through to individual] that pertain to the chosen area of investigation’ (Strauss and Corbin, 1998:162).

To sum up, the central features of grounded theory are:

- The grounding of theory upon the data through data-theory interplay
- The making of constant comparisons
- The asking of theoretically oriented questions
- Theoretical coding
- The development of theory

(Strauss & Corbin, 1998:179)

The approach to coding in this case was Lankshear and Knobel describe as ‘open coding’

5.3 Methods of data collection and analysis

When making choices about methods of data gathering I was aware of the need to select those that would best enable students’ embedded knowledge to be articulated. Calderhead (1996) offers some useful thoughts on this.

‘The exploration of teachers’ cognitions has led to the development of a range of innovative methods for collecting evidence about teaching. Observation alone is of limited value, for the cognitive acts under investigation are normally covert and beyond immediate access to the researcher. Therefore methods of eliciting the knowledge, beliefs, and thinking of teachers have frequently borrowed from the fields of cognitive psychology, human problem solving, social anthropology, and the humanities.’ (Calderhead, 1996:711).

Calderhead outlines 5 categories of methods that have been used for elicitation: simulations, commentaries, concept mapping & repertory grid, ethnography & case studies, narratives. As already discussed, within my main choice of case study I decided to use concept mapping as a key elicitation tool because it has been shown to be a useful

technique in personal construct psychology. However, interpretive research emphasises the importance of accessing the participants' voices so in-depth interviews were conducted with a small sample of students using the concept maps and classroom observations as a stimulus for discussion. These stimulated recall interviews (Calderhead, 1987a) were designed to enable the participants to articulate their own interpretations and perspectives on their concept map and teaching practice. Grounded theory then 'requires that those interpretations and perspectives become incorporated into [the researcher's] interpretations (conceptualisations)' (p. 172).

Due to the iterative process of data gathering and analysis, there was a recognition of the need to be flexible in the research process – the use and design of specific research tools and the order in which they were used. A number of changes were therefore made to the original proposal as the project progressed. Justification for this comes from Calderhead and Shorrock whose own research design was influenced by Miles and Huberman's 'conception of qualitative research as an interactive and iterative process in which data is collected in response to some initial questions; these data are then reduced and interpreted, and in doing so further, often more specific questions, or questions concerning verification are generated which in turn guide subsequent data collection and analysis.' (Calderhead & Shorrock, 1997:25) A summary of the research design and its relationship to the M.A. study and pilot project is shown in table 5.2 which also attempts to show the iterative process of analysis and constant theory-data interplay mentioned by Strauss and Corbin (1998). The process follows a similar pattern to that described by Calderhead and Shorrock which allows for a preliminary analysis after each phase of the data collection to generate initial conceptual codes which helps to direct further stages of the enquiry. In this instance, analysis of the concept maps and accounts of teaching and learning generated codes that influenced the questions asked in the stimulated recall interviews, and initial analysis of stimulated recall interviews influenced the focus of the data gathering during the school-based phase of the project.

Purposes for research tools	1996-7 Masters research	1998-9 Pilot phase	1999-2000 PGCE year	2000-1 1st year of teaching
	Methods of data collection and sample size			
Provides information about the context within which conceptions have been formed	Biographical questionnaire (n=34)	Biographical questionnaire (n=36)	Biographical questionnaire (n=79)	
Elicitation of images / conceptions of geography	Repertory grids (n=34)	Concept mapping (n=36)	Concept mapping(n=79)	
Elicitation of images / conceptions of teaching and learning	Q-sort (n=31)		Concept mapping and written accounts of what student might teach and how (n=79)	
To identify categories and enable selection of smaller, representative sample for in-school focus	Analysis of repertory grids using tool developed by researcher	Analysis of concept maps using 'eye-ball' technique	Analysis of concept maps using tool developed by researcher – open coding	
To gain insight into students' perspective and a means of validating researcher's interpretation			Stimulated recall interviews using concept map as stimulus (n=11) – enables students to comment on assumptions I am already making about their practice	
To generate codes for further analysis, and to inform focus for observations and post-observation interviews			Initial 'eye-ball' analysis of stimulated recall interviews – open coding	Initial analysis of post observation interviews using NUDIST.
Gathering data that indicates conceptions in action	Observations of students teaching geography using observation schedules (n=6)		Observation of students on at least one occasion during school experience (n=6)	Observation of each NQT 3 times (n=4)
Students' perspectives on conceptions in action			Post-observation interviews (n=6)	Post-observation interviews (n=4)
Redesign of research tools	Evaluation of repertory grid and Q-sort	Evaluation of concept mapping activities		Evaluation & rejection of NUDIST
To refine coding system and apply to all interviews; to identify patterns for case studies.			Open coding – grouping codes developed earlier into conceptual categories, continuing to use constant comparison technique	2001-2 Analysis of stimulated recall and post observation interviews using Word indexing.

Table 5.2: Timeline showing the development of the research design (shaded section shows period of data collection and analysis for this project)

All the interview data were then analysed on a further occasion using a tool (Word indexing and cross-referencing functions – see section 6.2.3.2), which generated a framework for reporting the individual students’ data in chapters 8-10 and, in turn, enabled the generation of a theoretical model for how beginning teachers develop as teachers of primary geography (see chapter 11). This process seems to closely mirror that described by Lankshear and Knobel of:

1. Applying conceptual codes to the data
2. Grouping sets of like codes into conceptual categories
3. Identifying the properties of each category and locating each instance of a phenomenon belonging to this category along a continuum (i.e. dimensionalizing the data) (p.311; see also appendix 28)

Miller and Crabtree (1998) provide a further theoretical basis for this approach to data analysis. They describe, and provide diagrammatic representation for, different styles for analysis that work on a continuum of structured and distant (from the data) to open and intimate on one axis, and a perceptual filter that works on a continuum of open to defined on the other axis. My approach seems to reflect the editing analysis style (see Miller and Crabtree, 1998:303) described as one that is more open and intimate than structured and defined and where there is constant referral back to the text while connections between categories are determined through the process of interpretation. Further support comes from Miller and Crabtree’s assertion that ‘the absence of significant literature about the question, and the use of interviews argue for a style that is unstructured, fosters intimate contact with the text, and minimises perceptual filtering in the initial analysis’ (p.305). Clearly, as the coding system is developed this will act as a filter for subsequent analyses, but there is always the possibility of further revision of this system as required.

5.4 Interpretation and presentation of results

Denzin and Lincoln identify the final stage in the research process as being that of ‘The art of interpretation and presentation’ (p. 24) and which concerns matters such as making sense of the data gathered, constructing interpretations, deciding how best to present ‘the public text that comes to the reader’ (Denzin & Lincoln, 1998: 30). For the purposes of this study, while the overall interpretive tradition is that of grounded theory (whose criteria

must therefore be used to evaluate interpretation), it seemed a natural step to present the data from the individual students' who participated throughout the two years of data gathering as examples to illustrate the 'unique traits and functioning of individuals' within the overall case (see chapters 7-9). Some initial interpretation of each individual's data set was therefore necessary in order to identify patterns in their changing conceptions and development as teachers of primary geography.

When reporting the data the 'criteria of representation ultimately are decided by the researcher' (ibid). In order to provide a structure that would enable ease of comparison between the three students, the coding systems used and developed throughout the research (described in detail under 6.2) were used as a loose framework. However, aspects that were peculiar or specific to each example (chapters 8-10) were also incorporated so as to retain their uniqueness. In addition, the students were invited to read and comment on the extent to which they felt initial drafts were a valid representation of their ideas and actions. In the event none chose to make any changes perhaps reflecting the nature of the power relationship between researcher and researched, but also the phenomenon observed by Oleson in the context of feminist research where

'even taking the account back for comment or as a simple courtesy or shaping the account with the respondents may not work, as Joan Aker, Kate Barry, and Johanna Esseveld found in their participatory project: the women wanted them to do the interpreting' (Oleson, 2003:359).

The three examples then provided a basis for comparison between students, including consideration of the varying contexts within which they were operating, leading to the generation of a theoretical model which is then applied to each students' development in turn (see chapter 10). In terms of the theory itself, there is the question of its relationship to reality and truth. Strauss & Corbin's (1998) position on this is that 'theories are interpretations made from given perspectives as adopted or rejected by the researchers' (p. 171). The important thing to remember is that theories are temporally limited because (a) they are subject to elaboration, revision and negotiation and (b) they are subject to the ideas and ideologies current in society at the time the research was conducted. Strauss and Corbin also point out that, in the business of constant interplay between theory and data

there is a danger that ‘if the researcher is overly familiar with and attached to the concepts and conceptual frameworks presented in previous grounded theory studies ... that these may be used without genuine grounding in the current study. They too must be grounded in the interplay with data, just as are those taken from other sources’ (Strauss & Corbin, 1998: 177).

When applied to this study, four conceptual frameworks have been used. The first was developed directly from the data (from the concept maps, see section 6.1.5.2). Two others were drawn from previous studies – the geographical persuasions of Barratt Hacking (1996, appendix 3), and the theories of teaching developed by John (1996, appendix 14). In the case of the latter the sample students were asked to comment on their own perspectives on the theoretical frameworks at each stage of data collection as a means of probing their thinking, but also as a means of gaining their perspectives on these frameworks and thus providing interplay with data from this study and leaving them open to question and possible revision. Since these conceptual frameworks were originally developed from data gathered from secondary PGCE students and being applied in a primary PGCE context, this seems highly appropriate. Finally, a fourth framework – that of epistemological ideologies from Fien (1996, appendix 15) – was used as a further means of probing students’ thinking during interviews and as a means of gathering data that would support the investigation of the relationship between their conceptions of subject and pedagogy and *knowledge*.

5.5 Ethical issues and the research.

There are clear sets of guidance given for ethical issues surrounding any research – for example those provided by BERA (1992, 2004) and SERA (2003). Codes of ethics usually provide guidance about four key aspects of social science research (Christians, 2003):

- Informed consent
- Deception
- Privacy and confidentiality
- Accuracy

and the BERA and SERA guidelines are no different in this respect. Both organisations (SERA, 2003; BERA, 2004) provide guidance about these aspects as they relate to individuals or groups towards which researchers might have responsibilities – e.g. participants, host institutions, sponsors and the community of educational researchers. Christians discusses the crisis of concern for research ethics that emerged during the 1980s and 1990s, which questioned the insistence on neutrality in codes of ethics. He proposes a new paradigm for research ethics, developed within feminist research, which

‘rather than searching for neutral principles to which all parties can appeal, ... rests on a complex view of moral judgements as integrating into an organic whole ... a philosophical approach that situates the moral domain within the general purposes of human life that people share contextually and across cultural, racial, and historical boundaries’ (Christians, 2003:223)

and which led to the Feminist Communitarian Model of ethical theory (ibid). Too complex to describe here, fundamentally the model recognises that ‘human identity is constituted through the social realm’ (Christians, 2003:227) and that values, moral and meanings are therefore negotiated dialogically. In this respect the research is rooted in the community in which it is carried out, rather than in the community of knowledge producers and policy makers, implying that participants should have a say in ‘how the research should be conducted and a hand in actually conducting it’ (ibid). Although this is not feminist research, the ideas contained within the communitarian model provide an alternative way of conceptualising research ethics that could be a useful addition to the standard, normative approach. What follows is a brief description of how both approaches influenced the research process.

The feminist communitarian model is congruent with the aim of transformation to achieve social justice. Ethically research, in this model, aims to fulfil three conditions (Christians, 2003):

1. Representing multiple voices
2. Enhancing moral discernment
3. Promoting social transformation

The first of these implies making promises which become obligations between researcher and researched, rather than contracts to be signed. Appendix 16 (see highlighted section) illustrates how attempts were made to meet this condition. The second condition implies that discourse in the public domain must be oriented towards mutual understanding about what is good or worth opposing in the community. However, it also recognises that while there is an ethical responsibility of each to recognise the ‘other’, this does not mean loss of sense of self; ‘Communitarianism interlocks personal autonomy with communal well-being’ (Christians, 2003: 227), as a result ‘the moral task cannot be reduced to professional ethics ... the challenge ... [for researchers] is not to limit their moral perspective to their own codes of ethics, but to understand ethics and values in terms of everyday life’ (Christians, 2003:232). I therefore need to be clear about which communities I am accountable to (beginning teachers, geography educators, schools and education researchers) and seek their perspectives so that, in writing up, the text ‘exhibits representational adequacy’ and ‘interpretive sufficiency’ (Christians, 2003:228). Detail provided in chapter 6 (table 6.6) is an example of how attempts were made to meet this condition, but the Feminist Communitarian Model also raises further questions about validity which cannot, perhaps, be met by the triangulation approach traditionally taken in research.

Lincoln & Guba (2003) describe an alternative way of conceptualising validity – that of the crystalline form – developed by Laurel Richardson who, working within a Feminist paradigm, deliberately set out to ‘problematise reliability, validity and truth’ (Lincoln & Guba 2003: 279). The crystal provides a metaphor which challenges the two-dimensional, triangular form and replaces it with a form that is multi-dimensional which, since this research aims to represent multiple perspectives, seems particularly appropriate. In brief, the crystal

‘combines symmetry and substance with an infinite variety of shapes, substances, transmutations, multidimensionalities, and angles of approach. ... Crystals are prisms that reflect externalities *and* refract within themselves, creating different patterns, arrays, casting off in different directions. What we see depends on our angle of repose. ... Crystallisation provides us with a deepened, complex, thoroughly partial understanding of the topic. Paradoxically, we know more and doubt what we know. (Richardson, 1997: 92).

The final condition is more problematic. There are clear issues of power and control in the researcher-participant relationship and feminist methodology would seek to avoid power with all its connotations and use the term empowerment instead. In this sense the purpose of research is to empower the participants and, like Freire (see chapter 2, p.24; and chapter 12), acquisition of knowledge (from the research) is about future action. 'In the communitarian alternative power is relational, characterised by mutuality rather than sovereignty' (Christians, 2003: 233). Although this research is not, in the academic feminist sense, about empowering the participants, it does cause me to question the relationship I have with the participants as a result of my dual role. It raises my awareness of the need to avoid trivialising the non-expert's voice – students' voices must be heard, honestly represented and determine what is learned from the research; I must be open to their questioning the dominant discourse (represented by and through me as both tutor and researcher). In this respect this study is open to question. The aim of the geography component of the PGCE course was to empower students in terms of their conceptions of geography and to enable them to question the dominant discourse (scientific/descriptive-rich) and to elaborate their conceptions in ways that would be more useful to them as developing teachers of primary geography. In the dual role of tutor-researcher I felt that, ethically, I could not change my role when conducting the research so during the interviews I tried to be open to being questioned, and also responded to students' requests to empower them to move their practice forward if they expressed dissatisfaction with it. Again, this partially reflects the Freirian philosophy that 'without ... the oppressed grasping with their minds the truth of their reality, there is only acquiescence in the status quo' (Christians, 2003:234).

There are some tensions that emerge when trying to meet all three conditions. For example, if one is responsible to more than one community, whose voices should prevail? Feminists and Freire would be unequivocal about this and say that the 'oppressed' are those whose voice needs to be heard and represented since the education, geography and research communities have positions of power. However, at a macro scale, geography educators (in my experience) are not empowered nationally within the UK in terms of informing popular or government views of the nature and purpose of geography – the 'expert's' voice, at policy levels at least, struggles to be heard. I therefore have an obligation to represent this community and, in the final thesis, to achieve some sort of

balance in representing the multiple voices whether they come from empirical sources, from the literature, or from involvement in the research process (see table 6.6).

Since one of the communities I have responsibility towards is that of the educational research community, guidelines available at the time of preparing and conducting the research were observed (BERA, 1992). For example, participants' voluntary informed consent was sought with information being given both verbally (at the beginning of taught sessions) and in writing (appendix 16) as appropriate. Information provided included the overall aims of the research as well as the purposes of each phase of data gathering and participants were invited to seek more information should they wish to. In order to reduce potential conflicts due to my dual role, I requested, once I knew who had agreed to take part in the school-based phases, that I should not be allocated these students as their school supervisor. I also made it clear that, if a student felt being involved in the research was impeding their ability to complete the course (e.g. their school experience) successfully then they had the right to withdraw, although they also (having agreed to take part) had an obligation to the research project and so would need to discuss any decision to withdraw with me. The head teachers of any school visited for classroom observation and post-observation interviews were written to beforehand and asked for their informed consent (appendix 17) and the primary ITE teaching team were informed about the research in order that they could consider whether it would have an impact on their own work.

All participants and their schools have rights to confidentiality and anonymity; pseudonyms have been used when appropriate. In this project participants were informed about how the personal data (biographical questionnaires, see appendix 18) would be stored, that only I would have access to it, and that when used for contextual purposes it would be anonymous. In addition, when sharing data with other parties (e.g. as part of the validation process) confidentiality would be respected through, for example, the use of pseudonyms.

5.6 Summary

This chapter has discussed how this is an interpretive piece of research which uses the strategy of case study for the research design and grounded theory as the tool for analysing the data. It demonstrates how these approaches affect the methods of data collection and analysis, as well as the interpretation and presentation of results. Methods are therefore qualitative in nature and seek to gain the multiple perspectives of participants in the research process. Interpretations attempt to reflect these multiple perspectives but ultimately, as with all grounded research, the aim is to generate theory from the data and this is bound to reflect what the researcher sees as valid knowledge. The chapter concludes by discussing ethical issues as they relate to codes of practice, on the one hand, and the Feminist Communitarian Theory of ethics on the other. The latter is proposed as being a useful model to apply to this study.

6 Discussion of Research Tools

Table 5.2 in chapter 5 showed how the research methods were chosen and developed over time, the shaded section being the time-span for gathering data for this project. Each of the research tools will now be discussed in detail, focusing on their design, implementation and analysis. Research issues of reliability and validity will be discussed as they arise in relation to each tool, with a summary of these issues being provided in the final section of the chapter.

6.1 Concept Mapping

The choice of concept mapping as a tool for eliciting students' conceptions of geography stems from a project in which techniques taken from Personal Construct Psychology (PCP, ref chapter 5 and appendix 13) were used to elicit PGCE Primary students' images of geography (Martin, 1997; Martin, 2000). A fundamental principle was therefore to aim to 'capture the reality of the subjects' (Gerber, 1996) and not, as researcher and tutor, to impose my own reality. Evaluation of the PCP tools at the time indicated that repertory grid did not enable students to represent their images successfully and that the Q Sort, administered later in the project, revealed distinctions between students' images that had not been revealed by the repertory grid. However, Q Sort relies on providing statements which students then sort and this had the potential to impose an image which was not held if it was used at an early stage in the course. Following further reading and discussion with other researchers' concept mapping was then considered as a tool that would serve a similar purpose. In particular Morine-Dersheimer (1993) conducted some research in which she compared three techniques suited to PCP methodology – concept mapping, repertory grid and asking students to critique a videotaped teaching episode. The three techniques were judged on their ability to gather data that evaluated student learning in ways that required minimum investment of time by students. The conclusion was drawn that concept mapping 'provided the most information in the most economical way' (Morine-Dersheimer, 1993:16)¹.

Concept maps have been defined variously as a person's subjective construction of an aspect of their world (Beyerbach, 1988), a means of representing structural knowledge (Novak, 1995; Ghaye & Lillyman, 1997) and a visual representation of knowledge / picture of conceptual relationships (Fichtman Dana, 1998). In education they have been used as a tool for teaching and learning, and as a tool for research. Depending on their purpose as a tool for teaching and learning, concept maps can be expert or student-generated. Student-generated concept maps are 'an individual's personal interpretation of ideas and its attached meaning' and have the power to 'enhance learning, facilitate discussions and improve student writing' (All & Havens, 1997: 1211). Since the meaning attributed to the concepts are unique to the individual, concept maps can also reveal the cultural / social context within which the knowledge structure was formed. In this respect concept mapping is 'a modelling technique which intends to portray ideas, beliefs, values and attitudes and their relationship one to another in a form which is amenable to study and analysis' (Northcott, 1996:457).

Pedagogically, concept mapping is a social constructivist tool reflecting learning as 'a process of re-constructing and re-presenting what is known' (McAleese, 1999) in ways that are, on the one hand, individual to the learner and, on the other hand, reflective of the social and cultural contexts within which that learner operates. McAleese describes an 'auto-monitoring model for concept mapping' which is the craft a learner acquires, the craft being the 'skills needed to operate with and on concepts'. In this way it plays a similar function to language and McAleese puts forward the technique of concept mapping as being most suited to enabling the acquisition of these skills. Auto-monitoring seems akin to metacognition and, if concept mapping enables students to develop their metacognitive skills it is also very well suited to the teaching methodology of the PGCE course as well as the methodology of the research. On the other hand, Fitchman Dana, while agreeing that 'pre- and post- concept mapping appears to be a viable tool to help prospective teachers reflect on their experiences and conceptions of the teaching and learning of elementary school social studies' (1998:185) questions its usefulness as a research tool for gathering data. This is partly due to the emotions often invoked in student teachers as they seek for 'the correct way to construct a map' but also due to the inevitable bias of the researcher in the analysis and interpretation of the concept maps. These

drawbacks were taken into consideration in the way the concept mapping task was administered and analysed, as is shown below (section 6.1.5).

In summary, concept mapping shows potential to reveal and enable thinking about ideas, beliefs and values in the way that had been the intention with the repertory grid, and in a way that would support the aims of both the teaching and research. As a tool that has already had its versatility and effectiveness demonstrated by other researchers it was felt a suitable one for this project.

6.1.1 What is a concept map?

In its simplest form, a concept map is a two-dimensional spatial representation of information in the form of node-link-node sequences. The nodes represent the key terms or concepts and the links indicate the relationship perceived between nodes. Concepts shown on the nodes are usually hierarchical (Novak, 1995) and can therefore be ranked from the most general, inclusive concept to the most specific, least inclusive.

In general where concept maps are used as a means of eliciting or assessing what is known and understood, they enable this to be done from the learner's perspective rather than the assessor's. They also reveal what is understood by the learner at a given moment in time. This is a crucial point because, as McAleese (1999) states, there is a potential tension between 'what "I think I know"' and what "I can represent that I know"'. They do not 'test' what has been recalled or remembered, they indicate what meanings have been attributed to the content acquired or already held (Ghaye & Robinson, 1989) and as such they are partial representations. Therefore it is important to stress that commitment to the maps created is not necessary. If this is achieved concept maps can be a useful tool for helping students to externalise their constructions in ways that enable them to be reflected on, criticised and, because they are not fixed, to be changed.

Nursing research gives many examples of concept mapping used as a strategy for teaching and learning (Daley, 1996; All & Havens, 1997; Baugh & Mellott, 1998; Wilkes et. al, 1999). Much of this research discusses distinctions between rote and meaningful learning, the latter being that which links new knowledge to related concepts already familiar to the

learner (Pinton & Zeitz, 1997). It is a strategy that takes account of educational theory about how people learn, specifically that ‘the most important single factor that influences learning is what the learner already knows’ (All & Havens, 1997:1210). Establishment of what the learner already knows is crucial if new learning is to be assimilated into existing structures. In addition, meaningful learning (that which is retained over time) is most likely when ‘the learner is encouraged to anchor new ideas with the establishment of links between old and new material’ (All & Havens, 1997:1210). Concept mapping is a strategy that can enable this to take place because students can be invited to provide their own key terms (or nodes) and because the finished maps can be compared with other students’ as well as with alternative conceptions from a range of sources such as the media (geography represented in cartoons, newspaper articles), geographical educators and the National Curriculum Programmes of Study. For example, Baugh and Mellott describe how concept mapping in student nurses’ clinical development promotes critical thinking and ‘as students share and explore trends in each others’ maps, they begin to see variations in the textbook pictures of patient conditions’ (Baugh & Mellott, 1998: 255).

In teacher education Morine-Dersheimer (1993) and Artiles et. al. (1994) used concept mapping as a tool for assessing changes in student teachers’ conceptions of planning and teaching and for ‘assessing the link between preservice teachers’ conceptions of planning and their interactive behaviours during classroom instruction’ (Artiles et. al. 1994: 466) respectively. Also of relevance to this project is the work done by Fitchman Dana (1998) who was exploring ‘an alternative teacher education pedagogy’ which would ‘provide preservice teachers with alternative perspectives’ in a social studies context (1998: 167). Fitchman Dana asked students to create pre- and post-course concept maps and evaluated these using a scoring rubric of descriptions that enabled differentiation between four levels of attainment. These concept maps were also used as a tool ‘to help prospective teachers change their images of social studies’ (1998: 176). This dual function of concept maps is particularly useful in qualitative research which ‘is often based upon an emergent design, which requires the collection and analysis of evidence concurrently. It is research that is designed to facilitate the emergence of theory rather than establishing proof’ (Northcott, 1996:456). As such it is well suited to grounded theory research.

A criticism that has been made of concept maps that measure changes in conception before and after a teaching programme is that they often only measure short-term change (Artiles

et. al. 1994). This project addresses this by gathering data from students over a two-year period, not just during the taught element of the geography component of the PGCE course. Students were not asked to do a concept map at each point of data collection, but their annotated concept maps (see chapter 7) were used to prompt further discussion at each point. There is thus the opportunity to track development and change longitudinally and to evaluate the impact of conceptions on action in the classroom.

Other points to note about using concept maps are:

- The act of creating a concept map can lead to students recognising ‘new relationships and hence new meanings they did not consciously hold before making the map’ (Novak & Gowin, 1984:17)
- Some students may find it harder to represent their ideas in a graphical format than others (Baugh & Mellott, 1998)
- For this reason, attention needs to be given to developing students’ concept mapping skills if they are to be used as a formal assessment tool (Caelli, 1998)

Since it is recognised that concept maps only represent a person’s conception at a given moment in time, the first point was not considered to be a drawback. The second point deserves some consideration. It was acknowledged, during the pilot phase (see 6.1.2) that some students found representing their conceptions in the form of a concept map much more challenging than others. This could be due to different learning styles and ways of thinking. There was also the danger that some students may not have any sort of prior conception of geography (see chapter 7). However, the purpose of the concept maps was to form the basis of discussion during the stimulated recall interviews, during which students were explicitly asked whether they felt able to represent their conception successfully or not. This then enabled direct comparison between students’ conceptions represented through the interviews with those represented through their concept maps. To address these and other concerns that might not be apparent, a pilot study on the use of concept maps as a tool for eliciting students’ conceptions was conducted.

6.1.2 Pilot study and impact on design and use of tools

The pilot study (appendix 19) revealed four issues relating to the efficacy of concept maps as an elicitation tool. Practical considerations (maps written in pencil or with coloured ink (green) were not photocopyable) and ‘contamination’ (students sat in groups and some of the maps were remarkably similar) were issues that could easily be resolved. However, ascertaining the value of the maps in terms of eliciting conceptions upon which statements about professional values could be made was more problematic.

Issue 1: For some students even the business of coming up with some key terms for the nodes was challenging. It is clear that, if geography has not been studied formally since the age of 14, conceptions of the subject may be so tentative and students may be so lacking in confidence that it is hard for them to get started. No amount of the tutor saying there was no ‘right or wrong’ answer and that this exercise was designed to capture their conception ‘at that moment in time’ was going to make much difference.

Revision: Students were given the 8 key terms most commonly used by students in the pilot phase as a starting point for their concept map. It was stressed that they should use these only if they felt they wanted to, and that other nodes could be added as appropriate. Precedence for this has been shown by Willson and Williams (1996) who provided PGCE students with eleven concepts from which to create a concept map which then had the added benefit of making analysis and comparison of maps easier.

Issue 2: The very fact that concept maps are partial representations, subject to change, also led to doubts about the validity of the interpretations made in relation to the categories shown above for the pilot phase. This indicated the need to explore a means of analysing the concept maps more objectively and of enabling the students themselves to validate interpretations.

Revisions: A scoring system was devised for analysing the concept maps from which four broad categories of conceptions were identified. In addition, the concept maps and ideas about teaching and learning were analysed holistically against three classification systems – for geographical persuasions, for teaching and learning, and for epistemology. A sample

group was then interviewed using the stimulated recall interview technique (see 5.2.3) which would enable them to use their concept map as a stimulus for discussion, to expand on their conceptions, and to explore the degree of congruence between the students' and the researcher's interpretations and of their maps against the three classification systems used.

Issue 3: The two ways in which students were asked to construct their concept map (one group asked to do it for 'Geographical Education' and the other 'Geography') revealed interesting distinctions between the concept maps produced. Those from the former were more likely to incorporate children and some sort of active participation element into their maps, while those from the latter gave a clearer indication of their conception of geography as an academic subject.

Revisions: Reading had already indicated that PGCE students' conceptions of subject were often based on the academic view rather than educational one, and that this way of conceptualising a subject is not necessarily the most helpful to them as teachers. Therefore they were asked to do a concept map to represent their conception of 'Geography'. However, their conceptions of teaching and learning were still relevant and so a second elicitation task was devised that asked them to choose one aspect of their concept map, to describe state how they might teach it, and then to explain why they would teach it in this way (table 6.1).

CONTENT	What teaching methods would you use / How would you teach this?	Why would you use these methods? What would be the gains for the children?

Table 6.1: Proforma used to elicit students' conceptions of teaching and learning geography

Issue 4: In the pilot study students were asked to do a second concept map in the final session of the geography component of the PGCE course. This did not go well because some did not see the relevance and therefore did not want to do it, many of the maps were hurried and clearly not thought through, and some said they were too tired to focus on such a task (the sessions were in the week directly after their first block school experience).

Revision: In order to reduce the amount of thought and time needed, and to provide a greater sense of purpose to the task, students were asked to annotate a copy of their concept map to show how their conception had developed or changed since the first session. This was then used as the basis for a discussion which led to a formal evaluation of learning in the geography component.

6.1.3 Conducting the elicitation activities.

6.1.3.1 Administering the elicitation activities

Administering elicitation techniques on four different occasions during the course of one week raises real issues of reliability. It was important to develop a tool that would be as reliable as possible so a set of instructions was prepared (appendix 20) which would be read to each group. The teaching room was arranged beforehand so that all students were facing the board and seated in pairs at each table – the intention of this being to avoid contamination. The purposes of the research and focus of the session were shared with the students and, rather than invite them to agree or not to agree to take part in the research, it was suggested that if anyone did not wish to take part they could keep their concept maps and written accounts rather than hand them in at the end of the session.

The instructions as shown in appendix 20 were then followed. Students were also asked to do a small concept map using the terms ‘teacher-pupil-content’ as the nodes as this would provide further evidence on which to make judgements about their conception of teaching and learning. However, an entry in the research diary written at the time notes that for many this third task was one too many and they found it hard to sustain such a level of concentration. This might mean that some hurried this aspect of the elicitation exercise and

lead to questions about whether they would provide a valid means of checking against analysis of written accounts. A summary of the three tasks students conducted is:

1. create a concept map to represent your conception of geography
2. select two or three aspects from your concept map, describe how you might teach them to a chosen age group and then explain why you might use those teaching methods
3. create a concept map using the nodes ‘teacher, learner, content’.

Once the students had completed all three tasks they were invited to share their concept maps with each other and to note similarities and differences between them. There was then a class discussion about the nature of geography as a subject and some alternative conceptions were provided for consideration (appendices 5, 21 & 22). Using the concept maps as a tool for learning and not just a means of gathering data reflected my value position and the nature of the research itself – that it was integral to the teaching programme and, as such, the students should be able to see the value in the activities for their own learning.

6.1.4 Reliability and validity of concept mapping as a research tool

The revisions made to the elicitation activities following the pilot study were aimed at strengthening the reliability and validity of the tools used. In the event, notes made in the research diary at the time indicate that the tools themselves appeared to be more reliable (each of the four groups produced similar data) and valid (data gathered made clearer distinctions between conceptions of subject and conceptions of teaching and learning in relation to the research questions) than had been the case in the pilot study. However, the research diary shows that other issues of reliability were raised such as:

- later years group 2: baking a cake example didn’t go as well as with the previous group – hardly any of the nodes they provided were specific, they were all overarching terms such as ingredients, method – therefore difficult to generate a hierarchy

- 3 students wanted scrap paper to work on first; did this make their task different to others’?
- early years group two: I was clearer about purposes at the outset
- at the end one student said that because it had seemed a bit like a test (the way the room was arranged) she had panicked and this had been a block to her performance
- later years one: perhaps gave a clearer explanation of labelled links this time
- ‘a couple of pairs of students discussed their maps while doing them; I didn’t stop this because I did not want to let my research get in the way of their learning, however it may have led to some contamination of their maps’
- ‘for task three [concept map to elicit conceptions of teaching and learning] I wrote content, pupil, teacher on the board in alphabetical order to avoid researcher effects’

(Research diary pages 28-29)

Inevitably, when a technique is used with four different groups at different times of the day and week, this is also going to affect its reliability. The table below shows the environmental and temporal factors that may have affected the data gathered.

Group	Day and time	Room
EY1 (Early Years 3-7 yrs, group 1)	Monday 4-6 pm	155
LY2 (Later Years 5-11 yrs, group 2)	Tuesday 2-4 pm	152
EY2 (Early Years 3-7 yrs, group 2)	Tuesday 4-6 pm	152
LY1 (Later Years 5-11 yrs, group 1)	Friday 11-1 pm	154

Rooms 152 and 155 are general teaching rooms while room 154 is a geography teaching room and had many displays on the walls that students could have used to inform their ideas if they had noticed them. Room 155 is a smaller room with cramped conditions making it difficult to arrange seating in rows. Both Early Years groups had 6 hours of other sessions (9-11, 11-1, 2-4) before geography and so were tired and found it harder to concentrate. By Friday, as noted above, I was becoming clearer in my explanations of the elements that make up a concept map.

This is the nature of social science research which is interpretive and investigates the ways in which people behave in their real life situations. The aim of such research is not to scientifically control contextual factors but to take account of them when analysing and

interpreting the data. Therefore the techniques were piloted, revisions made on the basis of evaluations, and as much done as possible to replicate the experience for each group. In this respect I think it is fair to say that the elicitation tools generated reliable data. The next step is to consider the reliability and validity of the tools used for analysing these data.

6.1.5 Analysing elicitation data.

6.1.5.1 Analysing conceptions of geography

‘There is no one scoring formula that is most appropriate for concept maps, since concept maps may be used for a wide variety of purposes.’ (Novak, 1995: 84)

It has already been established that concept mapping can be used for a variety of purposes – for teaching & learning, assessment, to monitor changes in conceptions – and of the articles read, no two seem to use exactly the same method for analysing these maps. A range of qualitative and quantitative methods can be used and, in some cases, a combination of both is appropriate. It therefore seems important to ask ‘why do I want to analyse the concept maps?’ as a first step, rather than ‘how will I analyse the concept maps?’. Once clear about the purpose (or purposes) for analysis it will then be possible to select from the range of techniques as appropriate.

The use of concept mapping, as indicated above, was for two reasons. Firstly to provide students with a means of examining their conceptions and beliefs about geography as a subject and to provide a basis for each student to consider if, and how, their conception changed as a result of experiences during the PGCE course. The focus here is on personal learning and development and therefore qualitative methods of analysis seem most appropriate. Secondly, concept mapping was used as a research tool to gather data that would enable conceptions to be analysed in order to generate categories into which students’ concept maps could be placed according to how sophisticated their conception of geography appeared to be. Once all the concept maps were assigned to a category, I would be able to select a smaller sample to interview and observe teaching in school whose conceptions would be representative of the range of levels of sophistication evident in the cohort as a whole.

To make comparisons between students as fair as possible I was aware of the possibility of imposing my own values if a solely qualitative method of analysing the concept maps was used. It therefore seemed appropriate to develop a set of criteria against which to score each map. Many articles (Haseman and Mansfield, 1995; Ghaye & Robinson, 1989; Artiles et al., 1994) describe the use of some sort of system for scoring elements of a concept map. Typically this involves either developing a, or using an established, set of criteria against which the maps might be scored. It is then possible to make a quantitative comparison between concept maps – either those of the same student over time, or between students and/or others at the same time. At the simplest level concept maps can be ‘scored’ according to the number of nodes or concepts shown, and the number of links made between nodes. Judgements can be more sophisticated if the following features or characteristics of nodes and links are scored:

- the number of appropriate / relevant concepts included
- the number of appropriate relationships indicated along the links (this can only be done if the links are labelled, which is not always the case)
- higher scores may be given for relationships that show a high degree of specificity or precision than a more generic connection
- the degree of complexity (number of cross-links or interrelationships shown between nodes for example, within as well as between levels in a hierarchical concept map)

One of the major criticisms of quantitative approaches is that a concept map is designed to present a holistic view, the meaning of which may become obscured or fragmented if over-detailed analysis is done of its component parts. For this reason some research projects have used a combination of techniques. In addition, the concepts of ‘appropriate’ and ‘relevant’ are not value free so while the scoring system might, on the surface, appear to lead to more objective judgements, the data are still subject to the interpretation of the person analysing them.

In the context of researching Y6 children’s conceptions of an aspect of geography Ghaye and Robinson (1989), developed a scoring system for classifying the links between nodes (or concepts). In the course of scoring for links and concepts and then comparing each

child's score with that of their teacher, they became aware that there were some qualitative distinctions between maps that the scoring system did not capture and so they developed a 'typology of reconstructions' that served as an indicator of the extent to which the children's maps showed complexity, quality, variety, match, dynamism and approach (Ghaye & Robinson, 1989: 129) with descriptions of what each might look like for a more able child and a less able child. It was then possible to make a more qualitative judgement about a child on a continuum from the more able to the less able descriptors. A particular indicator that became useful for this research was the notion of 'match'. Ghaye and Robinson noted that more able pupils tended to diverge from the elements provided by the teacher and to show a degree of originality, whereas less able pupils tended to try to stick to the elements provided and to replicate what they had been taught.

In a similar vein Morine-Dersheimer (1993), working with student maps that revealed their ideas about teacher planning, developed a category system based on elements in the students' maps. The maps were used to identify elements that distinguished one from another as well as those that were common to all. On this basis the category system then enabled her to sort the concept maps into four broad groups on a best fit basis.

6.1.5.2 A combination of both techniques

For the purposes of this project a combination of techniques seemed to be most appropriate, the advantages of one helping to offset the disadvantages of the other. As mentioned above, the interpretations made of the concept maps are bound to be affected by the conceptions and values of the researcher. In an attempt to minimise these effects I used a scoring system², developed from the maps themselves (as by Morine-Dersheimer, 1993) that focused on both the maps' structure and content, and the relationship shown between nodes (as for Ghaye and Robinson, 1989). The scoring system (table 6.2) was then used to give a score for each of the 79 maps and discussed with a colleague in order to check the validity of the judgements made. This enabled me to identify areas where the scoring

² Scoring is an unusual move for grounded theory research. On this occasion it was used as a mechanism for generating categories for students' concept maps indicating the degree of sophistication of their conception. This then enabled selection of a representative group of students to take part in the stimulated recall interviews and the school-based phase of the research.

system was leading to (a) different interpretations and (b) weighting the score of some elements of the concept map above others.

<p>Structure of concept map Hierarchical Relationships between nodes Cross links at each level General concepts added Specific concepts added Frequent explanations along links</p> <p>Types of concepts / relationships Spatial / locational Time / changes Causes / effects unidirectional Processes Interactions Issues Active geography (investigations) Skills (mapwork, fieldwork)</p>	<p>Apparent structure / no apparent structure What type of relationship? Linear links / cross links</p> <p>Statement along links – descriptive or explanatory? Consider a threshold of 3 or more in order to score for explanatory?</p> <p>Same as causes / changes Inter-relationships These are represented in persuasion so remove</p>
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Table 6.2: First set of Criteria used for scoring concept maps

<p>Structure of concept map</p> <ol style="list-style-type: none"> 1. Does the map have an apparent ordered structure? 2. Is there a linear relationship between nodes? 3. Is there a more complex system of links within and between different ‘levels’ in the map? 4. Have some general geographical concepts been added in the nodes (e.g. key concepts such as processes, location, global warming)? 5. Have some specific concepts been added (e.g. places might be divided into countries, cities, rural / urban etc)? 6. Are there descriptive statements along the links? 7. Are there statements along the links that are explanatory / interesting geographically? (i.e. go beyond saying ‘affects’ to explain in what way one thing affects the other etc) <p>Types of concepts / relationships between nodes</p> <ol style="list-style-type: none"> 1. Does the map have a spatial / locational element? 2. Does the map have a time / changes element? (perhaps related to geographical processes) 3. Does the map focus on causes /effects, influences? 4. Are complex inter-relationships (e.g. human-physical, physical-human, human-human interactions etc) represented on the map? 5. Is there a sense of active geography? (through investigations, enquiry etc?) 6. Are such things as mapwork / fieldwork shown as geographical ‘tools’?
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Table 6.3: Criteria used to score concept maps after revisions

The criteria for scoring were revised to take account of the points raised in the literature. One of the factors to take into consideration was that not all students chose to represent

their conception of geography as a hierarchy, but this did not mean that their conception was any less complex than others'. Indeed, one of the challenges was to give credit to complex ideas that might be represented in a seemingly simple model. A cluttered map with many nodes and links was not necessarily a map that represented complex ideas. The final version (table 6.3) was also expressed in the form of questions, to aid analysis undertaken by others as part of the validation process. The system gave one point for each element that was present in a map, the total score for any map therefore being 13. Careful consideration had been given to the idea of differential scoring for each element (for example, 1 point = any representation of the element; 2 = detailed representation of the element; 3 = element represented in a way that adds complexity) but this was thought unwieldy and too open to subjective interpretation. The overall purpose of scoring was to enable distinctions to be made between students in terms of the overall complexity or degree of sophistication demonstrated in their concept maps so a single point for each element seemed appropriate. It then remained to consider at what point representation of an element would 'trigger' the score of a point. In this respect any representation of the element would be given a point as long as it made sense, geographically.

All concept maps were scored for a second time using the revised criteria from which four broad categories were developed to represent the degree of sophistication of a student's concept map. Clearly this was a fairly crude tool but it served the purpose of making distinctions between maps more objectively than the 'eye-ball' technique used during the pilot study. It also served the purpose of creating categories in which all the maps could be placed and from which it was then possible to select a sample for follow-up interview.

An obvious drawback of the criteria is that in the application they will still be open to interpretation. In order to check the validity of the interpretations I made, a sample of maps were scored separately by two colleagues – a secondary and a primary geography tutor – without them knowing what scores I had allocated. I then compared my scores with each of theirs and any differences were discussed. While there were some differences in the detail of the interpretation made by each individual, there were few differences in relation to the four broad categories that were developed (see chapter 7, p 122-125). A further drawback is that the scoring system also did not allow for quality within any one element, or within the map as a whole, to be shown. However, some qualitative analysis was done by comparing the overall, holistic conception portrayed against Barratt Hacking's (1996)

geographical persuasions (appendix 3). The purpose of this was to provide a sense of what ‘sort’ of geographer each student seemed to be and a basis for exploring whether, when interviewed, they would categorise themselves in the same way.

6.1.5.3 Analysing conceptions of teaching and learning

The purpose of analysing the written accounts of how students might teach an aspect of geography they had chosen and what the benefits of this might be for the pupils was to give the researcher some insight into their conception of teaching and learning and, to some extent, what they appeared to value in geographical education. These are qualitative data that were analysed accordingly using the theories of teaching categories (appendix 14).

The concept maps showing the relationship between content, pupil and teacher were then analysed qualitatively by looking at three key elements:

- balance - is one element emphasised more than the others?
- interconnectedness - are they all linked to each other?
- language - what terms are used along the links to describe the relationship?

These combined to provide a holistic conception that could be compared with that analysed using the theories of teaching. As such, the analyses of these concept maps was as much about validating the data from the written accounts as anything else.

6.2 Interviews

This section will begin by discussing the rationale for selection of stimulated recall as an interview technique, and some of the issues associated with use of interview as a means of gathering data. It will then discuss stages in the interview process – designing the interview schedule, conducting interviews, analysis and writing up – and make distinctions between the two types of interview conducted.

McAleese (1999) holds the view that concept maps are ‘an artefact of a process by which learning occurs’ (p. 8). In this respect he is suggesting that the concept map acts as a record of a process and it is the process itself that is important not the product. His research focuses on the use of concept mapping as a tool for learning rather than a tool for eliciting conceptions and beliefs, however this view, alongside Novak’s that a concept map can only represent an individual’s conception *at the moment in time when it is created*, supported the idea that it would be necessary to conduct interviews that explored the process students went through at the time of making the concept map, and the extent to which they felt their map represented their conception of geography.

This is not to say that the products – the concept maps themselves – were not also useful. Analysis of these, along with the written accounts of teaching and learning, enabled me to place students in categories according to the sophistication of their conception of geography, their geographical persuasion and their theory of teaching. However, it was clear that the interpretations of these data were open to question. Would others, including the students themselves, accord similar categories? Thus it was seen to be important to do follow up interviews with a sample of students (n=11) and the purpose of the interview would be to (a) use the data as a stimulus for discussion during which they would be invited to elaborate on their conceptions and the process they went through to create their concept map, (b) offer them the opportunity to validate interpretations made and (c) to explore a further aspect of conceptions, namely their conception of the nature of knowledge, which initial analyses of the data and further reading seemed to be indicating was an important aspect to explore.

6.2.1 Stimulated recall interviews.

Having made the decision to interview a sample of students, it was then necessary to consider the type of interview that might be most appropriate. Stimulated recall interview is a technique that has been employed in a number of different ways but ‘generally involves the replay of videotape or audiotape of a teacher’s lesson in order to stimulate a commentary upon the teacher’s thought processes at the time’ (Calderhead, 1981:211). Clearly elicitation data are not the same as video or audio-taped material, however, since

the purpose of the interview was partly to try to explore the students' thought processes when they were making their concept maps, it seemed to distinguish the interview from the usual structured / semi-structured or unstructured type and to have characteristics more in common with stimulated recall.

As mentioned previously, students may have difficulty in representing their conception of geography in a concept map. A follow-up interview, using the map to prompt, in retrospect, a 'verbalised account of his [or her] original thought processes' (Calderhead 1981:212) therefore seemed very attractive. Whilst the technique has usually been used to provide commentary on interpersonal interactions (for example, in education and clinical psychology settings) Calderhead reports its use in contexts where participants are not involved in interaction with others – for example by Peterson and Clarke (1978 cited in Calderhead 1981) to study the thought processes of teachers in their pre-lesson planning.

A potential drawback of using stimulated recall interviews and the extent to which they enable access to thought processes is the problem that 'some areas of a person's knowledge have never been verbalised and may not be communicable in verbal form' (Calderhead 1981:213). However, this refers more to behaviour that is automatic rather than planned. In this respect, Calderhead goes on to say that the technique may 'assist the researcher to gain access to the cognitive processes of more global units of teaching (*plans*) though perhaps not so easily to the processing involved within such units' (Calderhead 1981:213, his italics).

6.2.1.1 The university-based interview schedule

A further consideration is how to structure the interview. '...structuring the interview itself [has to be] weighed against the possibilities of imposing, or encouraging teachers to impose, unreal interpretations upon their behaviour. This is not to say that the use of models is inappropriate in research of this kind' (Calderhead, 1981:214). The decision was taken to conduct the interviews in a semi-structured format using a series of questions and further prompts as a guide rather than a set sequence to be rigidly adhered to. The

questions were devised and then developed and refined after discussion with others (appendix 23). Particular consideration was given to the order of questions and their nature. Following the advice of Bell (1999) and Cohen & Manion (1994) to begin by establishing a rapport and setting the interviewees at ease, some questions of a general nature were asked first and the students were given time to reacquaint themselves with their map. Then questions about what was shown on the map were asked to 'check' for researcher understanding and to establish whether there was congruence between their conceptions and the researcher's interpretation of their conceptions. More probing questions followed that enabled the students to expand on their conception of geography, before asking them to relate their conception to three geographical persuasions. Questions about geography were asked before questions about pedagogy, partly because this reflected the order in which they were asked to do the elicitation activities, and partly because it was necessary to explore conceptions of geography before going on to discuss how one might teach aspects of it in the primary school.

Although a structure for questions was planned, this was taken as a guide and the nature of the interview was more of a 'conversation' in which ideas were discussed. Because of this, while each interview followed the same pattern of discussing conceptions of geography before conceptions of teaching and learning, there was some flexibility within each section of the interview and the schedule acted as a guide to check for coverage within the conversation as much as anything else. This 'loose', semi-structured approach was felt to fit in well with the naturalistic aspect of interpretive research.

During the course of the interview students were asked to relate their conceptions to the analytical tools – geographical persuasions and theories of teaching – because this would be another way of checking for congruence with the researcher's interpretations, but also because these were useful tools for prompting further discussion and reflection and reflected the researcher's aim (as course tutor) of providing alternative conceptions for students to consider as part of the process of evaluating their own conceptions. A further tool was introduced at the end of the interview, which asked students to relate their developing thinking to epistemology (appendix 15) because, as mentioned previously, a theory was beginning to emerge that the values underpinning students' conceptions may be partly determined by their conception of knowledge. Calderhead suggests that an alternative strategy to the use of such tools or models might be employed, that is 'to derive

a model from the teachers' *own* commentaries in order to guide future commentaries' (p. 214, my italics). In this instance pre-determined categories were used because they had been used to aid analysis of the elicitation data. However, they were also used as a 'guide to future commentaries' in the sense that a table of each student's conceptions as they related to the three tools was drawn up after initial analysis of the first interview. This table was then used to inform the first, in school, post observation interview after which it was revised and the revised version then guided the next post observation interview and so on. In this way it was possible to keep track of what seemed to be developing themes and to ask the student to comment on them at each subsequent point of data collection. It also supported the researcher's aim of recording development and change over a period of two years.

A further consideration was the timing of the interviews. Time and the location of the geography component at the beginning of the PGCE year made it impossible to conduct interviews immediately after the first concept maps and written accounts of teaching and learning had been done. The interviews were therefore conducted towards the end of the Autumn term, after the geography component had finished, and after the students had done their first block school experience of three weeks. This had the disadvantage of the second concept maps – annotated versions of the first ones – being fresher in their minds and potentially acting as a block to recall of the first elicitation exercise. On the other hand, it meant that the students' thoughts about if, how and why their conceptions were changing could be explored.

6.2.1.2 The school-based lesson observation and post-observation interview schedule

'There are very strong arguments in favour of treating observation as a 'gold standard' or 'method of choice' in qualitative research' (Murphy & Dingwall, 2004: 4)

As Murphy and Dingwall point out, while neither observation nor interview data can be regarded as straightforward reproductions of reality, observations do minimise the 'chain of transformation ... [because] ... they are subject to just one transformation as researchers render the reality they observe into a form suitable for analysis' (ibid).

Interviews, on the other hand, are transformed once through the choice of interviewer's

questions and again as the interviewees select from ‘the totality of their original experience and reformulate that experience into their responses’ (ibid). However, interviews do offer participants the opportunity to comment on observation data and the researcher to probe more deeply for explanations of certain behaviour during teaching. For these reasons a combination of observation and post-observation interviews was used.

A pilot was conducted using a simple observation format for recording as much as possible what teacher and children said and did during a lesson, leaving space for interpretations of these utterances and actions in a column to the right hand side (appendix 24). Two copies of these notes were made – one to be left with the student – so we could each write our interpretations and these could then be compared. The aim of this was to enhance the validity of the interpretations being made by me, and to enable the student to have some control over the interpretations being made of her own practice. However, in the pilot it was very difficult to encourage her to find time to make these annotations. For a number of reasons, including the phenomenon noted by Oleson (2003) mentioned in section 5.3 above, she was hesitant about committing herself to paper, so this method was abandoned.

The basic approach of making notes on a simple sheet about what I saw and heard during an observation was retained, but the third column was now for the purpose of identifying questions (e.g. prompting me to ask the student for clarification or justification of action or speech) that would form the basis of the post-observation interview. Issues regarding the selection of what to record and therefore level of accuracy and, or bias by omission clearly need discussing in relation to this tool. However, the post-observation interviews were the key data for analysis – the purpose of the lesson observation notes was to act as a stimulus for recall for these interviews and, as such, did not form a major part of the data.

The procedure for school-based data collection was as follows:

1. Preparation beforehand – making a summary of student’s elicited (concept maps) and espoused (stimulated recall interview) conceptions to date; collaboration with headteacher and student that I could observe and conduct interviews on agreed dates and times; request to student for lesson plan and medium term plan to be available on the day

2. School visit – agree with student whether I will be introduced to the children, where to sit and so on; record observations by hand on observation schedule; spend time going through notes and writing questions (while children are at play or tidying up at end of day etc); conduct interview with student using observation notes and questions as basis for discussion
3. Follow-up – immediately afterwards (usually in the car) put entry into research diary focusing on any reflections, thoughts, aspects of the visit that might be significant; later on (usually in the same week) spend time on a more detailed reflection, including making comparisons between conceptions in action and those espoused at an earlier stage of the course, and enter into research diary.

1. Ask student to relate lesson to concept map. For example ‘where would you place this lesson on your concept map? Which aspect of your conception does it reflect?’
2. Using the observation notes ask student to elaborate on actions and discuss thinking at the time. For example ‘Can you talk me through why you said / did ...?’
3. Ask student to relate ideas about geography, teaching and learning to the three ‘models’ – geographical persuasions, theories of teaching, nature of knowledge.

Table 6.4: Post-observation interview framework.

The purpose of the post-observation interviews was similar to that of the post-elicitation interviews, namely to explore further the students’ thinking about a process. However, in this case there was the additional element of exploring their conceptions *in action* in a geography lesson. The tool used to stimulate recall here was the lesson observation notes made by the researcher during the lesson. For this reason it was not seen to be appropriate to design an interview schedule, because each lesson would raise different issues or points for discussion, so an interview framework was devised that provided a means of ensuring some commonality in terms of structure (table 6.4).

6.2.2 Issues surrounding use of stimulated recall interviews

Several issues emerged when considering the use, and design, of the simulated recall interview as a means of gathering data that would meet the purposes outlined above. These will be discussed under two key headings of conducting the interviews and analysis of interviews.

6.2.2.1 Conducting the interviews

As for the elicitation exercises, the process of interviewing raised a number of issues to do with access, context, and technical considerations.

Access: The data gathered and analysed at the beginning and end of the geography component of the PGCE course informed the selection of a sample of students who might be interviewed using the stimulated recall approach. The prime aim was for the sample of students to be representative of the four categories showing degree of sophistication of conceptions of geography (chapter 7, p122-125). After this a balance of other factors was sought for each category, as shown in the table below. The information in columns 3-6 was available from students' biographical questionnaires.

Score	Persuasion	Age range	G / NG	Attitude towards geography	Trad / Non-trad
Category 1, 2 , 3 or 4	Scientific, welfare/humanistic, environmental	EY or LY	Geographer or non-geographer	Positive or negative	Traditional or non-traditional entrant

As will be seen later, it was difficult to achieve a balance within categories for persuasion, because the majority of students' maps reflected a scientific / descriptive-rich persuasion. Students in category four were also far more likely to have a negative attitude towards the subject.

This process of sampling led to a possible 16 students being identified for interviewing, four for each category. A letter was sent to each of the 16 students (appendix 25) asking if they would agree to take part in the second phase of the research and outlining what this would entail – interviews, observations of teaching and post-observation interviews on up to three occasions during their block school experiences. They were also invited to discuss the implications with me by phone or in person. This was a tricky line to tread as I wanted

to be clear about purposes in line with the principles of informed consent, but did not want to enter into detailed discussions which might pre-empt what would be covered during the interview. Once agreement was reached interviews were arranged at mutually convenient times during December 1999.

Category	Persuasion	Score	Age range	G / NG	Attitude	Trad / Non-trad	Agreed to interview	Interviewed
1a	Sc	11	LY	NG	+ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
1b	E	11	EY	NG	v +ve	NT	<input type="checkbox"/>	
1c	W/H	11	EY	NG	+ve	T	<input type="checkbox"/>	<input type="checkbox"/>
1d	Sc [w]	10	LY	G	+ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
2a	Sc	8	EY	NG	+ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
2b	Sc [E]	8	LY	NG	v +ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
2c	Sc	8	LY	G	v +ve	T	<input type="checkbox"/>	<input type="checkbox"/>
2d	Sc	7	EY	G	v +ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
3a	Sc	5	EY	NG	-ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
3b	Sc	5	EY	G	+ve	T	<input type="checkbox"/>	
3c	Sc	4	LY	[G]	+ve	NT		
3d	Sc	4	LY	NG	-ve	T	<input type="checkbox"/>	<input type="checkbox"/>
4a	Sc	3	LY	NG	-ve	T		
4b	?	3	LY	NG	v -ve	NT		
4c	?	2	EY	NG	v +ve	NT	<input type="checkbox"/>	<input type="checkbox"/>
4d	?	1	EY	NG	-ve	NT		

Table 6.5: Sample selected for interview

Eleven of the sixteen students asked to participate gave their agreement. Perhaps predictably, three of those who chose not to take part came from category four – the least sophisticated conception of geography. The only student from category four who agreed to be interviewed had a positive attitude towards geography. All of the students from categories one and two agreed to participate and three students from category three. This made twelve altogether but circumstances meant that it was only possible to interview eleven of these (table 6.5).

Context: Interviews were all conducted in an education meeting room and were tape-recorded. The use of a general meeting room had the advantage of being a neutral room in the university (not my teaching room or office), but clearly the choice of interviewing on campus meant that the space was not totally neutral. However, I felt that this disadvantage

would be outweighed by the advantages of being able to book a space that would be interruption free and where the clear business of the meeting would be the interview itself.

Technical considerations: All interviews were recorded using audiotapes which were later transcribed. The benefits of this were that the interviewer could give interviewees full attention and positive body language – good eye contact, face-to-face positioning – could be more easily achieved. I decided to tape-record the interviews so that I could retain as much rapport as possible with the interviewees. Freedom from making notes meant that eye-contact was easier to establish, body language could be read, and the flow of conversation maintained as appropriate. However, use of a tape-recorder was not without its disadvantages. The equipment had to be tested at the beginning of each interview to ensure sound levels were sufficient; the equipment available was not of the best quality so did not always record utterances clearly, particularly if the interviewee lowered her or his voice, for example when stating something reflectively, or if the interviewee turned her or his head away from the microphone.

6.2.3 Analysing interview data

As with the selection of any research tools, the first step is to be clear about their purpose in relation to addressing the overall research question(s). As stated at the beginning of this chapter, this is a piece of interpretive research that takes a grounded theory approach – that is, the overall aim is to generate theory about beginning teachers' development as teachers of primary geography. The key question within this is 'what is the relationship between students' conceptions of geography, pedagogy and knowledge and their teaching practice?'. The interviews were therefore conducted with the purpose of exploring their conceptions and as such have a substantive focus. For these purposes, the approaches taken focused on content, rather than discourse, analysis. However, the literature on discourse analysis gives some useful advice regarding preparation of interview data for analysis which is outlined below.

6.2.3.1 Transcribing the interview data

The first step was to transcribe the interview data – 11 stimulated recall interviews during 1999-2000 and 16 post-observation interviews (from 6 students). The literature on discourse analysis identifies the following as in need of consideration when making decisions about transcription:

Arising from Bucholtz (2000)

- Who will do the transcription? – interviewer, others, all by same person or different people? What issues might arise?
- Develop an awareness of role or authorship in transcription
- Be aware of the purpose(s) of transcriptions
- Be aware of how these might inform choices of interpretation and representation
- If sections are not transcribed, what effect does this have on the coherence of what is said / the way in which the person is portrayed [issues of image and power relationships here]
- Be aware of what the ‘standard’ practice is within your own discipline
- Don’t forget that an audio-tape only captures part of the experience, and that transcription itself is an interpretive process

Arising from Kitzinger (1998)

- Be rigorous in attention to detail/accuracy when quoting from your own transcriptions
- Multiple ‘listening’ may account for differences [what is said is not clarified until a second or third hearing – fine for those who have access to the original recording, but problematic if transcriptions are not done by those who then go on to analyse and interpret them]; this needs to be acknowledged

Arising from Poland concerning errors in transcriptions (1995)

- Errors can be deliberate (‘tidying up’ speech)
- Errors can be accidental – four types are identified: sentence structure (e.g. insertion of a comma or full stop that changes the meaning), failure to identify that

people are paraphrasing or mimicking (and therefore should use quotation marks), omissions that might occur (e.g. when listening to a section again), mistaking words or phrases for similar ones

- Errors can often be due to poor tape quality
- Errors also due to interpretation
- Minimising errors can be done by e.g. using same person to do all transcriptions (preferably the interviewer/researcher), using a transcription symbol/notation system, transcribing verbatim (although Bucholtz (2000) would debate whether it is possible to transcribe ‘verbatim’ given all the other contextual elements which affect the nature of discourse and add to the meaning intended), paying attention to technological aspects of recording by e.g. checking equipment

As a novice researcher I was unaware of the complexities surrounding transcription of interview data before undertaking the first interviews and transcripts in 1999-2000. Section 6.2.2.1 has already discussed some of the issues that arose from audio-recording the interviews – specifically that the sound quality of some was not good and led to difficulties in achieving ‘verbatim’ accounts. In addition, due to the quantity of interviews to be transcribed some of the initial stimulated recall interviews were done by a research assistant, but I did not give clear instructions about the procedures to follow, such as how to punctuate and how to indicate overlaps between speakers. On reading the transcripts prepared by the research assistant a number of errors were evident, some due to the poor quality of the tape but others due to misinterpretations of what students were saying – for example, when students were discussing educational ideology they were using the terms given in the definitions (such as socially-critical, emancipatory, dialectical) and because I had not given the research assistant access to these definitions or the interview schedule errors in interpretation were made. In addition, while transcribing myself I began to realise that I was able to begin the process of identifying patterns and themes during the transcription and that I was thus less ‘inside’ the data of those transcribed by the research assistant. I therefore decided to go over those tapes with the transcripts in order to correct errors and to aid initial analysis. On the positive side, receiving help for transcription meant that all the stimulated recall interviews were transcribed with initial analyses conducted before the school experience phase of the research began, which enabled post

observation interviews to focus on evidence of conceptions in practice and how these compared with espoused conceptions.

The procedures adopted for transcriptions were as follows (appendix 26):

- What was heard was what was written down – no sections of the conversation were omitted
- Changes in font indicated who was speaking (italics for interviewer, regular for interviewee)
- Commas and fullstops indicated small pauses in speech, a line of three fullstops indicated a longer pause, no other punctuation was used except ? and ! where appropriate
- [unintelligible] was written in the script at points when it was impossible to make out what the speaker was saying
- [laughs] was written in the script at appropriate points
- [speech overlaps] was used to indicate when both were speaking at the same time
- line numbers were used in multiples of 5

6.2.3.2 Stages in analysing interview data

The purpose of analysing interview data was to identify patterns in relationships between concepts and conceptual frameworks in the tradition of grounded theory. It was therefore important to choose an analytical tool that would best enable the development of a coding system which could then be applied to subsequent transcripts and revised as necessary. As Bucholz (2000) points out, it is as well to be aware of what is standard practice in my own discipline. Discussion with colleagues indicated that, within the field of education, NUD*IST was a statistical analysis package that proved useful in developing theory from the data. Within the field of environmental education, Reid (1998) discusses how:

‘the transcripts for the interviews, together with any supplementary information, formed the basis for the testing and generation of analytical categories, for reliability and validity checks, and for data interpretation. My intention was to identify themes that emerged for individual teachers as well as common themes across teachers for the main research

questions. Thus the category system would be grounded in the data ... rather than from ... imposing pre-determined categories derived from the literature' (p. 175).

His approach was to begin developing the conceptual framework by reflecting on the nature and direction of his research, and then to use NUD*IST 'to facilitate the clerical and indexing tasks in the analysis' (Reid, 1998: 187). In my case categories had already been developed from the concept maps (table 6.3) and these, along with the frameworks from other researchers (geographical persuasions, theories of teaching, and educational ideologies) formed the basis of a conceptual framework, or coding system, that was then further developed from analysis of the transcripts using used NUD*IST. This reflects Strauss and Corbin's (1998) view that it is possible to draw on frameworks presented in previous grounded theory studies as long as the researcher does not become overly familiar with, or attached to them. This is a point I will return to later.

NUD*IST analyses data in different text unit sizes (usually paragraphs or sentences) which are coded using a hierarchical index system, referred to as the index tree, and allows for both a root and branch structure, and free nodes which do not appear to fit the overall tree (Gahan & Hannibal, 1998). NUD*IST also allows for the analysis of imported documents (interviews, school experience field notes) and external documents that may not be in a suitable format for importation (concept maps, conceptions of teaching and learning, lesson plans and medium term plans). It therefore seemed to hold promise as a tool that would aid the analytical process.

As the interviews were analysed using the index tree, other categories began to emerge that were initially placed as free nodes, but some of which subsequently formed a further branch within the index tree. During this initial coding phase thoughts were recorded in the research diary that indicate the types of questions that were being raised in my mind. These questions focused mainly on the nature of the conceptual framework and the extent to which it was reflecting the conceptions and connections between them that appeared to be evident. Clearly, in grounded theory, this is the purpose of the process and the index tree was continuously revised as each transcript was analysed. However, some questions were also being raised about the usefulness of NUD*IST itself. The central concerns were that it was very time consuming (transcripts need to be prepared in a particular format) and, as time went on, the index tree grew to such an extent that the ability to identify finer-grained

distinctions seemed to be getting in the way of identifying broader patterns. Not being able to see the wood for the trees was also potentially unhelpful when beginning the process of writing up – for example, when deciding how to structure the presentation of the individual students' development over time.

A colleague who had completed a PhD in English Education and had numerous transcripts to analyse showed me how she had used Microsoft © Word's (2000) indexing and cross-referencing functions as a means of electronically applying and developing a coding system. Information provided with Word 2000 explains that:

An index lists the terms and topics discussed in a printed document, along with the pages they appear on. You can create an index entry:

- For an individual word, phrase, or symbol.
- For a topic that spans a range of pages.
- That refers to another entry, such as "Transportation. See Bicycles."

If you create numerous index entries for a specific topic area, you might want to create multilevel index entries. For example, create the main index entry "Transportation," and then group the subentries "Bicycle" and "Automobile" under it. (Microsoft © Word 2000)

The facility to create multilevel index entries and to link one entry to another, and the obvious advantage of being able to do this within the programme that created the transcripts and was readily available, led to the decision to adopt its use in place of NUD*IST. In addition,

after you've marked all the index entries, you choose an index design and build the finished index. Word then collects the index entries, sorts them alphabetically, references their page numbers, finds and removes duplicate entries from the same page, and displays the index in the document. (Microsoft © Word 2000)

something which made the business of selecting extracts of the interviews (to illustrate points being made) much easier when writing up (appendix 27).

During 2001-2 all the stimulated recall interview were analysed a second time using Word indexing, leading to further revisions of the conceptual framework which was then used for analysis of the post-observation interviews. Due to the nature of the focus of these interviews, and the other data available (lesson plans, classroom observations and diary entries), it was then possible to refine the conceptual framework once again (appendix 28).

In any research project there are questions about the validity of the interpretations made from the data. In qualitative research, and specifically grounded theory research, the claims to validity are potentially even more problematic. On the one hand there is the concern that interpretations should be seen to flow from the data and that others might make similar interpretations from those data. On the other hand, in terms of the theory generated a more fundamental question is:

How do we know when we have specific social inquiries that are faithful enough to some human construction that we may feel safe in acting on them, or, more important, that members of the community in which the research is conducted may act on them? (Lincoln and Guba, 2003: 277)

In this study there are therefore issues surrounding the interpretations made, through analysis, of the data sets (concept maps, written accounts of teaching and learning, interview transcripts, lesson plans and research diary). These interpretations then affected choices in selection of material to be presented in chapters 8-10, from which further learning takes place in the form, here, of the creation of the a theoretical model that attempts to illustrate how students develop as teachers of primary geography. There are thus issues surrounding learning from the three students themselves.

Using the principle of crystalline validity (see 5.1.3 above), care was taken to gain the perspective of others at a number of points during the research process (Table 6.6).

Time	Activity	People involved	Influence on research
February and March 1999	Presentation of paper on Pilot Study at UDE Geography Tutors and Primary geography Research conferences	Discussion about use of concept mapping as a tool for eliciting conceptions and the subsequent interpretations made of these maps.	Elicit conceptions of geography and teaching & learning separately; provide some concepts as a starting point for the concept map; develop a more reliable tool for analysis
December 1999	Analysis of concept maps and accounts of teaching and learning	Primary and secondary geography tutors – both analysed data of 11 students who were interviewed, using the analytical tool developed by the researcher. Discussions about reliability of tools and validity of claims made from analysis.	Recognition that even geographers, using the same tool and having an agreement about the codes for analysis will interpret concept maps differently. However, there was broad agreement about which category (scale 1-4, most to least sophisticated) to allocate each map and which persuasion was evident in each map.
January 2000	Paper on first stage of data collection and analysis presented at a seminar at the Centre	Lecturers and research students from CREE – critical discussion of ideas, methodology and tools.	Criticism focused on appropriateness of tools for accessing students' professional values about geography and

	for Research in Environmental Education, Bath University	Followed up by email discussion.	teaching. Focus of research began to shift from values to conceptions.
February 2000	Paper as Jan 2000 presented at Primary Geography Research Conference	Primary Geography Teacher Educators, LEA and teacher colleagues with an interest in primary geography – discussion of ideas.	As above (although this group less critical of methodology than CREE group).
March 2001	Paper on case study presented at my HEI's research week seminar	Colleagues from education and other faculties invited to offer critical comments.	More prominence given to ideas now formulating about the role and importance of pedagogical content knowledge and its relationship with subject and pedagogical knowledge.
Sept 2001 – present	Member of Bristol Group – an informal group of geography tutors working in ITE who meet 3 times a year	Critical discussions about the nature of geographical education and curriculum change – focus of discussion often a paper written by one of the group	Helped to inform the literature review outlined in chapter 2.
June 2002	A completed example of one student's development written using revised structure, read by primary geography colleague	Feedback given on validity of claims plus further ideas for consideration.	Became more explicitly aware of my own role in the student's developmental process – a factor (and research issue) that must not be discounted.
January and March 2003	Paper on results, analysis and discussion of university phase data at UDE Geography Tutors and Primary Geography Research conferences.	Discussion of results as presented, and issues of reliability and validity.	Need to change title to reflect change in focus of research. Quantitative approach to presentation of data questioned by one or two – to what extent can I claim that changes are due to the geography component of the course or other factors?
January and March 2004	Paper on 'A case study of one beginning teacher's development as a teacher of primary geography' given at UDE Geography Tutors and Primary Geography Research conferences. Theoretical model proposed to colleagues for the first time.	Discussions of theoretical model and its application to one student's developmental process.	Considered the distinction between pedagogical content knowledge and what another colleague (doing research with a similar focus but with experienced secondary geography teachers) calls synoptic capacity. Continuing discussion helps clarify the way in which the factors affecting subject and pedagogical knowledge are represented in the model.
June 2004	Invitation to give keynote lecture on 'Knowledge bases for effective teaching: A case study of two beginning teachers' development as a teachers of primary	Conceptual framework for comparing the two beginning teachers was discussed.	Model and ideas broadly accepted. Feedback indicated agreement over the importance of subject knowledge and particularly substantive subject knowledge.

	geography' given at IASSEE ³ conference in Dublin.		
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Table 6.6: Involvement of the education community in, and their influence on, the research

In addition, the students themselves were asked in each interview to offer their own interpretations on other data gathered (concept maps, classroom observations) as well as the initial drafts analysing their development, all of which contributed to the gaining of multiple perspectives, an important element of interpretive research (Denzin & Lincoln, 1998).

In terms of learning from the case and the examples within it or, as Stake describes it 'knowledge transfer from researcher to reader' (1998:95) it needs to be recognised that 'both research and reader need conceptual structures' (ibid) and that the process of writing in itself, through the organisation of paragraphs, sections and headings, and the selection of data to use for illustration, applies a conceptual structure. One cannot know the cognitive frameworks or previous knowledge of the readers that will affect how the final thesis is read and understood, but it is possible to seek to 'protect and validate the transfer of knowledge' (ibid). In addition to the use of multiple tools and perspective, Stake identifies (in the context of case study research) comparison of the examples within the case as a key means of clarifying meaning. However, comparison is not without its drawbacks.

I see comparison as an epistemological function competing with learning about and from the particular case. Comparison is a powerful conceptual mechanism, fixing attention upon the few attributes being compared and obscuring other knowledge about the case. (Stake, 1998:97)

The dilemma is whether to go for comparative or thick description, the former having the advantage of greater conceptual clarity, the latter enabling detailed description of the uniqueness of the case and its contextual factors. It is for this reason that a decision was taken to use thick description (chapters 7-10) as well as provide a comparative description in chapter 11. In addition, the generalisations made are tentative, or 'fuzzy generalisations' (Bassegy, 1999) where researchers can make 'general statements from their research, *if they are imbued with uncertainty*' (Lotz-Sisitka & Raven, 2004:83). Part of the process of being

³ IASSEE – Irish Association for Social Science and Environmental Education

tentative is not only to use appropriate language (could instead of will) but also to be clear about the context within which the data were gathered. In this thesis the literature review provides the context at a general, macro level, while the research diary and participants' biographical questionnaires provide specific contextual detail at the micro level. These data are presented where appropriate and taken into consideration as part of the analytical and interpretive process. Finally, where extracts from interview transcripts are presented, the context within which the extract is situated (conversation preceding and following the extract) is either provided in the text, or through examples of whole transcripts in the appendix (appendices 26 and 30).

6.3 Summary

This chapter has discussed each of the research tools in turn, along with issues of reliability and validity as they arise specific to each tool. The use of tools for gathering data relate to the university-based phase (concept maps, written accounts, stimulated recall interviews) and the school-based phase (classroom observations, post-observation interviews) of the research. Tools for analysis were developed from the data and the literature and used electronic means (NUD*IST and Word indexing function) to aid the coding and cross-referencing of the interview transcripts. The chapter concludes by applying the principles of grounded research and crystalline validity to the process used for analysing and interpreting the data and the generation of theory from these data.

7. Primary student teachers' conceptions of geography, teaching and learning.

This chapter sets out and analyses the data gathered during the university phase of the research. These data were gathered during the initial elicitation exercise (biographical details, conceptions of geography, teaching and learning, n=79) conducted in the first taught session, September 1999; the annotated concept maps and geography component evaluations (n=67) conducted during the final taught session, December, 1999; and the semi-structured, stimulated recall interviews (n=11) conducted as soon as possible after the final geography taught session, i.e. during December 1999 and January 2001

7.1 Biographical information

At the beginning of the academic year 1999-2000 all students on the PGCE Primary ITE course were asked to complete a biographical questionnaire (appendix 18), the results of which are shown in table 7.1. There does not seem to be much distinction between students' backgrounds in geography and whether they choose to focus on later years (7-11) or early years (3-8), but students in later years groups are more likely to hold a geography degree than those in early years groups. As a whole the majority of the cohort chose not to pursue geography beyond the age of 16. The reason for this, not surprisingly, could be due to their attitude towards the subject. When the relationship between study of geography and attitude towards the subject at school is examined, the majority of those who did not continue with their study into 'A' level expressed a negative attitude. There is quite a high correlation between those who continued to study geography beyond 16 and expressing a positive attitude towards it.

Interestingly, at the beginning of the course a much higher proportion of students express a more positive attitude¹ towards the subject than they held at school. Some students explained that while they had not enjoyed geography at school, they recognised its value and were excited about making it more interesting and fun for children than they had experienced.

¹ Students were asked, on the biographical questionnaire (appendix 18) to rate their attitude towards geography on a scale 1 – 7 where 1 = extremely positive and 7 = extremely negative

	LY1	LY2	EY1	EY2	Total
Number of students per group (n=)	17	16	23	23	79
Studied geography age 14-16	10	10	13	17	50
‘O’ level or equivalent	10	9	11	12	42
Studied geography 16+	6	2	3	5	16
‘A’ level or equivalent	4	4	1	4	13
Degree	4	4	1	1	10
Other relevant experience &/or qualification	6	7	6	8	27
Attitude at school:					
Negative	5	5	3	7	20
Neutral	5	5	10	5	25
Positive	7	6	10	11	34
Attitude at beginning of course:					
Negative	1	2	1	2	6
Neutral	3	2	11	1	17
Positive	13	12	11	19	55

LY = Primary Later Years focus (5-11 yrs)

EY = Primary Early Years focus (3-7 yrs)

Table 7.1: Biographical details of PGCE Primary Cohort 1999-2000

Another reason for the increase in positive attitudes might be the influence of ‘life experiences’, whether directly (e.g. through travel, involvement in environmental groups) or indirectly (e.g. through books, TV programmes, people encountered). However, only about a third of the whole cohort stated that they had some other relevant experience and/or qualification indicating that they do not perceive ‘life’ experiences as being relevant. The extent to which life experiences are perceived as contributing to their conception of geography will be returned to later on.

7.2 Conceptions of geography before the course

As detailed in chapter 6, students’ conceptions of geography were elicited using a concept mapping task in which 8 key terms – climate, environment, local, global, mapping, people, physical features and places – drawn from the pilot study were provided. Students were asked to arrange concepts and link them to show relationships between concepts. They were also asked to label the links to indicate the nature of the relationship.

Concept maps were analysed using a tool developed from the data (chapter 6.1.5.2), that was based on modes of analysis used by other researchers (Ghaye & Robinson, 1989; Morine-Dersheimer, 1993). Using this tool, a single point was given for evidence of a category in a concept map; the total score for any student’s map was therefore 13.

	Number of students for whom each category was evident	% of n=79 (to nearest 1/10 th)
Structure		
Apparent ordered structure	46	58.2
Linear links between nodes	76	96.2
Cross links between different levels	39	49.4
General concepts added	29	36.7
Specific concepts added	52	65.8
Statements along links	66	83.5
Statements along links are explanatory	17	21.5
Relationships		
Spatial, locational	15	19
Time, changes	9	11.4
Causes, effects, influences	48	60.6
Inter-relationship	20	25.3
Active geography (investigations, enquiry)	4	5.1
Skills (mapwork, fieldwork)	40	50.6

Table 7.2: Total scores given for concept maps elicited September 1999 (n=79)

Table 7.2 appears to show that the students scored more highly for the structure (also representing content in the form of nodes provided) than they did for types of relationships shown within the structure (representing geographical processes – the conceptual framework for understanding the content). It also seems that, within the structure, few of the labels along links are explanatory in nature. Statements tended to be descriptive and simplistic, for example ‘mapping **includes** map reading’ and ‘people **live in** places’ and ‘physical features **are part of the** environment’. Where more complex relationships were demonstrated, these were predominantly causal in nature: ‘farming **is influenced by** climate’, and ‘global **changes have an impact on** environment’. A surprisingly small number of concept maps showed a spatial dimension and only four maps showed that enquiry or investigations were part of the subject: ‘geography **involves investigating over** time’. Where skills were evident, this tended to be mapwork and this was only given a

point if mapping skills were detailed beyond the provided nodal term: ‘mapping **can show changes in** climate’ and ‘mountaineering **requires skills in** mapping **especially reading maps**’.

When placed against geographical background all those considered to be geographers (for the purposes of this research defined as those who studied geography as a main or subsidiary subject in their degree) received a score between 1 – 4 for relationships, but they were no more likely than other students to score highly overall. Only 66 scored a point for statements along links because 13 students did not label their links, even if they provided them. These 13 students therefore did not score at all for relationships, indicating that they had no conception of geography beyond the words they could associate with the subject. One student scored only a single point because she did not add anything to the nodes provided other than placing them in some sort of structure.

Individual scores within the cohort ranged from 1 – 11.

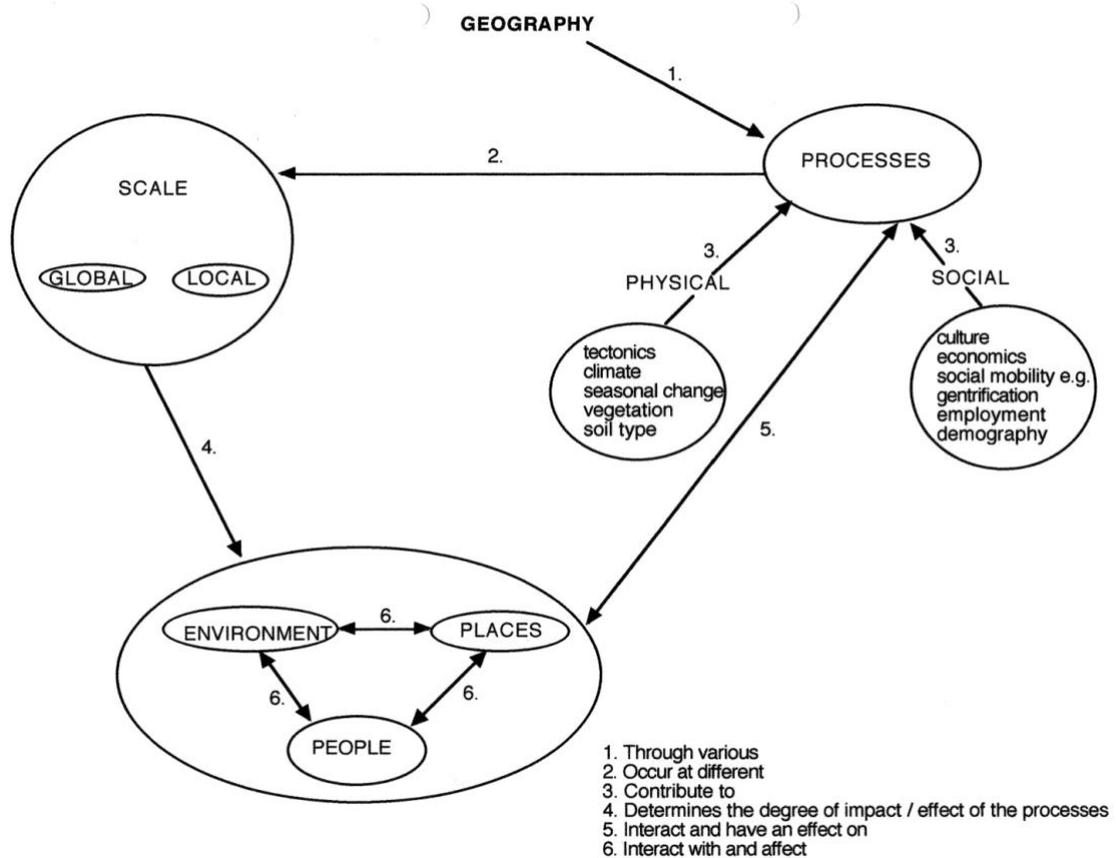
EY1 scores range from 1 – 11. EY2 scores range from 2 – 11.

LY1 scores range from 3 – 11. LY2 scores range from 3 – 10.

It was then possible to identify four key categories showing conceptions that ranged from most sophisticated (category 1) to least sophisticated (category 4). Although the total possible score for each student was 13, the categories were developed on the basis of the actual totals scored in conjunction with the holistic, ‘eye-ball’ assessment of the key features of concept maps within each category. Level descriptions were thus developed for each category and each map judged by its ‘best fit’ with the description as well as its total score. It seems worth mentioning at this point that when analysing the concept maps using the scoring system, those maps that appeared to be very detailed and cluttered did not necessarily score as highly as those that were less detailed or cluttered. The reason for this was that it was recognised from the holistic, ‘eye-ball’, assessment that a cluttered concept map does not necessarily show complex ideas. Indeed, in one instance, a concept map that was among the least cluttered scored a total of 10 because the student had created a structure of his own (cyclical rather than hierarchical) and had been selective about which of the 8 terms provided he used. This indicated a level of confidence and understanding

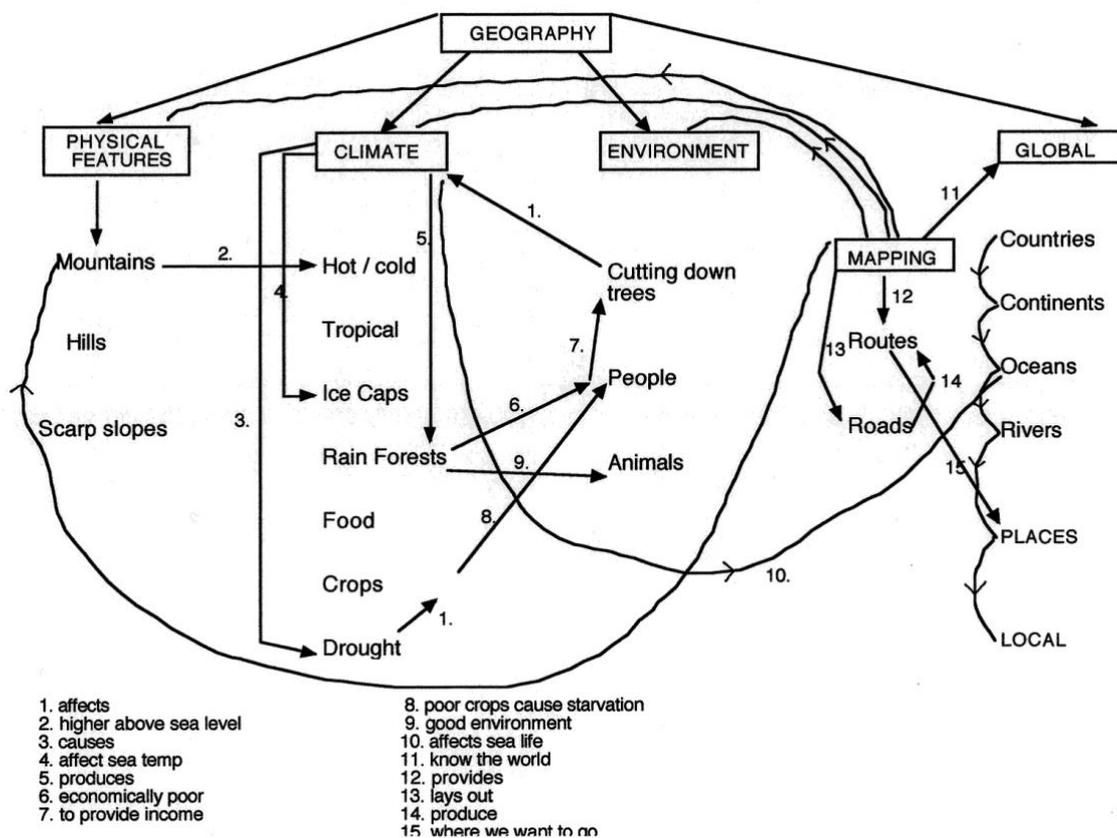
that was lacking in many other maps. The level descriptions for each category are now given, with an example of a concept map from that category.

Category One (9-11 points)



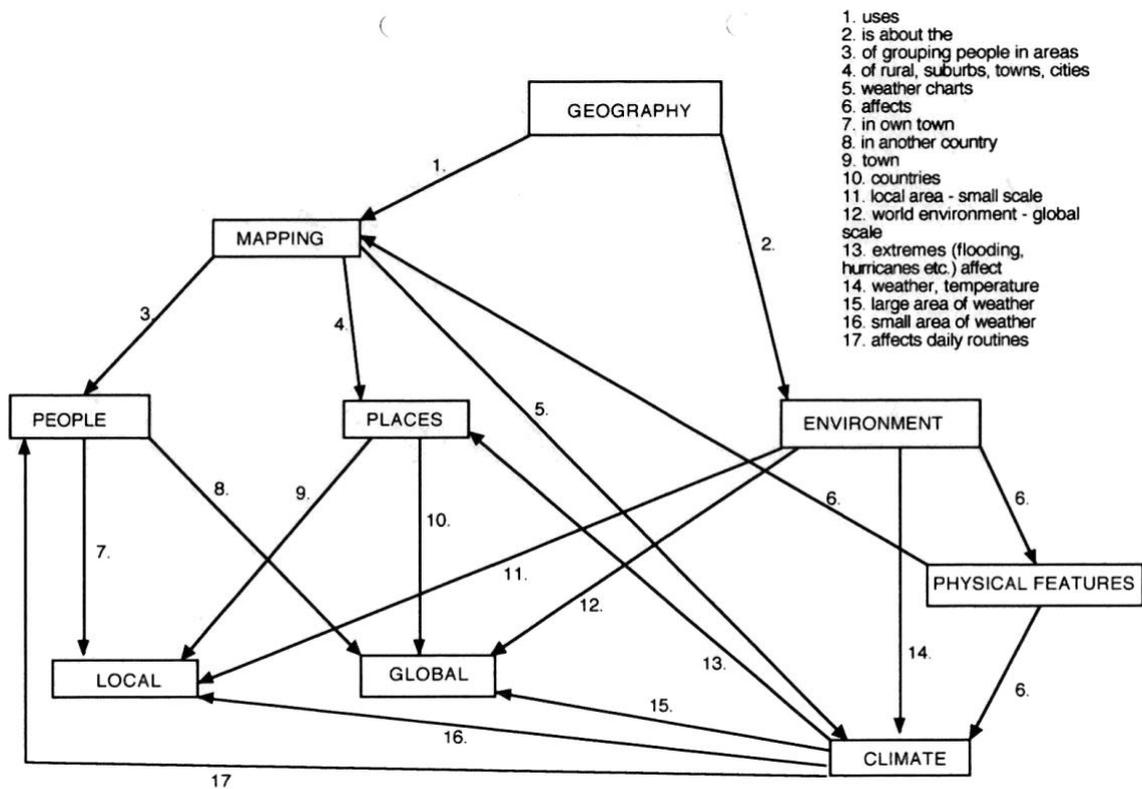
Maps in this category tend to score highly for both structure and geographical relationships shown in the statements along the links. These maps all indicate a clear structure, complexity of relationships between nodes, and explanatory links that go beyond cause and effect to incorporate inter-relationships / interactions. The students in this category were more likely to construct a map using a structure that is not hierarchical, and to select only those concepts from the provided list of 8 that they wished to use while adding other broad concepts of their own.

Category Two (6-9 points)



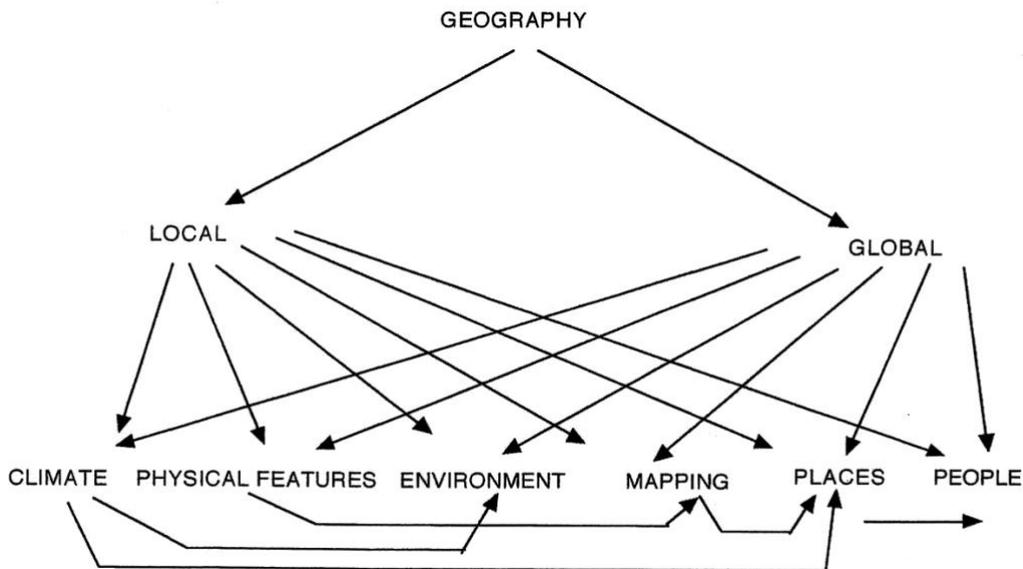
The majority of concept maps in this group are structured, and have some emphasis on conceptual links, although statements along links are more often descriptive than explanatory. Where links are explanatory, they tend to use single words (affects / causes) rather than explain the type of effect / cause. Geography is generally portrayed as a hierarchy of categories, reflecting a ‘descriptive-rich’ view.

Category Three (4-5 points)



The concept maps in this category are quite varied - some having an apparent structure while others do not. However, the majority do not score well for the types of concepts / relationships evident in their maps. Very often the only type of conceptual relationship between nodes is that of cause and effect. These maps tend not to have nodes added to the original set provided, indicating a narrow or ill-formed view of the subject. Some of the links between nodes do not make sense, geographically.

Category Four (1-3 points)



The concept maps in this category are all without an apparent structure and, if links are made they are often not labelled to indicate the relationship between nodes. Beyond sticking down the labels provided very little was added to the map suggesting a lack of understanding of the nature of geography and/or a possible lack of confidence in portraying a poorly formed view.

The total number of concept maps in each category is shown in table 7.3, which shows that the majority of students' concept maps are in categories 2 and 3 and that there is very little difference between the later years and the early years in terms of the spread across all four categories. There is a slightly higher number of maps in category 4 within the early years and, if these students' biographical details are studied, there seems to be no particular factor that could explain this. Indeed, there seems to be no correlation between students' geographical experience at school and the degree of sophistication of geography shown in their concept map.

Category (score range)	LY1 n=17	LY2 n=16	EY1 n=23	EY2 n=23	Total n=79
1 (9-11)	2	2	3	1	8
2 (6-8)	12	8	6	9	35
3 (4-5)	2	5	11	6	24
4 (1-3)	1	1	3	7	12

Table 7.3: Number of concept maps in each category

Of the scores in category 1, two were geographers, but within this category, only three students had a score of 11 and none of these were geographers. However, two of these three noted on their biographical questionnaires that they had, since leaving school, developed a keen interest in geography or environmental studies as a result of extensive travel and joining an environmental action group.

Of the 79 in the cohort, 10 were Geographers and these fell into the following categories:

Category 1: 2

Category 2: 7

Category 3: 1

Category 4: 0

Finally, the concept maps were also analysed against the 3 geographical persuasions – scientific, humanistic / welfare, environmental (Barratt Hacking, 1996) – as a means of indicating the *nature*, as well as the degree of sophistication, of a student’s conception.

Persuasion	LY1 n=17	LY2 n=16	EY1 n=23	EY2 n=23	Total n=79
Scientific	17	13	18	18	66
Welfare / Humanistic	1	2	3	1	7
Environmental	3	4	5	3	15
Not discernable		1	3	3	7

Table 7.4: Geographical persuasion evident in concept maps

In terms of the geographical persuasions it should be noted that some concept maps showed evidence of more than one persuasion – hence the totals for table 7.4 add up to

more than 79. The persuasion evident the majority of students' concept maps was scientific/descriptive rich. Only a handful of maps indicated that aspects such as inequality might be part of their conception of geography, and although environment had been provided as a key concept, only 15 students expanded on this to show elements of environmental concern or environmental issues such as pollution. Since 69 of the students were considered to be non-geographers it might be expected that they would have a conception of the subject that mirrors the popular, but perhaps now academically outdated, conception. The implications of this are discussed in chapter 12.

7.3 Changes in conceptions of geography.

	Number of students for whom each category was evident Sept 1999	Annotations in each category made to maps Dec 1999	Number of students for whom each category was evident Dec 1999
Structure			
Apparent ordered structure	46	2	48
Linear links between nodes	76	1	77
Cross links between different levels	39	4	43
General concepts added	29	3	32
Specific concepts added	52	5	57
Statements along links	66	0	66
Statements along links are explanatory	17	5	22
Relationships			
Spatial, locational	15	1	16
Time, changes	9	6	15
Causes, effects, influences	48	3	51
Inter-relationship	20	5	25
Active geography	4	11	15
Skills (mapwork, fieldwork)	40	14	54

Table 7.5: Annotations made to concept maps after the taught course

Table 7.5 shows the number of annotations made by students on their original concept maps at the end of the geography component's formal sessions. A number of factors affect the results. For example, two students had left the course by this point and 10 students were absent for the session during which annotations were made. It must also be taken into account that the scoring system only gives a single point for evidence of a category, so

even if annotations have been made these may not add to the score because they are in a category for which that student has already scored.

While the results provide evidence that students' conceptions have changed, for the cohort as a whole this does not seem significant in numerical terms. However, some of the changes made could not be scored because a category did not exist for them – for example some students (12) introduced the concept of comparisons, similarity and difference, while others (6) showed awareness of the 'key elements of learning' (DES, 1985). These, along with other annotations, reflected aspects that had been emphasised during the geography programme (see chapter 4).

Two categories do stand out as having become a greater part of students' conceptions, and these are 'skills' and 'active geography'. The former shows that students are now more explicitly aware of mapping and fieldwork as skills that the geographer uses, and for some this extended to interpretation of sources. For example, one student added to her concept map '**features and how to represent them on a map using a variety of stimuli**' and to her hierarchy of 'people – population – 3rd world issues – food mountains – different cultures' she added '**eliminating misconceptions and stereotyping**'. On this evidence it is possible to suggest that the taught component developed students' understanding of syntactic rather than substantive knowledge. Indeed, although many students said in discussion that their knowledge had increased, they tended to show how their understanding of the subject as a whole had changed, rather than adding detail. When taken into consideration with the comments made during stimulated recall interviews (see section 7.4 below), this seems to be evidence of a more fundamental shift in perspective on the nature of geography.

Changes in conception as shown against the four categories (table 7.6) seem to suggest that, as a result of the taught course, students' conceptions *have* become more sophisticated. For example, the numbers of concept maps in category 1 have doubled while the number in category four have halved. What the table does not show is that for some students this shift was considerable – some scores changed from 5-9, 3-7 and 5-10 – while others changed from 6-7, which does not show on the table above.

Category (score range)	LY1	LY2	EY1	EY2	Total
1 (9-11)	4 (2)	4 (2)	6 (3)	3 (1)	17 (8)
2 (6-8)	11 (12)	8 (8)	9 (6)	10 (9)	38 (35)
3 (4-5)	2 (2)	4 (5)	6 (11)	6 (6)	18 (24)
4 (1-3)	0 (1)	0 (1)	2 (3)	4 (7)	6 (12)
Persuasion					
Scientific	17 (17)	14 (13)	19 (18)	19 (18)	69 (66)
Welfare / Humanistic	4 (1)	3 (2)	4 (3)	2 (1)	13 (7)
Environmental	3 (3)	4 (4)	8 (5)	3 (3)	18 (15)
Not discernable		1 (0)	3 (2)	3 (2)	7 (4)

Table 7.6: Changes in students' conceptions as shown against categories and geographical persuasions (scores from Sept 1999 shown in brackets)

In terms of their persuasion, the majority of concept maps continue to reflect a scientific / descriptive-rich persuasion. The addition of three to this category is equal to the reduction in number of those whose persuasion was not discernable in Sept 1999. Nine more students *do* now show a humanistic/welfare or environmental persuasion in their concept map and the fact that most of these show a humanistic/welfare persuasion could be due to the nature of the course and its emphasis on geography as a subject that has the potential to develop pupils as global citizens.

7.4 Conceptions of geography revealed through stimulated recall interviews.

7.4.1 Selection of sample to interview.

The combination of qualitative and quantitative analysis enabled a smaller sample of students to be selected. The aim was to have four from each category and, within each category, a mixture of geographers and non-geographers, traditional (PGCE done straight after formal schooling and degree) and non-traditional (change of career, time spent travelling or other, raising a family, therefore classified as a mature entrant) entrants, geographical persuasions and early years or late years specialists. These students were asked if they would be prepared to participate further in the research by being interviewed

and, if possible, being observed teaching geography during their final block school experience. The tables below show details of those selected for the sample as well as whether they did, in the event, take part in the stimulated recall interview and whether they were observed during school experience.

Key to tables:

G = Geographer NG = Non-geographer

* = students have identified other relevant qualifications / experience (e.g. a special interest in the field of environmental conservation)

Persuasion: Sc = scientific, W/H = welfare, humanistic, E = environmental, ? = no obvious persuasion

T = Traditional entrant NT = Non-traditional entrant

Shaded row + SE = student observed during school experience and first year of teaching

Category One (9-11 points)

G / NG	Score	Age range	Persuasion	Attitude	T/NT
NG* interviewed	11	LY	Sc	+ve	NT
NG*	11	EY	E	v +ve	NT
NG interviewed	11	EY	W/H	+ve	T
G1 interviewed + SE	10	LY	Sc [w]	+ve	NT

Category Two (6-8 points)

G / NG	Score	Age range	Persuasion	Attitude	T/NT
NG1* Interviewed + SE	8	EY	Sc	+ve	NT
NG Interviewed	8	LY	Sc [E]	v +ve	NT
G2 Interviewed + SE	8	LY	Sc	v +ve	T
G Interviewed	7	EY	Sc	v +ve	NT

Category Three (4-5 points)

G / NG	Score	Age range	Persuasion	Attitude	T/NT
NG Interviewed	5	EY	Sc	-ve	NT
NG2 Interviewed* + SE	5	EY	Sc	v +ve	T
NG	4	LY	Sc	+ve	NT
NG Interviewed	4	LY	Sc	-ve	T

Category Four (1-3 points)

G / NG	Score	Age range	Persuasion	Attitude	T/NT
NG	3	LY	Sc	-ve	T
NG	3	LY	?	v -ve	NT
NG* Interviewed	2	EY	?	v +ve	NT
NG	1	EY	?	-ve	NT

The rows in the tables above that have been highlighted show those students who were subsequently observed on at least three occasions during the PGCE and NQT years. Data from three of these students are reported in chapters 8-10.

11 of the 16 selected for the smaller sample agreed to take part in the stimulated recall interviews. In terms of their conceptions of geography the interview sought to probe their conception more deeply, to explore whether they felt able to represent their conception adequately in concept map form, to ascertain the range of experiences they drew on to inform their concept map, and to explore any underlying attitudes and values that seemed to underpin their conception. In addition, the interview asked the student to classify their conception against the three geographical persuasions enabling comparison with the interpretations made during analysis. Finally, students were asked to discuss any changes shown in their conception through their annotations of their concept map after the taught component and to offer explanations for those changes.

7.4.2 Students' conceptions and their ability to represent them as a concept map.

Overall those interviewed said they were able to represent their conception adequately in the form of a concept map, although many expressed dissatisfaction with a hierarchical structure as a means of portraying their conception. The majority *did* use such a structure, but said that they saw the elements of geography, as represented in the nodes, as being far more interlinked and difficult to separate.

'No, I didn't see it at all as hierarchical. ...I was just trying to link my ideas into some kind of semblance, but not hierarchical'. G category 2 lines 124, 126-7.

Two alternative structures used were cyclical (G1) and sequential (G2). Both these students had a geography degree and, as confirmed in interview, were confident enough to create their own structure and to be selective about which of the terms provided to use or not. G1's conception is discussed in detail in chapter 8.

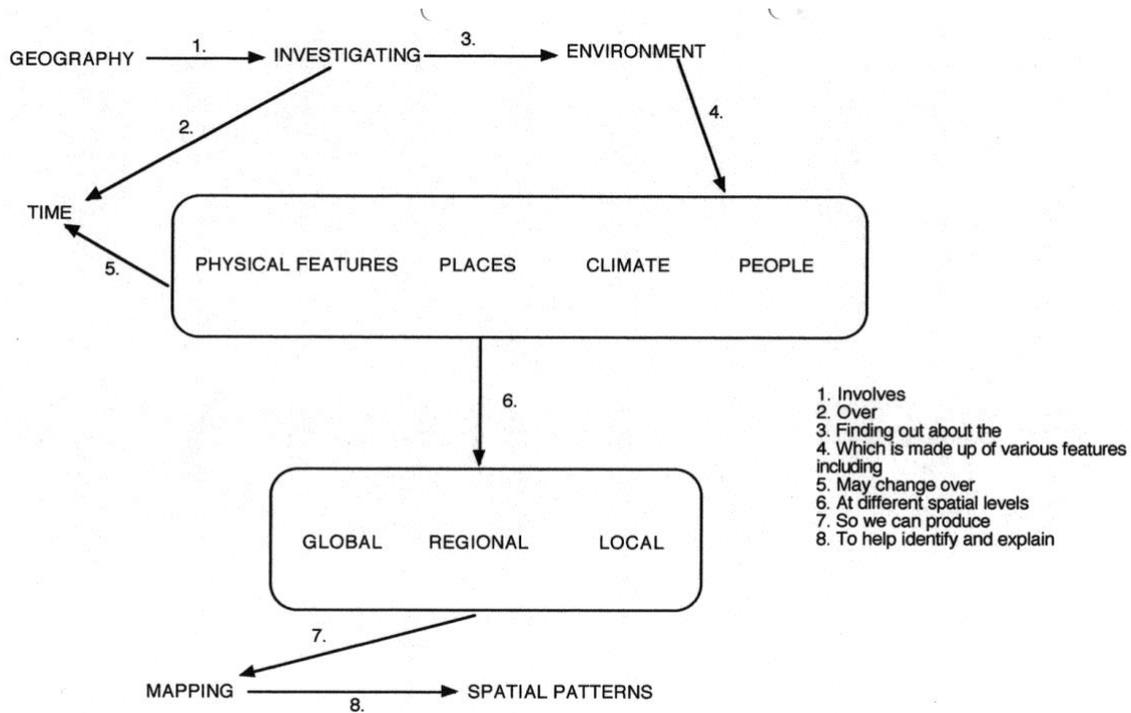


Figure 7.1: G2's concept map September 1999

The student (G2, figure 7.1) who chose a sequential structure presented her conception almost as a story. The interview showed her conception to be more complex than was evident in her map and her explanation for this was that she had done it for her own understanding rather than making it explicit for someone else. For example, when asked why she hadn't shown interaction between nodes on part of her map she replied:

'I think probably I wanted to group them together and ... that because I'd grouped them together I knew ... that they were all related'. G2, line 33-35

Her concept map was far less cluttered than some and she put this down to her desire to keep things simple

'I remember looking at everyone else's and they'd got things written all over the place and mine looks really basic but to me that's clearer and it makes sense'. G2 line 75

But she recognised that this could be misleading to someone else as too many things were implicit in her representation.

‘When I put that down [node of people] I didn’t just see the word people, I knew what that meant’. G2 line 58

This also highlights the potential drawback of concept mapping – that aspects of the conception may well be implicitly rather than explicitly shown. Methodologically it therefore confirms the importance of conducting a follow-up interview as a means of probing participants’ ideas more deeply and increasing the validity of interpretations made.

Otherwise, when questioned about elements of geography or geographical relationships that had not appeared on their map, such as fieldwork, many of those interviewed said they were aware that it is part of geography but for some reason they did not put it in their map. Other aspects, such as values or enquiry, appear not to be part of their conception at all at the beginning of the course.

Category	Background	Persuasion as identified by Researcher [Student]
1	NG*	Sc [Sc]
	NG	H/W [H/W]
	G1	Sc, H/W [E, H/W]
2	NG1* SE	Sc [H/W]
	NG	Sc, [Sc, E]
	G2	Sc [Sc, E]
	G	Sc [Sc]
3	NG	Sc [Sc, E]
	NG2	Sc [H/W, E]
	NG	Sc [E]
4	NG*	? [Sc, H/W]

Table 7.7: Geographical persuasion as identified by the researcher and student

Although most students interviewed agreed that they had been able to represent their conception adequately, when they were asked which persuasion they thought their map reflected, their response was at odds with the judgement made by the researcher (table 7.7).

As identified by the researcher, most students portrayed a scientific/descriptive rich persuasion and this could well be related to the fact that they tended to draw on their formal school experiences when constructing their maps. The discrepancy between the researcher's and the students' judgements could be because in many cases they were stating what they believed their conception of geography was, rather than whether this was actually evident in their concept map. In this respect they were stating more of an ideal to work towards but, in interview, were often not able to explain this beyond stating that 'this is what my preference is'. This may be partly due to the nature of the elicitation exercise – that it asked students to construct a map for geography and therefore did not immediately encourage them to consider the *value* of geography. However, the teaching and learning elicitation activity explicitly focused on value and, as shown in section 7.5 below, the majority of students continued to portray a scientific/descriptive rich persuasion. Another explanation for the discrepancy could be that students were interviewed after the completion of the geography taught component and now had a preference for a more humanistic or environmental approach to geography in the curriculum.

7.4.3 The range of experiences students draw on to inform their concept map.

Those students interviewed overwhelmingly drew on their formal geographical experiences at school when constructing their map. In the following example she said:

'I was trying to think back on what I'd done as a student [at school]. I hadn't had any other experiences of geography. So that was about it.' NG, category 3, lines 22-24

even though she had not studied geography since the age of fourteen. Two of the three geographers interviewed drew on their geography degree, and these were the two who

structured their concept maps cyclically and sequentially. However the third still relied on her school experiences:

'I was trying to think back to how I learnt geography at school' and 'it brought back all memories of geography being taught in the third year in high school'. G, category 2, lines 35, 280.

That this was the case is evident in the fact that although she did a degree in human geography and town planning, she stated that her geographical persuasion was scientific. It also adds weight to the notion that the knowledge of subjects and teaching gained through their apprenticeship as pupils is very powerful and needs to be explicitly identified and acknowledged if students are to be enabled to expand on their prior conceptions.

7.4.4 Underlying attitudes and beliefs.

Not surprisingly, those students in categories 3 and 4 were much less confident and more likely to have a negative attitude towards geography than those in categories 1 and 2. One non-geographer in category 3 said in interview

'I didn't feel comfortable with doing it at all [the concept map]. ... I didn't feel as though I had any real knowledge .. just wasn't very confident ... I just didn't like being asked'. NG, category 3, lines 121, 126-7

In her case this lack of confidence meant that no other headings or concept terms were added

'I know that a lot of people, they added their own headings, and I just didn't feel confident about doing that' NG, category 3, lines 147-8

On the other hand, all those interviewed from categories 1 and 2 said they enjoyed the elicitation exercise.

'I enjoyed it. It brings back how much I enjoy geography. I enjoyed it, writing it down'. G, category 2, line 278.

The beliefs that underpin students' conceptions of geography are, in part, shown through their persuasions. However, the interview also probed students' understanding of epistemology as it relates to geography. For example, it might be expected that a student whose concept map reflected a scientific/descriptive-rich persuasion might also hold a neo-classical / vocational conception of epistemology, while those whose persuasions were humanistic/welfare might be expected to hold a more socially critical conception of epistemology.

Certainly a geographer interviewed from category 2 whose espoused persuasion is mostly scientific (with elements of environmental) selected the neo-classical / vocational as being closest to her own view of knowledge.

'knowledge in a subject is probably very objective. You need to know this and this to be good at the subject'. G, category 2, line 622

However, on further discussion she began to show an awareness that geography

'is very much split ... because there's knowledge you need to know about, say, physical features' ... but that 'if you were looking at human geography you might very well think well this or that isn't fair, I don't agree with this. I think, yes, you can have both aspects within geography'. lines 629-630, 637-638

Indeed, of the 11 students interviewed, 9 of them were adamant that they did *not* believe in a neo-classical view of knowledge at all and this was usually explained in constructivist terms. These nine tended to believe that knowledge was a mixture of both liberal-progressive because

it's always got to relate back to this individual to have meaning for the individual; otherwise it's not related enough to them for them to understand it. (NG, category 1, lines 645-646)

and socially-critical because

knowledge isn't actually just to do with yourself. (NG, category 2 line 614)

but definitely not vocational / neo-classical because

Um, 'cause it's[knowledge] not objective. There are books and some are more reliable than others, but they've all been written by somebody (NG, category 2, lines 625-626)

7.4.5 Changes in conception

Where there were changes in conception, for some it was quite a fundamental change linked directly, at this stage, to the taught course. For example, one student said that he had never considered focusing on values as part of geographical study and that this was quite a revelation to him. Another said she had not realised that geography could focus so much on people:

'I think, just from doing the geography course with you, it [my persuasion] would be more humanistic because we focused a lot on people and cultures, and I found that ... quite interesting because I didn't know that geography actually looked at things like that. So that was something new, something that interested me.' NG, category 3, lines 290-293

This realisation led to greater confidence. On the first occasion she had felt quite negative about her ability to show her conception. When asked how she felt about doing the annotations she said

'Immediately I knew that I wanted to add lots of things, and I knew I was going to have a more inter-linking relationship between them. ... I felt more confident, definitely, the second time round'. NG, category 3, lines 376-379

and that this was

'maybe it's to do with the knowledge, and just the fact that it's given me more confidence'. NG, category 3, lines 396-7

Apparent lack of change (shown by no annotations or annotations that did not add anything different to their original map) was revealed by some in interview to be more of a change in perspective. For example one student (NG, category 3) said her conception had changed in that, although the content and structure remained relatively the same, she now perceived geography as 'being everywhere' rather than confined to what she had studied at school. This mirrored some annotations where comments such as *'my perspective of how to teach geography is now using children's present knowledge and experience in geography and building on it'* (NG, category 2) were added. In other words, the geography component had enabled them to begin to see 'life' experiences as being valid, geographically.

As detailed in chapter 4, the 'base' (Mair, 1977) from which a student teacher conceptualises a subject can have a profound effect on how they teach it. When students begin an ITT course the majority appear to conceptualise the subject from the base of learner. One of the key aims of the geography component of the PGCE course was to enable the students to move from the base of learner to that of teacher – more specifically geography teacher. To enable this to happen it was necessary (a) to raise students awareness of their own conceptions of geography, (b) to relate these to a variety of others' conceptions, (c) to relate all these conceptions to a range of organising frameworks and (d) to explicitly look at the efficacy of these alternative conceptions and organising frameworks so that the students themselves could adopt ones they felt most helpful to them as teachers. Conceptualising geography from the base, or perspective, of teacher also seemed to help some incorporate enquiry or investigation into their map.

'The main thing is the investigative approach, that's the main thing that's changed ... for children to investigate it really, to be offered it in a variety of ways and experiences. And to understand and touch it, really, rather than just looking at books and being very factual and not understanding it.' NG1 lines 235, 239-241.

The following quote, written on one student's concept map during the annotation exercise, seems to sum up what many students felt they had learnt from the geography component of the course:

'These titles and headings no longer help me with my ideas about geography. During the sessions I have learnt so much about different aspects of everyday life that can be considered in this subject. Enquiry, for example, is a skill which can be developed in children and is as much to do with their approach to learning as the area they are looking at. Thank you for showing me that I can achieve in this subject with my children and, more importantly, that I can enjoy it. After all these years!' (NG, EY2, category 2).

7.5 Conceptions of teaching and learning before the course

Students' conceptions of teaching and learning were elicited in two ways. They were asked to describe how they might teach three aspects of geography as identified on their concept maps, and then state what they considered the benefits of such activities might be for children's learning. Finally they were asked to do a concept map using the given terms teaching – learning – content (see chapter 6.1.3.1).

The descriptions of activities and rationales were analysed in two ways. Firstly they provided a useful basis for comparison with the conception portrayed in the concept map. Secondly, the teaching and learning data for the sample selected were analysed in more detail using a classification system – four theories of teaching: transfer, shaping, travelling and growing (John, 1996).

Overall, students' ideas about how and why to teach geography were more likely to confirm the analysis made of their concept map than not. For example, for the EY1 group, 16 students' ideas confirmed the analysis made, while 7 showed that their conception was broader than that portrayed in their concept map. Where there were differences they tended to focus on showing awareness of geographical skills such as mapping and fieldwork or

learning through investigations. Thinking about how to *teach* an aspect of their conception led students to focus more on syntactic knowledge. When describing the benefits of their teaching ideas for children’s learning, some students then demonstrated a humanistic or environmental focus that had not been apparent in their concept map.

Data for those students who participated in the stimulated recall interviews were analysed using John’s (1996) categories, the results of which are shown in table 7.8.

Category	Background	Transfer theory	Shaping theory	Travelling theory	Growing theory
1	NG* interviewed			√	√
	NG*	√			√
	NG interviewed		√		√
	G1 interviewed		√	√	
2	NG1* interviewed			√	
	NG interviewed	√	√		
	G2 interviewed		√		√
	G interviewed	√	√		
3	NG interviewed	√	√		
	NG2* interviewed	√	√		
	NG	√		√	
	NG interviewed	√	√		
4	NG	√	√		
	NG	√	√		
	NG interviewed		√	√	
	NG	√		√	

Table 7.8: Students’ conceptions of teaching as reflected in the elicitation data, September 1999 (shaded rows indicate students who were observed during school experience and their first year of teaching)

Only the smaller sample were analysed in this way because these would be the students who might be observed teaching geography in school and their beliefs about teaching in theory could then be compared with their beliefs about teaching in practice. All students' accounts of teaching aspects of geography appeared to reflect more than one theory of teaching but those most prevalent were the 'transfer' and 'shaping' theories. That this is due, to a significant degree, to their own apprenticeship as pupils, can be deduced from the stimulated recall interviews. All but two of those interviewed (n=11) mentioned their own schooling when asked why they thought they might teach something in that way. The remaining two were mature students with experience in schools as parent helper or classroom assistant, and drew on these experiences instead. The other interesting phenomenon is that the results appear to show that students who hold a more sophisticated conception of geography are more likely to have a conception of teaching that is child-centred and interactive, whereas students with a less sophisticated conception of geography are more likely to have a teacher-centred conception of teaching. In terms of offering an explanation for why this might be the case it is sometimes interesting to look at those who do not fit the pattern, such as NG, interviewed category 4.

A working idea I was developing was that if a student did not have a well-formed conception of geography, and possibly lacked confidence in the subject, it would be quite a challenge to come up with some child-centred, interactive teaching ideas because there would be little knowledge to base these on. NG, category 4 (interviewed), on the other hand expressed a positive attitude for the subject and, when asked where the control for learning lies, said

With the pupils I think, the teacher starts it off, but I think it's the pupils. NG, category 4, line 264

and that her ideal would be to teach in a way that reflect the growing theory:

'that's how I would like to see myself, with pupils developing, with the teacher as the enabler, to give the resources and give the knowledge when they are ready to accept it really. I don't know whether my knowledge of psychology has changed the way I think, how the children learn'. NG, category 4, lines 297-300.

This identifies her psychology degree, which had modules on teaching and child development, as an additional factor affecting her conception. Never-the-less, a few moments later when giving an example of some geography teaching she had done with a Y3 class,

'I had a world map thing to show them, and they had already looked at the different colours you get on maps according to rainfall and temperature. I was going to discuss the different types of climate you could get and then look at the map and see where they were in the world, sort of near the equator or the polar regions. Then the difference between climate and weather, which I didn't really understand, and sort of different types of animals you'd get there and why, different types of clothes you'd wear, and like in the polar regions where you don't get day and night in some parts of the year, it's just continual day or continual night and some places don't have times of seasons that we do, we did about that really'. NG, category 4, lines 333-340

A combination of partial knowledge and lack of strategies for teaching about this beyond looking at a map and discussing seem to be key factors here leading to a more teacher / content-led and transmissive approach in practice. In interview almost all students stated that their conceptions of teaching and learning were more closely aligned with the interactive and child-centred theories (travelling and shaping) than their written accounts and concept maps suggested (table 7.9).

Category	Background	Transfer theory	Shaping theory	Travelling theory	Growing theory
1	NG* Interviewed			√x	√x
	NG Interviewed		√x		√x
	G1 Interviewed + SE		√x	√x	x
2	NG1* Interviewed + SE			√x	x
	NG Interviewed	√	√	x	
	G2 Interviewed + SE		√	x	√x
	G Interviewed	√	√	x	x
3	NG Interviewed	√	√		x
	NG2 Interviewed + SE	√	√	x	x
	NG Interviewed	√	√	x	x
4	NG* Interviewed		√	√x	x

√ = as interpreted by the researcher
x = as revealed by student during interview (weak)
x = as revealed by student during interview (strong)

Table 7.9: Students’ conceptions of teaching revealed through interview

For example, G, category 2 above, said she thought her ideas were best reflected by the growing theory, but when asked to explain why she talked about how a teacher might:

‘have the knowledge, but you’ve got to be able to impart the knowledge ... they’re all developing ... at different levels and you have to impart that knowledge and get them all to a certain standard’ G, category 2, lines 392 – 4.

A few moments later she said it was important to also be

‘...spontaneous ... say if you do a lesson and nobody understands then you might have to turn the lesson round to something they will understand, links with their experiences’. G, category 2, lines 397-9

suggesting a more child-centred approach. This reflects a phenomenon that is frequently reported in research (Johnson, 1992; Bennet & Carré, 1993); that there is often a mismatch

between students' espoused theories and those evident in practice. In this particular context, stimulated recall interviews enabled some exploration of the apparent mismatch and three factors seem to be relevant. Firstly, some said that their thinking about how to teach had already changed as a result of the course (interviews were conducted at the end of the first term). Secondly, when prompted, some said that the theory they felt best reflected their conception was an ideal to aspire to, but that they recognised they did not have the knowledge and skills to put it into action yet. Thirdly, some students had other experiences to draw on (work as a classroom assistant, psychology degree) that helped them to over-ride their lack of geographical knowledge.

7.6 Examples

During June 2000- June 2001 data were gathered for four students through lesson observation notes, lesson plans and schemes of work, and audiotape recordings of post observation interviews. The key details of these four students are shown in the table below.

G / NG	Category	Score	Persuasion	Espoused persuasion	Age range	Attitude	T/NT
G1	1	10	Sc [w]	E, H/W	LY	+ve	NT
NG1*	2	8	Sc	H/W	EY	+ve	NT
G2	2	8	Sc	Sc, E	LY	v +ve	T
NG2*	3	5	Sc	H/W, E	EY	v +ve	T

The sample was largely driven by opportunity for access and self-selection by the students who agreed to continue taking part during their first year of teaching. For this reason it is perhaps not surprising that access to observe a student whose conception was in category 4 – least sophisticated – was not possible. One student from this category (who expressed a very positive attitude towards geography) did offer to take part, and was observed during her final block school experience. However, she was unable to secure a first post as an NQT and so was unable to continue participating in the research. The main aim of the school-based phase of the research was to explore the extent to which conceptions were evident in action, whether these conceptions were changing over time, and how these related to the students' development as teachers of primary geography.

The next three chapters presents data for three (G1=David, NG2=Becky and NG3=Carrie) of the four students, who were representative of categories 1-3 for their conception of geography. G2's data were not presented because (a) she had a similar development pattern to G1, (b) the majority of primary students are non-geographers so it was thought to be more useful to focus on two non-geographers and one geographer, and (c) she was the only student who secured a post in KS2 and so in some respects it would be harder to compare her with the other three who were all working in KS1.

7.7 Summary

From the analysis of the concept maps four broad categories were developed that could be used to indicate the degree of sophistication evident in a student's conception of geography (category 1 = most sophisticated to category 4 = least sophisticated). Using this tool, the majority of conceptions were in categories 2 and 3, including those of students who had a geography degree. Typical of these conceptions was a hierarchical structure which focused on geographical content, but showed a narrow understanding of the conceptual framework within which geography operates. Concept maps were also analysed according to the geographical persuasion they reflected. The majority showed a scientific or descriptive-rich persuasion, with a few showing an environmental persuasion, and fewer still a humanistic-welfare persuasion.

The annotations on concept maps done after the taught component suggest that students' conceptions have become more sophisticated. For some the change was expressed as a change in *perception* about the subject, rather than an accumulation of more knowledge. It seems as though the taught component enabled students to develop their syntactic rather than their substantive knowledge. For those whose conceptions changed, they now included people and active, enquiry-based learning as a focus, and were more likely to recognise life experiences as a valid base to draw upon. For a small number the change appeared to help them expand their scientific persuasion to incorporate elements of humanistic/welfare and/or environmental persuasions.

In terms of conceptions of pedagogy and knowledge, those whose geographical conceptions were in categories 3 and 4 (least sophisticated) were more likely to have a

conception of teaching and learning that reflected the transfer and shaping theories, while those from category 1 were more likely to show elements of growing. However, all of those interviewed expressed a preference for the travelling and growing theories. Nine of the eleven students interviewed also expressed a belief in a mixture of liberal-progressive and socially critical conceptions of knowledge.

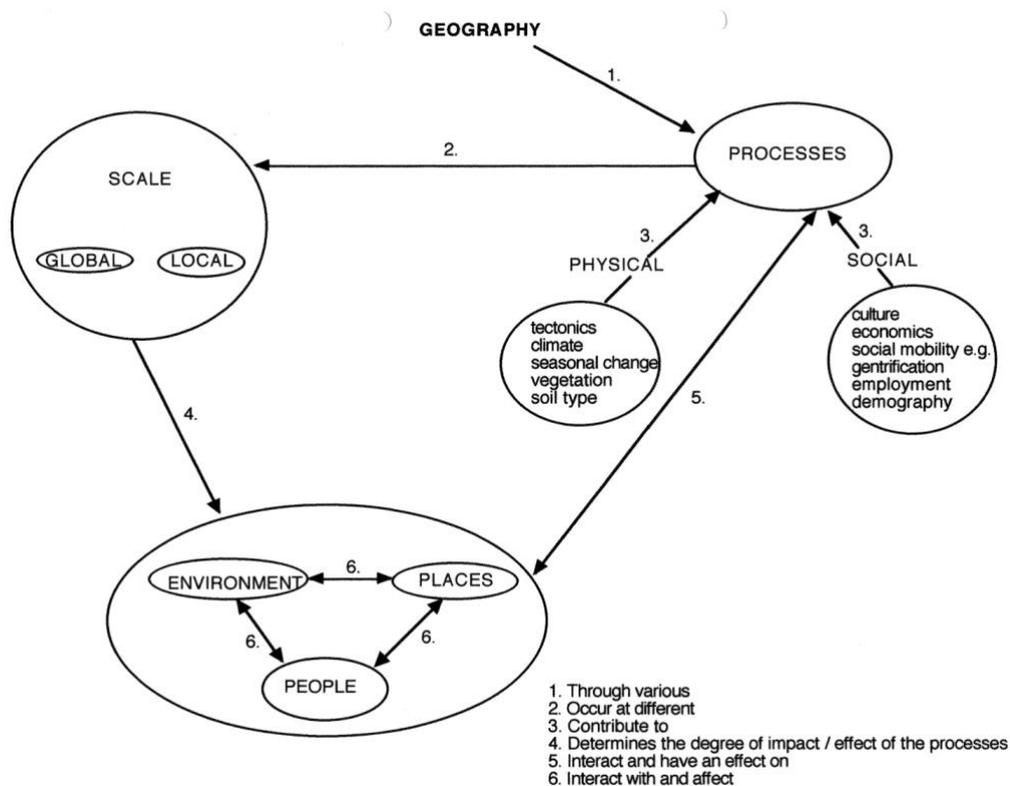
Finally, the interviews provided evidence of the powerful and lasting influence of students' own schooling on their conceptions of geography and how to teach it. This provides a useful context against which to view the three examples that follow.

8 David.

David is a mature student who had a career in Ballet Dancing before taking a BSc in Geography and Sociology 1996 – 1999. He studied geography at school between the ages of 7 – 16 and achieved an ‘O’ level geography Grade B. As a result of his experiences at school David developed a very positive attitude towards geography. He particularly remembers enjoying learning about different parts of the world and about environmental issues. David’s interests are tennis and bird watching. He is also an active member of the Catholic Church. His expressed attitude towards teaching geography prior to starting the course was very positive. He saw geography as a useful subject to develop or increase understanding between subjects.

8.1 David’s Conception of geography

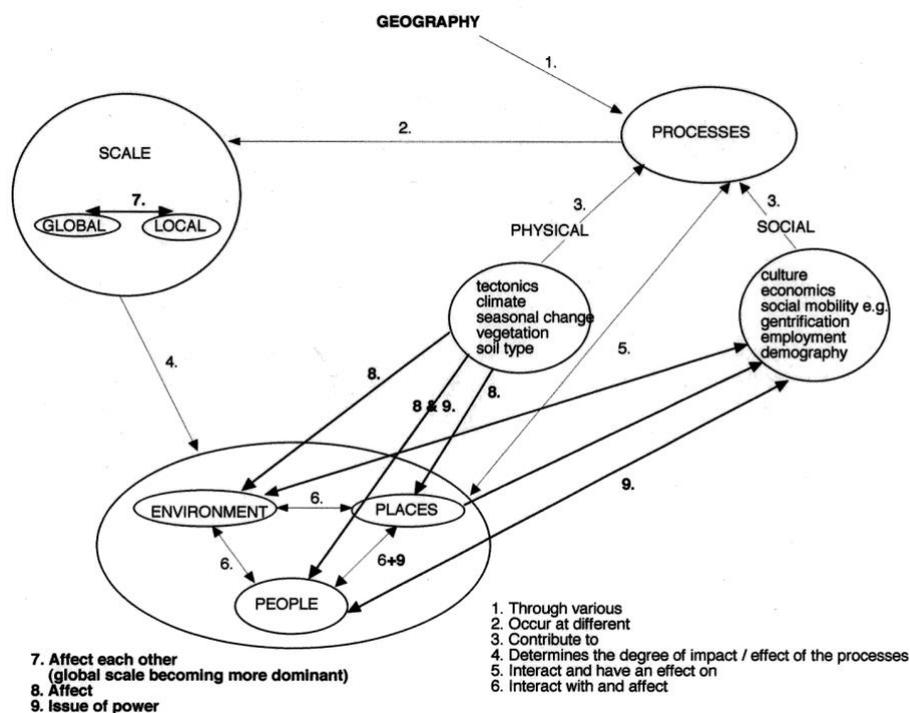
8.1.1 Geography: Pre-course conception



David's concept map has a clear structure, which is cyclical rather than hierarchical in nature. It shows a conception of geography, which is centred on the inter-relationship between three key elements of people, place and environment. David's map shows these elements as being affected by a number of physical and social processes and the degree of impact of these processes being determined by the scale at which they occur. His map also appears to have elements of both the scientific and humanistic / welfare persuasions. The map reflects a conception of geography that identifies and examines a variety of processes; it also has a clear focus on people, their cultural and social organisations. The two are shown to interact and, as a result of these interactions, to have an effect on people and places at a variety of scales.

Using the analytical tool David's concept map scored highly for both structure and geographical relationships expressed between nodes. Although his concept map did not reflect the active enquiry element it did represent complex geographical relationships within a clear structure and accordingly falls into Category 1 – the most sophisticated conceptions of geography.

8.1.2 Geography: Annotation of concept map after taught course.



When David revisited his concept map after the university-based taught input (14 hours over 10 weeks) his annotations (shown in bold) show that his conception has remained broadly the same. Further links between nodes have been added and these have almost all been labelled with 'affect' and 'issue of power'. This, along with his global scale becoming more dominant, perhaps reinforces the view that his conception reflects a welfare/humanistic persuasion.

8.1.2 Geography: Stimulated recall interview

In David's interview (appendix 26), from the outset he reveals a conception of geography that sees all the elements as being inextricably inter-linked

'I was trying to get three elements ... environment, place, people, and to show how they totally relate to each other'(lines 7-8)

'I was originally going to over-lap them but I couldn't get enough links between them' (line 11)

'In one way or another all sorts of people interact with a place and even modify the place, which might modify the environment, which in turn might affect the people that live there and so it goes on.' (lines 43-45)

within a cyclical structure

'I kind of used a model that I'd seen before, this kind of circular thing ... where everything relates to everything else and affects everything else' (lines 10, 76-77)

'I was going to try and do it ... in that hierarchical kind of way, but then I decided ... I couldn't place it in any kind of order, because each of these elements, environment, places and people, I couldn't put one above the other' (lines 108-110)

However, representing his conception in this way was quite a challenge to David. His concerns focused on the limitations of models for representing highly complex ideas. He felt unable to represent his conception

'... in the sort of simple diagram I thought you wanted' (line 7)

'I don't agree that you can have a model that represents everything, it's bound to miss something ..' (lines 62-63)

'... I remembered this model that I'd seen and I thought – that'll be an easy way of doing it – and then the more I looked the harder it got because I found it more difficult to make it clear exactly what I was thinking.' (lines 72-74)

'... I thought at one point that perhaps I knew too much.' (line 95)

His conception of geography as a set of highly complex inter-relationships perhaps confirms his place in category 1. The complexity of these relationships centred on two key concepts – geographical processes, which inter-relate and are linked to change, cause and effect; and power, which seems to link in with a values dimension concerning 'who gets what and who decides?'

'Both of these [physical and social elements] had their own processes ... which occurred at different scales, which in turn had different effects on these, so you could either look at that on a micro scale or a macro scale.' (lines 52-54)

'There were issues to do with power ... for example people with more power might live in a place less affected by the environment i.e. not on a floodplain or something like that, they would like somewhere more secure.' (lines 33-35)

That processes and power are linked providing both a cognitive and an affective dimension to geography is evident in the following example David gave:

'If a particular place was powerful or dominant, say for example that Birmingham and the car industry was once powerful and affected its own links on a global scale

and also nationally links on a global scale, but since other places have become more powerful and so Birmingham has lost its position, or become unsuccessful or whatever, and so that changes but it affects that and also what's happening at this scale [local] affects different localities ... and stuff like that. I was trying to show that as well' (lines 205-211)

The interview also explored elements of geography that appeared to be missing from David's concept map. Firstly, it does not appear to incorporate geographical patterns, particularly those relating to spatial distribution. His explanation of this was:

'I think what I was just trying to say was that somehow these [three elements of environment, places and people] make a process or a pattern, even if it's short-lived, or even if it's not a global pattern, a pattern occurs that affects all three of them' (lines 64-65) [my addition]

'I did steer clear of patterns because I thought patterns were a bit, patterns are a bit transient, fickle things.' (lines 136-137)

Secondly, it appeared not to incorporate 'active geography' in terms of the role of the geographer and the means by which the key elements, their patterns and processes might be studied. There was no mention of the 'tools' of the geographer [mapwork, fieldwork] or the process of enquiry, and David stated:

'No, I neglected that. I didn't think of that at the time... it might be a development from that [the concept map], say these are your thoughts so how would you go about finding out ...?' (lines 149, 158)

It could be inferred from this that David conceives geography as being a body of knowledge that is somehow separate from geographers and the process of geographical enquiry. It is not that these aspects of geography are not part of his conception, but that they are in a separate compartment and do not spring to mind when considering 'what is geography?' It is also possible to hypothesise that, if this aspect of geography is so embedded it might lead to a lack of attention to development of geographical skills in his teaching.

8.2 David's Conception of geographical education

8.2.1 How and why do we teach geography?

Content	Teaching methods	Rationale
CULTURE	<ul style="list-style-type: none"> • Listen to music • Look at photos / artefacts • Choose 2 contrasting cultures and highlight similarities and differences • Investigate ways of life / norms and idiosyncrasies 	<ul style="list-style-type: none"> • To promote an interest in different cultures (reducing fear by ignorance) • To demonstrate all the various aspects / facets that contribute to making a culture • To facilitate an understanding in other curriculum subjects e.g. art, music, RE
DEMOGRAPHY	<ul style="list-style-type: none"> • Investigate changes over time in a particular place using maps. Statistics and field evidence • Have a discussion about causes and effects of changes that have taken place 	<ul style="list-style-type: none"> • To promote investigative work, recording and presenting data skills and enhance observation of environment • To develop an awareness of causes and effects demonstrating that no changes are simply cause and effect
CLIMATE	<ul style="list-style-type: none"> • Investigate rainfall, temperature differences through the seasons • Discuss these with regard to vegetation, animal and human adaptations • Contrast 2 areas with different climates 	<ul style="list-style-type: none"> • Heighten awareness of physical processes

Table 8.1: David's pre-course conception of teaching and learning in geography

The initial elicitation exercise (table 8.1) appears to show that David incorporates the following aspects of geography within his conception of teaching and learning:

- Use of a variety of resources and these are selected as appropriate to the subject matter being taught
- Clear focus on the development of key concepts such as similarities and differences, change, cause and effect
- There is a focus on the development of geographical skills associated with mapwork, fieldwork and the investigative element of enquiry

- What ‘investigate’ means in terms of the pupils’ role is not clear
- Focus on challenging views and promoting positive attitudes
- Geographical education can contribute to pupils’ skills and values as well as knowledge and understanding

Overall David seems to have clear ideas about what could be taught and why. Not surprisingly at this stage his ideas about how to teach are more limited, focusing mainly on investigation and discussion. When this is related to the four theories of teaching and learning it would seem that David’s conception reflects elements of the shaping and travelling theories but with the main emphasis on the travelling theory. Although there are elements of active enquiry, there is not sufficient evidence for the growing theory.

8.2.2 Teaching Geography: Stimulated recall interview

Part of the interview gave the opportunity to explore David’s ‘geographical persuasion’ in greater depth. David recognised that there was a need to go beyond the facts to studying people’s values and attitudes and how these motivate people to act in and for the environment but he was unsure about how this could be achieved and what his role would be.

‘That to me is more important, that people realise that their actions will have a reaction ... so that’s more important than just looking at these things’ (lines 309-310)

‘They [pupils] certainly will have different conceptions to me, but how I would go about not altering them but still teaching them, I don’t know how I would do that, that’s a tricky one ... [there] are things that children might experience in their family ... which I’m going to have views on and they will have views on and they might not be the same views. These aren’t things that are covered in the curriculum but they are still there aren’t they.’ (lines 566-568, 577-580)

Later on in the interview David returned to this theme. He was quite clear that he should not share his own values and that he had a responsibility towards providing a broad and balanced curriculum

'I don't think we can let that [our values] come in the way of their learning, the pupils have the right to have full access to the curriculum' (lines 522-523)

Perhaps not surprisingly the discussion about David's conception of teaching and learning revealed many inconsistencies. He recognised that at the beginning of the course his conceptions were largely embedded in his own prior experiences.

'I cheated because I saw something in one of my first experiences in a school ... something along those lines'. (lines 257-258)

But was perhaps unaware of the extent to which this apprenticeship had affected his views. When explaining how he saw the relationship between teacher, pupil and content, David stated

'The teacher initially understands and delivers something, which the pupils receive or knows already, and by knowing it or having learnt it, they demonstrate their knowledge and understanding of that'. (lines 342-344)

This reflects the transfer theory with the teacher imparting a body of knowledge which the pupils receives, and is not unlike the experience David described of his own 'A' level education. The strength of this conception even appears to affect his ability to identify factors contributing to the success of a science-teaching episode he describes,

'We were investigating reflections and set up an investigation ... where the pupils could measure the angles and the light reflected and also look at how many reflections they could get if they changed the angles ... and they really enjoyed it and perhaps got more out of that than some of the other ones'. (lines 495-498)

But when giving a reason for the success of this lesson, rather than focusing on the active and open-ended nature of the activity in which much of the control for learning appeared to lie with the pupils, he put it down to the fact that it

'was my last lesson in it so I was probably well versed in all the things I needed to get across, the main concepts'. (lines 499-500)

Indeed, when asked to say which theory he thought fitted in with his own conceptions of teaching and learning, David said

'I certainly don't think it's about transfer theory, there are aspects of all of them though, to some extent. ... perhaps we're going more with the growing theory, but I like some bits of shaping and travelling' (lines 401-402, 406)

The notion of where the control for learning lies was explored further during the interview. David appeared to have mixed ideas about this. On the one hand he sees the relationship between the teacher, pupil and content as being dynamic and in some sort of fragile balance:

Let's say the teachers starts off knowing the content but not knowing the pupil, initially, but gradually as this feeds into the pupils then the teacher gets a better understanding of them so that affects ... I'm just trying to show that none of them are static, and so whatever the feedback from the pupil is, it affects the content that's delivered, or even how the teacher delivers things ... that any change in the three categories will affect the others. (lines 351-356)

There is a suggestion of control lying with the pupil here, but David does not recognise this and continues:

'The control ultimately lies with the teacher, rightly or wrongly, but it probably does. ... I'm sure there's an argument somewhere that pupils are thought to be in control ... but I don't know how useful it would be for them [primary pupils] to be left in charge of their own [learning]...' (lines 362, 366-7, 372-3)

This tension between things he had heard, his expressed beliefs and those ideas he had learnt subconsciously during his ‘apprenticeship as a pupil’ is a feature that re-emerged during his school experience.

8.2.3 Values underpinning David’s conception of geographical education.

It seems appropriate to combine data about geography, teaching and learning in order to draw some conclusions about David’s conceptions of the nature and purpose of geographical education before investigating the degree to which he is able to put these into practice in the classroom. David’s values seem to come through strongly in his discussion about his conceptions of geography and teaching and learning. These values will be explored in relation to the three ways in which Slater (1998) suggests that values potentially affect practice.

Values derived from David’s cultural background.

David clearly has a strong set of personal values that are closely linked to his religion. However, he is sensitive to how these might have an impact on what he chooses to teach and how he chooses to teach it.

... they will certainly have different conceptions to me, but how I would go about not altering them but still teaching them, I don’t know ... that’s a tricky one. I’m thinking in terms of things like moral issues, that I’m going to have certain beliefs, quite strong beliefs, and they’re not necessarily accepted by the rest of society. ... You know, things like religion, for example, it would be very difficult for me as a Christian to teach them other faiths and the validity or worth of other faiths without me feeling like I was undermining what Christianity was about. (lines 566-570, 572-574)

His assertion that ‘these aren’t things that are covered in the curriculum but they’re still there, aren’t they?’, demonstrates the degree to which David is thinking and reflecting deeply on the nature of the curriculum as a whole. It seems, at this point, that the values he brings as a person make him hesitant about imposing his own beliefs but that this creates

tension with his wish to help children make informed choices for themselves. It will be interesting to see if, and how, this tension begins to resolve itself as he spends more time in the classroom.

Values derived from the substantive element of David's conception of geography.

Much of the discussion in the interview indicated that the inclusion of values in geographical education appears to be important to David. The concept map does not explicitly focus on values but this could be deduced from the focus on social processes which could be seen to reflect a humanistic/welfare persuasion. Once culture is related to teaching and learning this focus on values then becomes explicit 'to promote an interest in different cultures (reducing fear by ignorance)' and 'to demonstrate all the aspects that contribute to making a 'culture''. This is confirmed in the interview where David states:

'Looking at it [the concept map] people might say ... the environmental persuasion, but I think I was probably going for more of a [welfare persuasion] ... only because those are my, I'm more bent towards that'. ... 'That's where, my values are more in there'. (lines 167-169, 190)

David had reflected on this between the first elicitation and the annotation 10 weeks later. The only annotation [issues of power] was his attempt to:

'Be a bit more specific I suppose, following my chat with somebody, well I was trying to explain my thing [concept map], they were asking me about it and I was just trying to say that these were factors that would affect the value that people would place on a particular place, or the power that people would have, and that would affect their interaction with the environment'. (lines 197-200)

It appeared to be quite a novel idea that such issues could be part of primary school children's geographical education.

'I think I learnt what was called regional geography ... I didn't learn anything about how they [rainfall, crops, imports, exports] affected each other. ... I still thought the approach would be more like that, rather than going for value'.(lines 242-244, 247)

David mentioned a specific activity in the taught course as contributing to this change in conception [Village Game role-play], and it prompted further thoughts about how values and issues could provide a very powerful context for the development of geographical knowledge

'Teach[ing] pupils to investigate their own values through the village task thing ... I thought was a really good way of developing geographical knowledge, if you like, which I hadn't really thought about'. (lines 236, 240-241)

Which he applied when revisiting his pre-course conceptions of teaching and learning.

'I suppose what I haven't said, which would have been quite good, is to look at personal accounts, perhaps of how ways of life in that place have changed ... [which] gives some sort of meaning behind ... it leads on to people having an appreciation of, if they are in a position of power .. that their actions will have a reaction, and it will affect people's way of life'. (lines 288-289, 309-310)

Values derived from David's conception of education and the nature of knowledge.

David also appears to value the use of key concepts to organise pupils' thinking and that the most appropriate way of developing these concepts is to 'guide' pupils' thoughts through discussion. While the form the discussion might take, and how he might actively structure it, is unclear at this stage of David's development, he does value the role of discussion and seems to do so from a social constructivist perspective. This was evident in what he said about the nature of knowledge.

This one, the liberal-progressive one, it says it [knowledge] 'exists in their head', if it just existed in their head you wouldn't be able to grow in knowledge, in the way of sharing. I think I'm going to go for socially critical.

Interviewer: Right, is the nature of knowledge something you've thought about before?

Yea, not, kind of, I didn't initiate the thought but it was through my learning I suppose. Social theories brought it on, through examples given when I was learning about it, I accept the notion that it's socially constructed' (lines 543-551)

However, he also appears to believe that socially constructed learning takes place in informal settings rather than in the classroom.

I'm thinking of informal and formal teaching and learning, if you like, and when I say informal I'm thinking of this knowledge is socially constructed and you don't just learn in the classroom. (lines 403-405)

This seems, at this stage, to be a case of having a socially critical ideology, but being uncertain about how to put this into practice due, perhaps, to lack of experience.

8.2.4 Summary of David's conceptions before school experience.

	Geographical persuasion	Theory of teaching	Conception of nature of knowledge
Conceptions identified by researcher	Scientific, with some humanistic / welfare	Travelling and shaping (with small amount of evidence of growing)	
Conceptions espoused by David	Humanistic / welfare	Aspects of all, but mainly growing	Socially critical

A possible concern for David's application of his conceptions into action is the lack of experience he has had in schools so far and therefore, quite possibly, his lack of pedagogical knowledge – specifically the range of teaching strategies that would enable him to take a socially critical, constructivist approach. In addition, he has himself expressed a concern about 'knowing too much' which may make it difficult for him to break his subject knowledge down into sufficiently manageable chunks to make it understandable to children. How to represent his knowledge in ways that are accessible for primary children may also be a difficulty. However, the interview provides evidence of David's ability to reflect deeply on things along with a real willingness to learn from his

experiences which should help him. On the other hand, the interview does not provide sufficient evidence of David's interpretation of socially critical – only that he hoped to teach in such a way.

8.3 Conceptions in action: Teaching Episode 1

During his final block school experience, David taught a year 6 class a unit of work on Environmental Impact in which the key concepts to be taught were change, cause and effect, environmental quality and sustainability. The unit focused particularly on the impact of people on different environments and how it can be minimised and/or reduced. A further aim built into the unit was to develop pupils' awareness of individual and collective power linked to decision-making processes.

8.3.1 Conception of geography in action

The specific lesson observed followed a fieldtrip when pupils conducted an environmental quality survey. A brief look at the lesson plan (appendix 29) before the session showed that the learning outcomes for the lesson were:

- For pupils to recognise how people can improve the environment (and begin to develop a responsible attitude toward the environment)
- For pupils to analyse evidence and draw conclusions

The activities were planned in three parts – introduction, development and conclusion. The research diary entry before the lesson observation notes that 'the planned assessment opportunities are more specific to geography for the introduction and conclusion phases, but relate more to monitoring on task/off task behaviour during the development phase'.

Unlike the plan, the lesson lacked a clear focus and structure, with the content focus being more wide ranging than the plan suggested. On the one hand, David's conception of geography as a complex set of inter-relationships in which there are physical and social

processes which interact in, and affect, environments was evident in his teaching. In the post-observation interview (appendix 30), David described the lesson as being about:

... this relationship between environment and people, and looking at the impact, and about impact in a particular place (lines 5-7)

and he recognised the potential to help pupils distinguish between the physical / built and the social elements of the environment

[there] was something to do with safety I was going to go on and look at, not the physical environment but the sort of social thing ... I thought that would be a good thing to do – it's not just the physical environment, it's also your attitudes and all the rest towards it. If you don't feel safe then for you it's not a good environment, no matter how pretty it is. (lines 110-112, 129-132)

David's lesson also reflected his developing view that primary geography can also legitimately have a values dimension. This was demonstrated in his attempt to help raise pupils' awareness of what makes a good environment:

... he also said they do nice cream teas. So I thought that was quite a legitimate thing ... because if you are going there to relax then it's one of the things you want. (lines 225-228)

And that not everyone would hold the same view

'I was trying to get out the distinction between different people's perceptions of what a good environment is ... we had good environments in urban areas and good environments in the countryside and I was trying to look at those two so that people appreciated that other people had different ideas but weren't necessarily wrong.'
(lines 30-35)

It would appear from this that David's focus for learning was to explore the notion 'what is a good environment?' In itself this is clearly an important concept to explore, but it was not the focus of the lesson as a whole and led to a situation where what was being explored in

a lengthy introduction did not match with the activity designed for the development phase of the lesson. Thus, when the pupils worked in groups to design posters / poems / rap songs about how environments might be improved their work lacked focus or creativity because this had not been explored in the introduction.

The second objective identified – that of developing pupils’ ability to analyse evidence and draw conclusions – suggests that David is trying to build the enquiry approach into his lessons. In reality the lesson itself did not give pupils the opportunity to develop these enquiry skills partly because some of the evidence (photographs taken during fieldwork) had gone missing but also because the skills were not explicitly taught.

But they had all the experience and ... written notes in their notebooks so they did have some evidence, they should have had some evidence.

Interviewer: But they didn’t use it in the session itself?

No, but they had the opportunity to ... refer back to it [their notebook] or just to draw on their own experiences

Interviewer: Because their notebooks were in the classroom

Yes, although they weren’t all open, and some of them were being coloured in, but it was there for them to refer to, and in any case from their memory they were fine.

(lines 188-200)

David appears to think that because the resource was there that pupils would automatically use it, and in a way that would develop their skills of analysis. This suggests that he does not have sufficient understanding of the range of strategies available to use that could be effective in skill development, or how to structure a lesson to facilitate that development.

This could help explain why his conception, so clearly structured in his own mind and as represented in his concept map, was not so evident in his practice. The strong conceptual framework was not drawn on to help frame pupils’ thinking about the environment observed and how it might be improved, nor were the skills necessary to support such thinking explicitly taught. For example, when asked why, when he had written the pupils’ ideas down on the board, he hadn’t helped them to classify them in any way, he responded:

I don't know really. I just, I didn't really ... I suppose it might have been another way of doing it ... I suppose, thinking back that it might have been a better way to see the range. Had it been in categories they could have seen it clearer. (lines 92-94)

It is possible to infer from this that David's complex conception is acting as a barrier to more successful teaching at this stage in his development, because he is, as yet, unable to break it down into more manageable parts. In other words, his pedagogical content knowledge is not sufficiently developed.

The geographical persuasion reflected in the lesson is clearly environmental. When David was asked about this he observed:

'Right, I think this lesson is looking at environmental persuasion, the interaction between people and the environment, yes.' (lines 490-491)

And he was keen to relate this to the unit as a whole:

'And the whole unit would eventually, when, well before this session we looked at decision-making, those kinds of things, and it's supposed to go on to looking at sustainability.' (29/06/00 lines 496-499)

In his initial interview David had thought others would say his persuasion was environmental, and this is clearly reflected in his practice here.

8.3.2 Conception of teaching and learning in action.

At the time, the lesson was characterised by the observer as being predominantly travelling, but that this was more evident in the introduction than the main activity phase. On detailed analysis of the post-observation interview it seems that David was confused about which theory(ies) of teaching he was drawing on and that he used a mixture of transfer:

Also in the plenary trying to just, to feed in a few ideas for it to sink in (lines 60-61)

shaping:

*I was also trying to get them to think that prevention would be better than cure
(lines 157-158)*

Yes, so in a sense I was contriving it to get towards that (line 169)

and travelling:

*also, through my question about 'would a sign be enough to prevent the problem
from happening again?', I was directing them to think about having more than one
strategy for improving it. (lines 154-157)*

but thought he was using travelling and growing approaches.

*I would say that I was going more along the growing – travelling or the growing –
I can't really decide between the two. (lines 499-501)*

*I suppose the introduction might be the travelling theory... and then the rest (main
activity) would have been the growing theory. (lines 506-508)*

Aside from this, something that came through strongly in the interview was that David, while clear about what the purpose of the lesson was, had not thought through clearly *how* he would help the children achieve his objectives. In the introduction he used ideas as they occurred to him during teaching:

Oh, that's just something that came into my head (line 210)

Well, it just occurred to me (line 214)

Yes, I hadn't really planned to go that way (line 237)

The main activity phase of the lesson was largely unstructured and free flowing and David's rationale for this was

*I was hoping that it would come out ... but I didn't want to contrive it to get to that
point*

Interviewer: Why not?

Because I wanted to see what they would come up with. I didn't want to influence what they thought (lines 142-147)

So while he had, in his own mind, a clear idea of what he hoped the children would understand as a result of the lesson, his understanding of the growing theory seems to have led, at this stage, to interpreting 'pupil developing personally, like a plant, with teacher a resource provider' as meaning that ideas should somehow come spontaneously from the pupils. In this sense, David seems to equate providing a structure to scaffold children's learning with loss of pupil autonomy / control over learning. Thus, despite David's assertion that:

I was trying to develop the thinking that I was telling you about (line 176)

he did not provide a clear structure to frame the children's learning with the result that there was little evidence of their having learnt anything new from the session. David himself realised this, hence falling back on giving them information from time to time (as explored above) because he was at a loss to know what other strategies to use. On further reflection during the interview he recognised that his teaching style had not really reflected the growing theory but that

at the same time I was hoping that they would sort of ... this is the whole thing about me trying to develop their thinking skills, this [growing theory] is sort of where I'd like, I suppose, in a sense, more to be. Or them more to be. (lines 515-517)

This was clearly a source of frustration to him.

I've seen through her [the class teacher's] questioning techniques ... the thinking is prompted and so they do get there, she hasn't sort of given them the answers but through clever questioning they get there. And that's where I'd like to be ... but I think maybe I'm jumping guns before I get there. But in a sense ... I don't want to go through that [points to transfer theory] to get there. I don't want to get trapped in the transfer theory. (lines 528-533)

8.3.3 Values evident in teaching.

This desire to reach an ideal in his practice was mirrored in the discussion about his views on the nature of knowledge and education ideology. The researcher categorised the lesson as reflecting a largely liberal –progressive ideology, although there was some evidence of David’s attempt to be socially critical. David himself stated

‘And here, I suppose the socially critical. ‘Knowledge isn’t easily specified’, you know, the whole dilemma of what’s a good environment. You can’t specify what it is, everyone’s got a different opinion.’ (lines 539-542))

However, the lesson did not appear to be planned in such a way that would enable pupils to develop a view of knowledge that is partial, problematic and viewed differently by different groups in society. The interviewer therefore probed more deeply:

Interviewer: There was a subtext of that [socially critical approaches], but would you say that was the main focus of what they were doing?(line 544)

It wasn’t the main focus of the lesson, no, but that was my kind of subtext. ... I suppose in a sense I was thinking well that will be my extension. If they were really getting on with it then I would have liked to have moved on to developing the responsible attitude side of things ... ’ (29/06/00 lines 546-558)

The frustration of achieving a style that reflects his own conception of knowledge (he consistently selected the socially critical category as representative of his conception) is clear; he knows what he would like to achieve but does not know what that looks like in practice.

[that] was me being too ambitious and moving on before they’re ready for it, or I’m ready for it, and so I’ve got too many things going on in my head and I need to narrow the focus down more. (lines 551-553)

8.3.4 Summary of teaching episode 1.

1. His conception of geography as a complex set of interactions that have a strong values dimension is reflected in his teaching BUT this is not, at this stage of his development, very helpful to him.

This appears to resonate with David's comment in the first interview
'... *I thought at one point that perhaps I knew too much.*'

2. Although David describes himself as a humanistic/welfare geographer, it is the environmental persuasion that appears to be more evident in his teaching. This is perhaps due to the nature of the unit. However, when there were opportunities to raise welfare-related issues (e.g. the distribution of power in decision-making about the environment), he was aware of this and attempted to incorporate it into his teaching.
3. Although enquiry skills were identified as a learning objective, they were not evident in his teaching
4. The use of structure in the form of key concepts to organise pupils thinking was not employed because it appeared to be overridden by the view that you shouldn't 'tell' children things, they have to 'find out for themselves'.
5. In terms of the pedagogy required to put his conceptions into practice, this is where the mismatch lies. His teaching reflects a view that control for learning lies with the teacher, and he appears to be using an apprenticeship model of learning to teach. This was evident in his justification for the approaches taken – for example, an over-reliance on the strategy of teacher-led questioning is explained by 'I saw the teacher doing some really good questioning'

The fact that he is trying to put what he claims to be his conception into action seems to be unhelpful to him as a teacher or to the pupils as learners. There is perhaps a need to rethink his conception to incorporate pedagogical content knowledge. Certainly a diary entry made six months after the observation, when revisiting the data, records

'There are broad similarities between his (David's) conceptions in theory / espoused conceptions and those seen in action. Where there are differences (e.g. lack of conceptual

framework) this appears to be because his conception of teaching and learning over-rides his conception of geography. Or is it because his conceptions of teaching and learning are at odds and it is the apprenticeship model he falls back on because he does not yet have the strategies to implement his ‘ideal’?’ (Research Diary entry 25/01/01).

8.4 Conceptions in action: Teaching episode 2.

During his first year of teaching, David was observed teaching geography on two further occasions. He secured a post in a Roman Catholic Primary School set in a small Worcestershire town, and had responsibility for a Y1 class. He had the opportunity to teach geography in each term, and followed – in part – the Scheme of Work for Geography (QCA 1998), specifically unit 1: Around our school – the local area, and Unit 2: How can we make our local area safer? In the light of his evaluation of teaching and learning during the Autumn term, David adapted Unit 2, dividing it into two parts and adding elements of his own, and teaching it over the spring and summer terms 2001. He was observed teaching on 9/03/01 and 28/06/01.

8.4.1 Conception of geography in action.

The lesson observed was the second in the planned sequence of six and the learning objectives identified were:

- To develop children’s understanding of [name of town] and its main features
- To develop enquiry skills

The first lesson had been fieldwork, David had taken the class on a walk round the vicinity of the school up to the high street, passing several key features along the way. They had taken a camera to record these features, and the photographs were now available to use as a resource in the lesson. David had made three copies of all of the photos and the class worked in three groups, each group having a set of photos and a large-scale map showing the area walked and its surroundings.

As with the previous lesson observed, there was a strong relationship between the conception evident in his teaching and that shown on his concept map. David related his lesson to that part of his concept map that was about:

*Scale, local but mainly I'm looking at this link here – environment, people, places.
Trying to get them to link the people that use places in a particular environment.
(lines 4-7)*

In addition there was a strong focus on geographical patterns and processes – where things are located, how they are used and why – leading to the beginnings of an understanding of land use and spatial distribution. In contrast to the previous lesson observed, David chose a narrow focus to act as the stimulus for this discussion.

There was a table ... looking at the [photo of] toilets by the Abbey, so then we worked out where the toilets were and from there we worked out who used those toilets, and it wasn't just everybody in P [name of town], it was people who park opposite, waiting for fish and chips, they might use it and people who use the Abbey and people who use the playground. So it was just a kind of, something to focus on ... just to choose one thing for each person ... (lines 153-158)

This selection of a relatively narrow focus, along with other changes in his ideas about teaching and learning explored below, seem to have enabled David to be more successful in putting his conception of geography into practice. There is more evidence of a conceptual framework being developed to support the children's understanding of the relationship between geographical features in their town. The ability to break his knowledge down into smaller, more manageable parts also appears to have helped him to plan a logical sequence to his lessons. This lesson built on features discussed during the previous fieldwork lesson, and the end of the lesson prepared the way for the next stage:

Interviewer: The last question ... what's the most important place, do you think, on your map? What is the thinking behind your asking that question?

I suppose just kind of moving on to the next stage and still thinking about the uses of the place ... maybe how it's developed, Why things are here. You know. (lines 583-589)

although he was unable to identify that this amounted to building a foundation for the understanding of settlement.

In terms of the geographical persuasion evident in the lesson both the researcher and David agreed that it was humanistic / welfare because:

It's focusing on [pause] well it's looking at people and sort of organisation I suppose, who uses what, why is the town organised in such a way (lines 692-693)

and David expanded on his understanding of what a humanistic/welfare persuasion mean by adding:

And the subjective experience – they've all got different experiences of P [name of town], some of them don't live here, some of them only come here to school so they've all a different feeling and some of them probably prefer different places ... (lines 694-697)

Indicating that his own conception was becoming finer-grained, possibly as a result of having to reconceptualise it for teaching.

8.4.2 Conception of teaching and learning in action.

As with his conception of geography, there was evidence that David was beginning to be successful at putting his ideal of the growing theory into practice.

There's a boy, M, he was very good and these two girls were good so they would have supported the people around them and showed them ... so that's part of why the groups were mixed like that (lines 139-143)

Yes, I mean when we'd gone round on the walk I just kept, I never answered anybody's questions. I purposely never answered anybody's questions, just posed questions ... and a little ripple would go back down, and they'd stop and think and they'd shout out answers, but I never actually answered the questions .. I never agreed or disagreed, I said 'Mmm, maybe' you know. I was definitely getting them to think on their own. (lines 256-267)

The contrast with his teaching 6 months previously was quite pronounced and David was asked to reflect on this.

I've never really gone for brainstorm with this age group, I've always tried to organise their ideas for them ... they need quite a lot of, scaffolding I think is the word. (lines 304-308)

This suggests that David thinks it is only younger children who need their ideas organising for them, however there was also evidence that he was beginning to recognise that creative thinking strategies could be appropriate for all age groups, even Y6. He reflected on his teaching with the Y6 class six months before:

Yes, I'd come marching in with my agenda of 'let's do some thinking' without having ... [pause]

Interviewer:... the framework for that thinking

Yes, and that's been hard for me ... to work out how to get the framework and I still don't think I've got it right (lines 329-335)

David's teaching offered concrete examples of ways in which he was beginning to try to 'frame' the children's thinking. During the introductory group activity the following conversation was recorded (T=teacher, P=pupil):

T: Let's have one photo from each table and we can work out together – we're all detectives now – who uses it and what is it used for

T: Which one will you choose blues?

P: The bank

T – takes picture and shows it round groups, writes 'bank' on the board.

T: If you look at your map, the bank is on Broad Street. Find Broad Street on your map

During the post observation interview he was asked about the use of the phrase ‘we’re going to be detectives now’:

Interviewer: Is that something that you use a lot?

Yes, I do in science and stuff like that and it gets them thinking and once they, sort of, and I go ‘oh, now we’re starting’ and then it kind of engages them (lines 377-382)

This strategy of making the thinking process more explicit was something that had not been observed before and is evidence, perhaps, of his growing awareness of the range of strategies that might be employed. However, this does not extend, yet, to making it explicit what the subject of geography is about.

Interviewer: ‘look at your map ... find Broad Street’ – do they know this is what geographers do?

Probably not, no. ... I don’t think they do know what geographers do ... I’ve never actually said what we are doing. ... (lines 401-406)

But I don’t start off, right this is our geography lesson and I don’t make it explicit, which is what I intended to do at the start and I never did it for some reason (lines 429-431)

As the discussion continued David became aware that this was a reflection of what he himself was thinking during the lessons:

... but the thing of saying ‘this is what geographers do’ is perhaps because I’m not even thinking like that myself. I’m not even thinking right, maps, that is what geographers do, do you see what I mean. So I need to ... pause

Interviewer: What are you thinking?

Good question. [laughter]. So I need to put my, I don’t know, I need to put my geography hat on and ... I’ve got to think like a geographer haven’t I? And any

skill, anything that's specifically or explicitly geography I need to make that obvious. As I would if I was doing numeracy. (lines 453-465)

This seems to be a crucial step forward in David's thinking about his own practice.

While there were occasions when he drew on other theories of teaching, such as shaping

I was going to go back into groupwork and say, right look at your things, and I was going to choose which was the most important and get a list ... and put it in some kind of order ... to get an order of the most important things in P [name of town] (lines 206-211)

and travelling

Perhaps taking them on the walk is the exploring together [travelling] and just bringing up questions as and when they came, um, ... that would be the exploring side, (lines 721-726).

He did not feel this was at odds with his ideal because he could see how these approaches led the way for a more experiential, growing approach to teaching:

but ... the choice of questions ... using the same questions for all the photos would be some of this growing I think, wouldn't it? (lines 729-731).

8.4.3 Values evident in action

The most striking examples of his attempt to teach in a way that was more reflective of the growing theory was in the way he structured the lesson, using specific tasks supported by photographic resources to scaffold their learning. For example, the lesson started straight away with a paired activity (in groups) that had a clear set of instructions: to consider the questions 'what is this place and who uses it?' for photos each group had in front of them. This was followed by some whole class discussion and then some further, focussed groupwork and finally the plenary. Although he was not entirely successful in putting this

into practice, he recognised why this was the case. The time spent in discussion as a whole class was longer than he intended because he was led by the children's choices.

Interviewer: The first example went on for about quarter of an hour

That one?

Interviewer: Yes, because I kept time – 1.50 and then the bank example finished at 2.05

That was probably a bad example to start with, wasn't it?

Interviewer: No, you let them choose their examples which ...

Why did I let them choose it? Just because they had ownership of it. ... but that just means that the lesson is unpredictable. (lines 487-506)

This is an indication that David is trying to put his socially critical ideology into practice in the sense that he is reflecting, through his teaching, that knowledge is socially constructed and that the children can construct their own individual meaning while at the same time generating a shared, class meaning:

I think everyone does construct their own knowledge differently but at the same time how they are constructing it is socially, if that makes sense. (lines 738-740)

8.4.4 Summary of teaching episode 2.

David's teaching has progressed since June 2000 in the following respects:

- He is beginning to provide a more explicit framework for thinking, both in terms of key concepts and the enquiry process (being detectives)
- His understanding of his geographical persuasion is becoming finer-grained and this beginning to have a positive impact on his teaching. For example he seems better able to deconstruct, or break down, his knowledge into smaller parts that are more manageable for children (although his rather broad learning objective of 'to develop enquiry skills' contradicts this). He is also beginning to recognise the value of his, and pupils', knowledge from life experiences – something that will be returned to in chapter 11

- Not only is he clearer about how children might progress in the unit as a whole, he is clearer about their progression during the lesson and had attempted to plan for this in the sequence of activities (greater awareness of range of strategies)
- He provides a better match between learning intentions and activities
- He focuses on teaching during groupwork, rather than management
- Overall he seems better able to put his conceptions and values into practice

However, there are elements of his practice that have remained the same:

- He continues to rely on ‘discussion’ as his key means of developing children’s conceptual framework
- He finds it difficult to anticipate, and therefore manage, children’s responses and therefore the direction of the discussion
- The result is that he tends to lose track of time and pace, and the children’s attention begins to wander

All of which could still be due to lack of experience.

8.5 Conceptions in action: Teaching Episode 3

The third lesson observed, on June 28th 2000, followed some fieldwork during which the children had done a traffic survey in and around the school. The purpose of this particular lesson was to link traffic that parks outside the school and in the school car park with people who have a legitimate reason to visit the school. Following this lesson the children would go on to consider the issue of car use, visitors to the school and traffic congestion.

8.5.1 Conception of geography in action

The learning objectives for the lesson were:

- To distinguish between visitors to, and users of, the school
- To build a sense of community around the school
- To develop enquiry skills

In terms of David's conception of geography evident in the lesson, the focus was clearly a mixture of human and environmental with an emphasis on the interaction between these.

This afternoon was very specifically looking at people and, although it wasn't as explicit to them, it was people in a particular place and we are looking at an environmental issue, although I haven't introduced that yet. (lines 5-8)

... it's looking at things like people and cultures and, you know, it's looking at the interaction between different elements (lines 610-611)

Within this David was trying to develop the children's ability to classify geographical phenomena

I wanted to focus them on the sorting [of the photographs]. I actually wanted them to do a bit more sorting, I wanted them to come up with their own criteria ... people who come here every day, people who don't, um, people who are visitors and people who are not ... (lines 408-410, 417-418)

And to begin to think about how these things might be affected by scale

... all at a local scale, although one of them introduced ... the definition of a visitor being from the local area or not, so we could have introduced some of that and also why they might visit the school, and that would be part of the processes and the social and economic thing, ... or whatever. So little bits of those tied in. (lines 20-23)

While the conceptual framework for the lesson was clear it was also evident that David was much clearer about how the lesson fitted into the sequence of lessons as a whole.

... following today's session, next week we're going to look at, well if these people come every day, what are the implications of that, where do they stop? Do they all use a car, do they come on bikes? What are the implications for the school which is going to lead on to the environmental issue – how can we make the school safer? (lines 51-55)

The development of enquiry skills was evident in his whole approach to the lesson which focused on encouraging the children to make deductions for themselves based on the evidence (photographs) available to them.

T: Today we're going to think about people who visit the school. What's that special word we use?

P: Identify.

T: Yes. I was going to write investigate but identify is better.

T: What I want you to do now ... I've got some photos and a sheet that I've cut up with pictures of all sorts of people on them. I'd like us to think of different ways we can sort these pictures / people out

And his justification for this was:

I either say we're going to investigate, or we're going to identify, I use those kinds of words so I mean I suppose they are used to that. ... I think I do it as a, to focus them on what they're doing, so I suppose it's a skills thing. We're investigating, we don't necessarily have to find out but we are doing that and so, that's sort of the bringing it together at the end – have we identified people? Have we identified what a visitor is? And there was still some debate, which is fair enough. (lines 69-71, 77-84)

Not only this, he was beginning to see how, even though it is important for him, as teacher, to be aware of the individual knowledge, skills and concepts he hopes to develop, these things might be more effectively taught in an integrated way.

So for the geography I was thinking, you don't want to do just skills, let's put it in a context, so I'm trying to include some mapping in this. We're going to make a map, a plan rather, of the school and look at the routes of the traffic into the school and that sort of thing. That's how I'm going to do the mapping. (lines 170-173)

The three key elements of David's original concept map – environment, people and places – and how they are affected by, and in turn affect, physical and social processes at a variety of scales – all seem to be present here. This has, to some extent, been the case in all the geography lessons observed. The difference here is that David seems better able to break the whole down into manageable parts that are of a suitable scale for young children to understand without losing the essence of his conception. This, as it relates to his developing pedagogical content knowledge, is discussed under the following chapter.

Interestingly David characterised the lesson and unit as reflecting a humanistic-welfare persuasion:

I'd say, particularly this unit of work ... this is the humanistic-welfare persuasion (lines 600-601)

... because it's looking at processes, it's looking at things like people and cultures and you know, it's looking at the interaction between different elements. It's also looking at different scales ... perhaps society, as a global scale, or the micro-society, depending on what the focus is. And the humanistic-welfare bit is, I feel, the challenging stereotypes and the subjective nature of the whole thing, that just because one book or one person says such and such, your experience might be totally different ... and then while you're learning about these things you have to challenge your own stereotypes, of the experience you find yourself in. Does that make sense? (lines 612-623)

because, to the observer, it although the lesson itself had a predominantly humanistic focus, the unit as a whole seemed to be about an environmental issue. Is this a case of David's persuasion affecting the way he interprets the geography curriculum and geography schemes such as that produced by the QCA (1998)? When asked to expand on why he thought it was more humanistic than scientific or environmental, his response was:

This [scientific] is a bit too ... quantifiable. ... Testing hypotheses and measuring stuff and if it doesn't measure then therefore it is such and such and obviously it's not like that. And I suppose this [environmental] is perhaps a bit too much of an environmental persuasion I suppose, some of the issues that I'm more concerned

with are not necessarily environmental, they're more social or cultural or gender or whatever. Not just the physical environment. (lines 650, 662-667)

Two things of interest emerge here. Firstly, it is possible to infer that David's idea of environmental issues is more in line with the concept of sustainable development in that it incorporates social and economic elements into consideration of environmental issues. Secondly, it also seems to be a matter of interpretation. David appears to be equating environmental with the physical environment. When it is pointed out to him that there is a human element to environments he responded:

That's true, I would say that. ... So it's kind of like little bits of this [environmental persuasion] (lines 675, 679)

Apparently agreeing, but not relinquishing his notion that the unit overall reflected a humanistic-welfare persuasion. Overall it is evident that David continues to hold a conception of geography that is value laden and that the scientific persuasion, with its emphasis on measurement and 'facts' is not, therefore, suited to him.

8.5.2 Conception of teaching and learning in action

Analysis of the post observation interview indicates that David is beginning to be able to put into practice his ideals of developing thinking skills within a strong conceptual framework. This was evident from the outset when David introduced the lesson by saying:

*T: This afternoon we're carrying on the work we've started in our Geography.
[Writes geography on the board, reminds children of last week's work on traffic survey]*

Which he justified by reference to the discussion of the lesson observed in the spring term.

... partly something we'd talked about last time, making it more explicit as to what we were doing, rather than just doing it for doing its sake. (lines 38-40)

There was also much evidence of his passing control for learning over to the children, allowing them to construct their own meaning through an interactive mixture of action (physical manipulation of photos and pictures in the sorting exercise) and talk (David used a range of groupings – whole class, pairs and groups – to promote and facilitate discussion).

[the use of certain photographs] was basically to get them to think about the things we'd been questioning. Hopefully they'd come up with their own things, which some of them did. (lines 335-337)

So they would have to have it sorted out in their mind if they had to tell me. If I'd have just told them it would have been more passive wouldn't it? (lines 567-568)

He also used questions in a more targeted way which helped the children to be explicitly aware of the framework for understanding, and the skills they were using. That he was clear about his own role as facilitator was evident in the following remarks:

I said we were going to generate a definition of a visitor, I didn't want to come up with one [a definition]. I just wanted to think about it. (lines 89-90)

I didn't, yeah, I didn't want to tell them, I wanted them to work it out. So I was kind of, posing a question without putting "is the delivery man the same as the postman?". You know, I kind of wanted them to think of the answer (lines 127-130)

8.5.3 Values evident in action

David seems to have developed a range of strategies that he can draw on to enable him to create open-ended activities which allow children to create their own (as opposed to accepting uncritically others' definitions – e.g. of what a visitor is) understandings in an atmosphere of joint enquiry. It could be inferred from this that David has reached a point in his development where he is beginning to put his ideals of the growing theory and socially critical ideology into practice.

... so it might be a bit more of the growing theory ... I am constructing their knowledge socially because we are in a social environment. (lines 690-692)

... knowledge isn't something that is definite. (line 761)

And he is able to explain why he aligns himself more with a socially critical than a liberal progressive ideology.

I'm not sure how private it [knowledge] is. We might think its private but we might be kidding ourselves because, yes, in some instances knowledge is being, it's an internal process, you having to understand things to make sense of them, but you're understanding external things at the same time. So you're perhaps making sense of it privately but it's not that private because it's being ... you're being influenced from an external agency, aren't you? So I suppose I'm more bent towards the socially critical but there are elements of that [liberal-progressive] that I agree with. (lines 831-837)

8.5.4 Summary of teaching episode 3.

In summary, David taught in a way that gave the children space to think for themselves. They may not have reached an answer, but they developed a deeper understanding of all the factors that contribute to determining who counts as a visitor to their school or not. The session was:

- Well structured, with a logical progression
- Well matched to the learning intentions
- Explicitly related to the nature of geography and the specific learning intentions within this

David's understanding of socially critical seems to have deepened. For example, if the definition used in the research (and which David was able to refer to during each

interview) is examined, it seems as though he is reflecting the aspects underlined in his teaching.

Socially critical: Knowledge is dialectical, an interplay of subjective views of the world and the historical and cultural frameworks in which they are located. Sees knowledge as socially constructed. Thus, knowledge is not easily specified: it has its meaning in actions or projects whose significance is in specific contexts. It places a central value on the role of knowledge in social action: the emancipatory interests of knowledge. Mental and manual aspects of knowing are integrated in groupwork. (Fien, 1993)

Due to a variety of factors, such as recognition of the value of children's own geographical knowledge and a securer pedagogical content knowledge, he is better able to envisage what the above might look like if put into practice in his classroom.

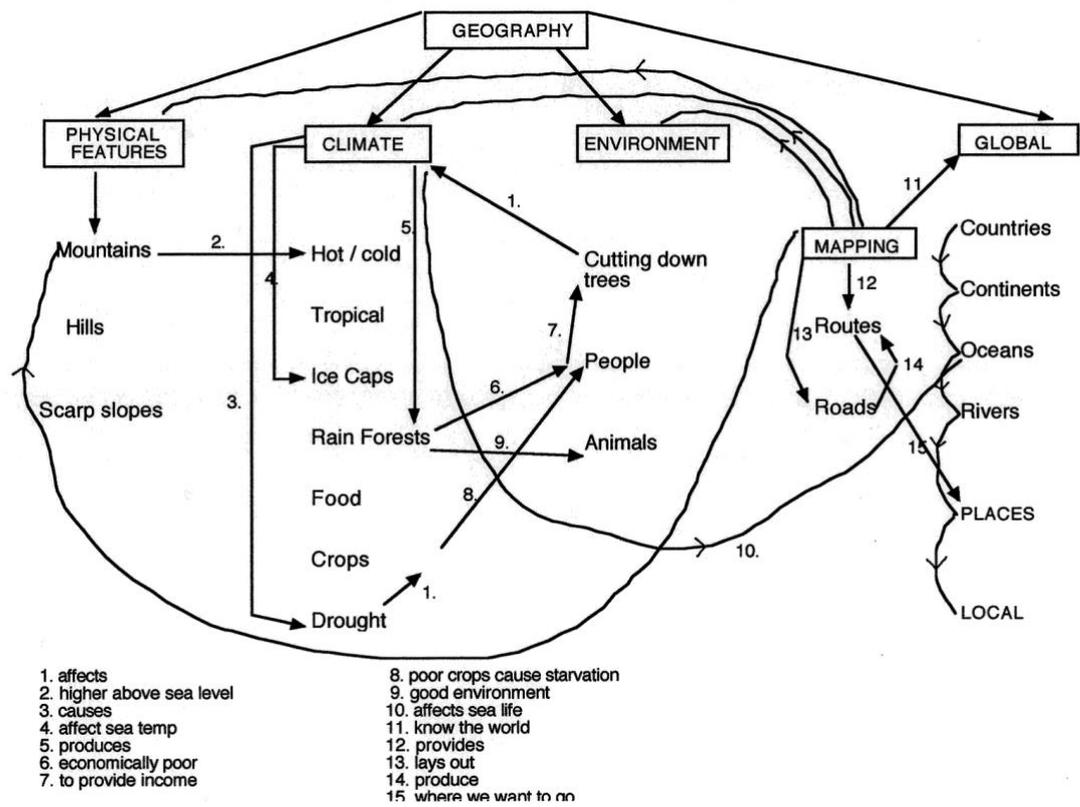
9. Becky.

Becky is a mature student who had a varied career working in offices and retail until she took an NNEB course after which she owned a nursery and then became a classroom assistant for two years. Her interest in working with young children led to her taking a degree in Early Years Education from which she qualified in 1998 and went straight on to the PGCE Primary QTS course. Her biographical questionnaire shows that Becky does not recall being taught geography at Primary school. She studied geography at secondary school until the age of 16 and gained a CSE. Becky did not enjoy geography at school. However the NNEB course had an environmental studies element which she enjoyed. She expressed a positive attitude towards teaching the subject prior to the course as she realised *‘it has a much wider scope than when I studied it at school and children love to learn about their environment’*. Becky’s interests are running, walking, reading and cooking.

9.1 Becky’s Conception of geography

9.1.1 Geography: Pre-course elicitation

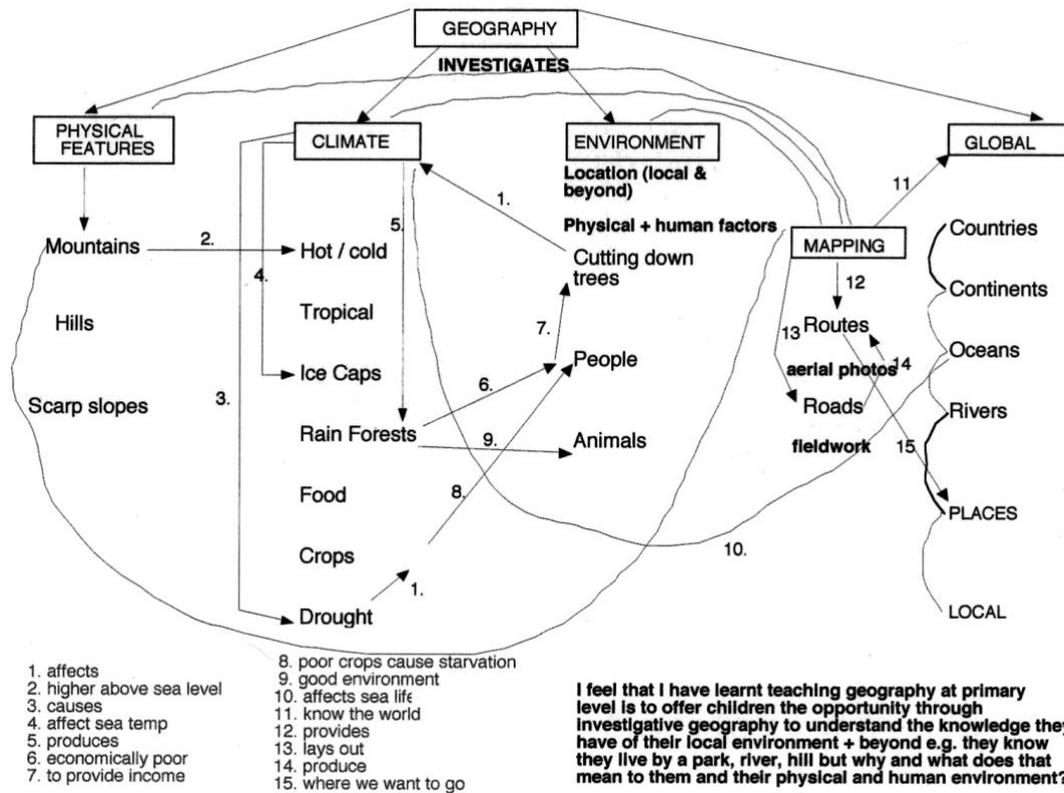
Becky’s concept map has a relatively clear structure which is hierarchical in nature. There are links across the levels of the hierarchy as well as up and down, suggesting that Becky sees many of the elements as being inter-linked. Three of the key elements selected – physical features, climate and environment – appear to emphasise the physical geography Becky experienced at school. The fourth element, mapping, indicates it as a tool for showing locations and ‘knowing the world’ at a variety of scales. Where links are labelled they predominantly show an inter-relationship of cause and effect between elements, such as ‘cutting down trees affects climate’. Interestingly, the fourth element of mapping appears to be a separate conception and not linked to the other key elements. Whilst there is a hierarchical structure to Becky’s conception, the geographical content and processes shown within the structure appear to be somewhat haphazard – for example, why are food and crops placed under Climate and rivers under Global?



Becky’s concept map seems to reflect a scientific persuasion, if not even a ‘descriptive-rich’ persuasion which centres on knowledge and is hazy about process. However, there are small links such as ‘drought affects poor crops, causes starvation of people’ which give a hint of a humanistic/welfare persuasion while environmental concerns also seem quite prominent. Possibly this is a student who does not yet have a clearly formed conception of geography.

Using the analytical tool Becky’s concept map scored highly for structure but had a low score for the geographical relationships expressed between nodes. Although location and cause and effect are shown, these are uni-directional relationships and there is not a sense of a complex web of inter-relationships between nodes. Becky clearly has a reasonably extensive knowledge of geographical content, but a relatively unsophisticated conception of how these relate to each other and there is no indication of the process of geographical study through active enquiry. Her concept map has therefore been placed in category two.

9.1.2 Geography: Annotation of concept map after taught course.



The most immediately striking thing about Becky’s annotations is that she has placed ‘investigates’ immediately below geography at the top of the hierarchy. This appears to indicate a significant change in her conception of the nature of the subject from one which is content based to one which is process based. This view is supported by the evidence provided in her statement below where she mentions investigative geography and children developing understanding ‘of the knowledge they have of their local environment and beyond’. Geography is not just about building an encyclopaedic knowledge of the world, it is about developing a range of skills and concepts to help understand the way in which the world works and our place within it.

Otherwise, additions to the concept map are mostly ones which provide greater detail under the headings of environment (location and scale, physical and human factors) and mapping (aerial photos and fieldwork), indicating a developing understanding of what the broader terms involve.

As a development from the initial elicitation, Becky's conception has moved away from a descriptive-rich to a scientific paradigm, still with elements of welfare and environmental paradigms. With the emphasis on enquiry and a more explicit conceptual framework, her conception moves into category 1 – most sophisticated.

9.1.3 Geography: Stimulated recall interview

At an early stage of the interview Becky indicated that she did not really have a well-formed conception of geography

You're just blank and you're thinking I don't know yet, I haven't really got a view of geography' (lines 103-104)

And that this was partly due to the fact that she was not very confident in the subject:

I felt that I didn't know anything about geography, I've always felt that I'm not very geographically minded (lines 8-9)

During the interview an interesting aspect to Becky's conception emerged which indicated that she has two quite distinct conceptions of the subject. On the one hand she conceives geography as a subject which is about:

Oceans, continents ... it was just textbook really, ... just very factual about hills (lines 27, 63-64)

And which she didn't enjoy

At school I didn't enjoy that side of geography ... I did find geography quite worrying at school ... and I just switched off a bit (lines 28, 53, 64).

On the other hand she has a conception of geography as a subject which is about:

Things like climate and rainforests and the human side of it ... I've always been interested in tribes and how they've, the people side of it, but that's come later on, since I've left school. (lines 15-16, 29-31)

and which she has grown to value:

Now that I've grown older, I realise .. that I'm actually quite interested in geography (lines 16-17).

It is interesting that she has (a) compartmentalised her conceptions of geography and (b) that it is the formal education conception that she has represented in her concept map, despite being aware, as shown on her biographical questionnaire (see background, above), that geography is broader than that. Her justification for this is that

I think it's just that I didn't really relate it [her conception formed from life experiences] to geography initially, although I did know, I mean having said that I have realised because of the experience in school, with the nursery section. I know that's how they teach geography and I know how to do that bit, but I didn't, this [points to physical geography element of concept map] was kind of my experience, GCSE level, at school (lines 40-44).

An initial interpretation of this is that the formal schooling experience is so strong for Becky that it over-rides other experiences that she has had subsequently. An alternative explanation could be that we all make certain associations with words in our heads and that, due to her formal experience of geography, Becky never connected what she was doing in geography lessons, and therefore the term 'geography' with the real world and her own everyday geographical experiences. Becky confirmed the latter in the interview, when she responded to a question about why active learning, such as enquiry and fieldwork, does not appear to be evident in her concept map:

I wouldn't have thought of that as this initial stage really. I think that was all part of it, we never really did any fieldwork. (lines 53-54)

It's a shame because I'm really enjoying the lectures. Being in nursery and reception, I'm very aware of role play and how to extend it [geography] and what we do with it and things like that, but I just didn't think of it [role play] under that heading [geography]. (lines 70-71)

Climate and how it affects peoples' lives and global warming, that's the bit I'm interested in as an adult, but I didn't put that on there

Interviewer: But that still wasn't your predominant view, if somebody asks you 'what's geography about' ...

No, because you think the word geography ... (lines 187-192)

This is potentially a crucial factor in Becky's development as a teacher of primary geography and something that will be returned to later.

As far as the conception represented in her map is concerned, Becky indicated during interview that she did in fact believe that geography is a complex set of inter-relationships. Indeed, she expressed a view several times that all aspects of geography are inter-linked and that it is difficult to separate them out into some sort of structure.

I think I see it as all inter-linked ... I don't think anything is more important than anything else really (lines 79-80)

I think I felt they're all inter-linked (line 123)

They're all inter-linked really, each one affects the other (line 129)

In this respect the hierarchical structure shown on her concept map does not appear to reflect her actual conception and this could be partly due to an apparent lack of a conceptual framework which could link the nodes together. For example, her understanding of the relationship between nodes seems to rely on causality

I didn't think they needed labelling [the links] because they., all of them, go to each other, they all affect each other (lines 123-124)

But beyond this she was at a loss to know how to provide some sort of organising structure for her knowledge. She appears unable to explain how concepts shown in the nodes affect each other or what other types of relationships there might be between nodes.

I just thought that [places] came under global really, although it would come under all of them so ...[pause] ... and the local comes under, well I suppose that comes under environment, it can come under them all (lines 95-97)

In fact that [ice caps] shouldn't come under climate, it should also be under environment, it should also be under physical features, so I kind of lost it at the end, I brainstormed it and then I thought they'll all go together anyway (lines 139-142)

I started off with my list and when I looked at it as an overall picture I thought it can't really be categorised under, it can all be under one heading really, just under geography (lines 147-149)

It will be interesting to see whether this apparent lack of a conceptual framework for geography is evident in her teaching.

When asked which persuasion Becky thought her concept map reflected she stated

Probably this humanistic persuasion, although it doesn't really show it on there [her concept map], but that's probably how I feel, I would be most interested in reading about (lines 157-159)

which reinforces the view that she has two distinct conceptions that she seems to have compartmentalised into school and 'other' geography. Like David it is possible to hypothesise that, if the process based element of geography is in a separate compartment to 'school' geography, it might lead to a lack of attention to the development of geographical skills of enquiry and fieldwork in her teaching.

Becky showed, however, that her conception of geography had changed quite fundamentally as a result of the taught course and that this change was partly due to her seeing geography through a lens which focused on the way she might teach it.

The main thing is the investigative approach, that's the main thing that's changed. I realise it's starting from what the children already know ... of their own local environment. I don't think it's under such headings as mountains and hill ... just really for the children to investigate it ... to be offered it in a variety of ways and experiences, and to touch it, really, rather than just looking at books and it being very factual and not understanding it, just to build on their knowledge so that they understand the knowledge they've got. (lines 235-243).

It seems as though the taught course has enabled Becky to narrow the gap between her two conceptions and that the validity of her 'other' geography, developed as a result of life experiences, has been recognised. It could also be said, from this extract, that there is evidence that Becky's conception of epistemology has also changed.

9.2 Becky's Conception of geographical education.

9.2.1 How and Why do we teach geography?

The initial elicitation exercise (table 9.1) appears to show that Becky incorporates the following aspects of geography into her conception of teaching and learning:

- An emphasis on selecting content that the children can relate to
- The use of appropriate resources to represent the world, such as globe, maps, postcards
- Development of concepts such as similarity and difference between places and environments
- An understanding of location, distance and direction

As with her initial concept map, at this stage Becky's conception of geography in education does not appear to consider the role of fieldwork or active investigation. Her ideas about how to teach are relatively limited, despite her experience in nursery settings. While she is aware of the types of resources that are appropriate, her ideas about how to use them are limited to 'looking at', discussion and drawing a map. However, she shows good awareness of the types of questions that might support children's thinking.

Content	Teaching methods	Rationale
COUNTRIES	Look at a globe/map – see where our country is. Look for the countries children are familiar with – where they have been on holiday, where their relatives live Where different types of animals live e.g. lions/Africa etc	I would use this method because the children could relate to it personally. Looking at the globe and map gives a visual aid to the children to relate where we live to other countries. They need to have something concrete to relate to as well as abstract.
CLIMATE	Look at map for hot and cold countries – relate it to experiences like holidays. Bring in postcards from places children have been – was it hot or cold? Which animals live in cold climates/which live in hot climates. How do they keep hot or cool?	Again children need to relate the climate to what they already know to start to understand the concept. Then it can be extended on, and the children start to realise that temperature/climate is not the same everywhere as it is where they are.
ROUTES	Ask the children to think about the way they came to school. What did they pass on the way? The post-box, shop etc. Did they come the same way as yesterday? Do they always come that way? Perhaps have a go at drawing the way they come to school – maps of school etc.	By getting the children to describe their own route to school they learn to observe and have an awareness of their own environment. They start to become aware of direction and distance.

Table 9.1: Becky’s pre-course conception of teaching and learning in geography

At this stage her ideas seem to reflect the travelling theory, with the teacher guiding the pupils’ thought through careful questioning and use of resources, with some suggestion of shaping children’s knowledge as well. Values and enquiry are largely missing.

9.2.2 Teaching Geography: Stimulated recall interview

The interview gave Becky the opportunity to expand on the ideas elicited at the beginning of the course and to say whether, in the light of the taught course and first block school experience, her thinking had changed at all. While she still agreed with her initial ideas, she was able to expand on them in a number of ways. When discussing the purpose of teaching certain aspects in certain ways she emphasised the humanistic/welfare persuasion more:

So they realise ... just different cultures really, bring cultures into it and why they are like they are because of the climate and social side of it, and that people live as they do because of the climate (lines 317-320)

At the same time she reinforced the notion that it was important to relate everything to the children's prior experiences and that there was little point introducing some aspects before they were 'ready' for it.

I mean, later on you can go into politics, but early on you just can't do it, I mean Africa, it's not just down to the climate, it's also because of the wars and that ... but from the children's point of view it's just weather (lines 329-331).

When asked about the relationship between teacher and learner in a learning situation Becky's ideas clearly incorporated an active participatory role for children and a teacher role that includes facilitation as well as more direct teaching.

It's got to start from the teacher, providing the content ... then the teacher offers ... 'can you bring something in from home?' ... so it's bringing out where the children are at (lines 338-343)

To encourage the investigative approach you do need to ask the pupils where they can go from there ... really the teacher's offering, she could be teaching but also she could be offering, say, how shall we do this, what shall we do, how can we find out about it, who could we ask? (lines 352-356)

Becky could see that her initial ideas reflected the travelling theory and that this was still the case but that her preference was for the growing theory. However, she was uncertain whether this approach to learning was appropriate for young children.

I think the thing about this is all my experience in nursery and reception, so although there is ... they need perhaps more guidance than a bit further up the school where you could definitely let them do their spontaneous ... [pause] ... they can enquire on their own and investigate. You do need to guide the very young children. (lines 412-417)

However, shortly afterwards during the interview Becky described some teaching she had done with reception during the first block experience that indicated a growing theory. The teaching was focused on developing an understanding of sequencing in different contexts – sequence of a story, the sequence of numbers – and incorporated the following:

I'd made some large feet, sort of 1-10, they only sequence in 1-10, and I started off with that by giving out the numbers and they guessed which number it would be and put it down on the floor. In the end I had 1 – 10 in these feet and then they walked along it and then they closed their eyes and I took one away and there was a blank and they had to work out which one was missing ... they did that really well (lines 486-490)

Her justification for this kind of approach was that:

I just realised that they do seem to take it on board much better and they're interested, you don't lose them, they stay on task ... I think it's experience (lines 511-513)

And the experiences she had learnt from were a mixture of school and university-based:

*When you're just teaching at children they do tend to switch off (line 515)
Well, lectures that are stimulating have got a lot of variety of teaching methods, and are far more interesting than when you just vegetate and listen (lines 521-522)*

9.2.3 Values underpinning Becky's conception of geographical education.

Not surprisingly, due to her prior experiences, it is easier to identify values that underpin Becky's conception of teaching and learning than those that underpin her conception of geography. As she acknowledged herself, her conception of geography is still crystallising and, within an education context, the substantive element of her conception appears to be quite narrow. In relation to the three ways in which Slater (1998) suggests values potentially affect practice (chapter 8 p.156) it is possible to identify how Becky is influenced by the value system prevailing in her own cultural background, but not as easy

to identify the values embedded in the substantive element of her conception. The interview did, however, explore the values derived from her conception of education and her understanding of the nature of knowledge. These three will be taken in turn.

Values derived from Becky's cultural background.

It seems clear that Becky has been significantly affected by her prior experiences and that these have led to her not valuing what she sees as 'school' geography, but valuing other geographical experiences that she has had both as an adult in general

I never really liked geography, but this, you know, I don't tend to think, although I know it's geography, the environment and climate and how it affects peoples' lives ... that's the bit I'm interested in as an adult (lines 185-189)

I do understand why they cut down the rainforests, although I don't agree with it (line 178)

And in the work-related situations which led to her valuing a geography that helps children make sense of their own environment. It will be interesting to see how these differing conceptions affect her practice in the classroom.

Values derived from the substantive element of Becky's conception of geography.

Beyond discussion in broad terms of environmental and humanistic persuasions, which Becky expressed a greater interest in than the scientific or descriptive-rich persuasions, the interview did not reveal much more detail about the substantive element of Becky's conception of geography. As indicated above, this could be due to the fact that she does not have much of a view of the subject and finds it difficult to articulate her conception in specific terms. It is hardly surprising, perhaps, that her conception seems to draw on all three persuasions and that while she states explicitly that she values the humanistic approach to geography

Well in the environment ... I started to become aware of local locations and beyond and that would be a priority for teaching geography, a place to start from, and the human factors of that environment (lines 212-214),

other comments belie this and show that she continues to be influenced by the conception reflected in her own schooling:

I mean, I know there is the factual geography that has to be taught to a certain extent, and I mean you would, particularly in the early years, you would point out the physical features (lines 204-206)

Values derived from Becky's conception of education and the nature of knowledge.

As has already been shown above, Becky's ideas about the purpose of geographical education (and education in general) revolve around child-centred notions of using children's present knowledge and experience and building on it, helping them to make sense of knowledge and experiences. She values and enjoys interactive sessions where children are able to physically, as well as mentally, participate thus reflecting the integration of mental and manual shown in the growing theory. That she valued active learning because it encouraged children to think more for themselves was evident in several comments:

They came in straight away, ... they were thinking, ready with this thought (lines 501-503)

It's just involving them really, they need to be, then they're thinking, they're participating and they're ... interested (lines 509-511)

These views appear to reflect a liberal-progressive ideology although in interview Becky also agreed with some of what was outlined in the socially critical definition.

My view is that knowledge is definitely affected by your social circumstances, socially critical really. (lines 527-528)

Indeed, she stated that the socially critical ideology was closer to her own views because:

I think it does affect, your own beliefs and your own social background, how you see things and the way things have been shown to you (lines 570-571)

And that this would be bound to affect her teaching – whether consciously or not.

I think it does affect your own beliefs, your social background, how you see things and the way things have been shown to you, and your own political ... you wouldn't teach that, but there would be an underlying, if you were very much a socialist it would be very hard, I don't know, you'd put things across in a certain way, not intentionally ... (lines 572-574)

It is hard to separate out here whether Becky has understood what is meant by socially critical, or whether she is confusing this with the concept of socialism. There is some evidence that she is aware of how her own knowledge has been socially constructed, but she has not applied this to the need for a socially critical approach to teaching and learning, where her ideas seem to remain firmly within a child-centred, liberal-progressive position which takes a predominantly constructivist approach to transforming knowledge into forms that children will understand.

They [young children] do need it [learning] to be concrete, they don't just have an abstract image of something, they need to be involved (lines 516-517)

This could be due to the stage in her development as a teacher and the fact that her knowledge of strategies that reflect a socially critical ideology is limited. It could also be, that like most of the students, she held conflicting views which, at this time, she did not perceive as being conflicting.

9.2.4 Summary of Becky's conceptions before school experience

	Geographical persuasion	Theory of teaching	Conception of nature of knowledge
Conceptions identified by researcher	Scientific, with some environmental	Travelling with some shaping	Liberal progressive
Conceptions espoused by Becky	Humanistic / welfare	Growing and travelling	Socially critical with elements of liberal progressive

A possible concern for Becky's application of her conceptions into action surrounds her conception of geography (as shown in her concept map and discussion of this) which appears to lack a conceptual framework (her inability to identify anything beyond causality as an organising framework for geographical knowledge) and her conception of geographical education (as shown in her ideas about how to teach geography and her rationale for these) which suggests that she values encouraging the children to think and make sense of their experience for themselves. If Becky does not have a clear framework to support the children in making sense of experience for themselves this is a potential source of difficulty for her.

9.3 Conceptions in action: Teaching Episode 1

The first occasion when there was an opportunity to observe Becky teaching geography was in her first term as a newly qualified teacher in a reception class. As part of the planned unit – Where do I live? – geographical objectives had been identified for naming and describing parts of a house, observing houses in the locality and learning their addresses. The emphasis was on developing knowledge from a range of experiences (modelling, small world play, fieldwork, painting and drawing) and using this knowledge to make comparisons between the physical appearance of buildings and places.

9.3.1 Conception of geography in action

The lesson plan showed the focus was to look at houses and homes and to identify similarities and differences between them. A secondary objective was to record things in the field using a digital camera, thus providing evidence which could be drawn on later. The activities were planned in three parts – introduction, fieldwork, plenary – and the plan also noted an intended outcome of displaying digital photos alongside children's paintings (done previously) and labelling the display with captions of differences and similarities. In general the lesson went according to plan, but there was not enough time left for a formal conclusion.

Aspects of the lesson which clearly reflected her conception of geographical education, as shown in the first interview, were the focus on helping children make sense of experience

and, contrary to my concern, she did this by providing a clear conceptual framework – in this instance identification of patterns and similarities and differences

I really wanted them to look at patterns (line 67)

We're not just looking for shapes in windows, we're looking for what's different (lines 110-111)

and that this would be best achieved by using the skills of geographical enquiry and fieldwork.

I wanted them to think of ways to record it. I didn't just want to produce the camera, I wanted them to know why we'd taken the camera with us (lines 190-192)
And again, because we've got that photo we can discuss that and enlarge on that ... (lines 308-309)

She also planned to develop their understanding of some of the processes involved in making these patterns:

As I say, it's really for them to think, well now is everybody's house the same as mine, you know. After that you're looking towards, well, why isn't it the same as yours? What's different? Why is it like that? Are there more people that live in that house ... (lines 552-556)

The geographical persuasion reflected in the lesson seemed to be mostly scientific, with its focus on identification of patterns through careful observations in the field. However, Becky characterised it as humanistic and her explanation for this focuses on aspects that were part of the unit plan as a whole, but not covered explicitly in the lesson observed.

Sort of under the bit here where it's focusing on people, their concerns, ways of life – houses that the children live in does very much reflect their way of life and their social organisation really (lines 496-499)

When pressed she admitted that these aspects had not been covered yet, and that perhaps this particular lesson was closer to the scientific persuasion.

Yes, because it's, in science you're looking at differences and similarities, it's very scientific based isn't it? (lines 521-522)

This confusion over what 'type' of geographical experiences she is providing for the children may be important in terms of her being aware of whether she is providing sufficient breadth over a period of time. If she thinks she is focusing on the humanistic and/or environmental aspect but in fact this is implicit and the explicit aspect of the lesson is largely scientific, it is possible that certain geographical concepts and values may not be taught over the course of the year.

9.3.2 Conception of teaching & learning in action

At the time, the lesson was characterised by the observer as being a mixture of travelling and growing and by Becky as predominantly growing but with elements of travelling and shaping. On further reflection and analysis of the post-observation interview, elements of all four theories are in evidence. Becky expressed a continuing commitment to child-centred learning and encouraging children to think for themselves (akin to growing)

I do like them to think for themselves because the trouble is if you do say we're going to just record it by photograph or whatever they just accept that, they don't think any further as to why, it doesn't mean anything (lines 250-253)

And this was evident in her practice (source: observation notes)

[conversation recorded during the introduction]

T: Could anyone think of a way ... how could we remember what the buildings look like?

P: Keep them in your head?

P: Lock them in your brain.

T: Yes, what other way could we record it?

P: Take some pictures.

T: Very good, that's what we are going to do, take some photographs

[conversation recorded in the field]

T: If you see anything interesting we'll take a photo of it. You let us know and we'll take a photograph

And the reason she took this sort of approach was:

Again, to let them have the ownership really, for them to think why ... the idea I that they are selective about what they photograph and why they photograph it (lines 285-287)

However, practical concerns often intervened and resulted in other approaches also being adopted. For example, she did not involve the children in the planning of the fieldwork as much as she would have liked:

It would have been nice to have planned it beforehand and to have got them to think ... cause that's much wider really than the time we had (lines 254, 262)

But she did draw on her child-centred philosophy to help her reflect on her practice:

I didn't do a visit before – I should have done really because then I could have had things in my mind. But the only thing, perhaps, that I didn't have anything in my mind meant that it was more child led ... so I was looking, like them, with fresh eyes (lines 333-338)

I hadn't planned it in that way, but just evaluating it in that way! (line 341)

At the same time there was also evidence that she did have ideas in her mind and that she was trying to 'steer' the children's thinking in a way that could be characterised as shaping.

I wanted to give them some ideas (line 105)

They'll probably come up with some ideas and I'll probably model it (line 420)

You know what your aims are and you kind of shape it towards that (line 582)

Again, Becky was aware of this

My personal theory would be the growing theory, but it's not always perhaps what, sometimes you're putting more information in, you tell them although you would rather... (lines 538-540)

Again, I do know what I want to get at and you do kind of shape, although I would hopefully go to a growing theory where ... they would expand it and explore, but really often you know what your aims are and you kind of shape it towards that (lines 579-582)

And was perhaps unable to put her conception into practice because of a lack of awareness, at this stage in her development, of the types of strategies that would be more appropriate. As with her initial elicitation a year earlier, Becky understands the need to use resources to make the world concrete for young children, but the strategies she uses in geography still rely heavily on questioning and discussion.

Interviewer: Did you think about reading them your questions?

No, I didn't think about that. That would have been a good idea, but I didn't think to do that (lines 123-124)

So I just thought, well, when we come back we'll just have a little chat about what we saw (lines 400-401)

9.3.3 Values evident in teaching.

In addition to the apparent mismatch between the scientific paradigm observed and the humanistic/welfare paradigm espoused, there was evidence during the post observation interview that Becky's values derived from her cultural background are affecting the way in which she interprets the humanistic persuasion.

For example, when discussing how the lesson observed fits into the unit as a whole, she talked about how they would be moving on to looking at houses and homes in other countries.

I've got a big poster actually, with all different houses and mud huts and things and, you know, why can't we have a mud hut here (lines 63-64)

... I would extend that to what were the houses made of, what's different about houses in this country to houses in other countries and why

Interviewer: I was going to say, if you've got a big poster with those on you are aware of the need to avoid stereotyping too much with houses and homes in other countries?

Yes, yes

Interviewer: If they're being portrayed as mud huts?

Yes. I've got a nice one, it's sort of got, you know, and I'll say why can they have this in a hot country, why would they be able to live in a house like this? Not that all houses would be like this but why are some like this? (lines 73-87)

A western, or Anglo/euro-centric perspective seems to be affecting her ability to assess the suitability of a particular resource and to anticipate the type of image it might portray to young children.

It also seems that, although Becky continues to hold a conception of geography that is most closely associated with the humanistic/welfare paradigm, this does not seem to come through in her practice. The lesson observed, the overall unit plan, and much of the post-observation discussion emphasised what houses and homes are made of, how they are suited to different climates, and making comparisons between these. In part, Becky's explanation for this was that she was building a foundation for work that would happen later in the year and the key stage. However, it is also possible to hypothesise that she is still, unconsciously, being more influenced by her own geographical experiences in school – that these are over-riding her geographical 'life' experiences. Thus, values are still not a strong part of the learning experiences she is providing for children.

In terms of the values underpinning her conception of education and the role of knowledge in education, Becky appears to be struggling with conflicting views. On the one hand she is a liberal-progressive who values child-centred approaches in which children are able to make their own sense of experiences – thus also reflecting an empirical, epistemological conception. On the other hand, she believes that there are certain things that children should know, or know how to do, and that sometimes this just requires giving information to them. This combination of ideologies, perhaps characteristic of many teachers, is

summarised in the following section where Becky is discussing how she selects different teaching styles according to her conceptions:

I really believe inside that you should guide the child towards, at this stage really for them to explore and experiment, rather than missing things along the way. If they don't get the opportunity to think it through – well, why is this, why did that happen? – if they're given it at this stage, you just say, well that's the answer, for example, they never find out how to transfer that to another skill or work it through. But on the other hand, you know I do model things and I do for literacy, I would model how to write a sentence or how to do things in a certain way (lines 615-622)

As the discussion progressed Becky stated that she agreed with elements of all of the definitions of knowledge, but that she felt the vocational one was only a partial definition, while she could accept the other two. She believes that there are things we call facts and that some 'knowledge does exist in books' as expressed in Fien's (1993) vocational conception of epistemology, but:

It's all a small fraction of, you know ... and a more up-to-date version might be totally different ... so, I mean I don't really go with that [vocational] but I do realise that you do have to research things, even at this age I would ask them to look in books and compare it with their own [knowledge] ... I would, as you say, that would be my attitude, there's always another point of view, another way of looking at things. (lines 739-748)

9.3.4 Summary teaching episode 1.

1. Becky's espoused conception of geography is humanistic/welfare but the conception evident in practice is more reflective of a scientific persuasion.
2. A continuing lack of in-depth understanding of geographical content and concepts is impeding Becky's creativity in her planning and teaching. For example, although she appears to have a good understanding of the pedagogy that is appropriate for geography (encouraging children to think for themselves how they might record observations – using a camera), the follow through in

terms of a clear geographical conceptual framework is lacking (she focuses on mathematical rather than geographical concepts in her interventions during the fieldwork)

3. Becky's espoused conceptions of teaching and education are growing and are a mixture of liberal-progressive and socially critical.
4. The conceptions evident in practice also show elements of shaping, transfer and vocational.
5. Becky is aware of this mismatch and explains it partly in terms of Piaget's concept of 'readiness' – that it is less appropriate to use open-ended, interactive tasks with younger pupils because they require more guidance. This concept is one that she had at the beginning of the course and still guides much of her practice.
6. It is also possible that the mismatch is due to her conception of geography, and that for geography she takes on a more shaping and vocational position because she is uncertain of her geographical knowledge.

9.4 Conceptions in action: Teaching episode 2

There was not an opportunity to observe Becky teaching geography again until the summer term when she was observed twice over a period of two weeks. On the first of these (teaching episode 2) she was completing a unit on environmental education with a specific focus on litter. The class had already had a fieldtrip to a local LEA environmental centre where one of the activities was to look at the waste produced from their packed lunches and what might happen to it.

The lesson observed had a key learning objective of classifying materials according to whether they could be reused, recycled or whether they would be thrown away with normal rubbish. There was no lesson plan available and there was not enough time to conduct a post-observation interview directly after the teaching. The interview was arranged for the following week, just before teaching episode 3 was observed. For this reason, the interview questions focusing on theories of teaching and learning and the nature of knowledge were left for the final interview, after teaching episode 3.

Other contextual factors were that Becky's priorities had understandably shifted and she seemed less keen, or to have less time, to be involved in the research project. The two sessions observed were therefore partly due to negotiation between Becky and the researcher and were not necessarily conducted when they might have been, or in the ways they might have been otherwise. Having said that, the teaching and post observation interviews did provide further information about Becky's development as a teacher of primary geography which is worth considering.

9.4.1 Conception of geography in action.

A secondary learning objective, expressed during the interview, was

That they would think about where the litter went. Think about organizing their own litter, and think about whether they need to bring things [in their lunchboxes] that need to be thrown away (lines 102-104)

This suggests an environmental persuasion with a focus on learning that goes beyond knowledge and understanding to incorporate values and attitudes. In this respect there is a greater sense of purpose to the geography evident in Becky's teaching than before, and that purpose is related to promoting positive attitudes towards our environment and how we can take action in helping to look after it.

We talked about what would happen if ... if you don't recycle what's going to happen, where does the rubbish go? What's happens then? (lines 75-76)

I was sort of saying to them, trying to get the idea across really. You know, should we just throw everything away for the dustman to collect? Or could even the dustman do something more with it? (lines 153-155)

Being aware of their environment and caring for their environment. That's really where it's coming from. (lines 162-164)

The scientific element is still present in the topic as a whole in the classification of materials according to their properties, but this was then built on from a geographical/environmental perspective.

9.4.2 Conception of teaching & learning in action

The lesson followed the usual pattern of introduction, main activity and conclusion. Of the three-quarters of an hour available, 25 minutes was spent on the introduction, 20 minutes on the main activity and one minute on the conclusion. [It is possible that the conclusion was continued after break, by which time the observer had left, but this was not mentioned in the interview the following week].

During the introduction concrete examples were used to stimulate discussion:

T: Mrs J. kindly collected something for us this-morning. What did she collect?

P: All the rubbish

T: Well done. What sort of rubbish is collected in our bins?

When asked how this approach reflected what Becky had added to her concept map as ‘investigates’ she said:

Really it was just talking about and thinking about, ... discussion really was the investigation. Where it led to. We started with the children’s experiences and then we talked about what would happen if ... if you don’t recycle what’s going to happen, where does the rubbish go, what happens then. That sort of investigation. Questioning. (lines 73-77)

The discussion certainly revised the terms reuse and recycle and gave the children the chance to actively participate by picking items from the sack and then sorting them. As such the introduction was well matched to the activity that followed, when the children were working in their groups and had some autonomy over sorting items under black – can be reused or recycled – or red – cannot be reused or recycled. However, it was not an investigation in the sense of a geographical enquiry. As an investigation it took a more scientific approach with the methods being modelled for the children to follow. As a whole the lesson was characterised by the observer as reflecting the shaping theory. However, there were strategies that Becky used which showed that her teaching style is developing. For example, she used a puppet to engage the children’s interest

I thought I was losing them a little bit there, that's why I just put Benji [puppet] in, just to bring back their attention a little bit more. I mean they love him. (lines 229-230)

and chose a child to explain something to another because

it helps her and it also helps child X and again she might say something that wasn't right again, then you can say – oh well, what do you think? Because every time you give them a fact you don't know if they're learning it. (lines 303-305)

which reflects elements of both the growing and transfer theories. As for the first lesson observed, Becky seems to be confused about the extent to which learning should come from the children or be facts imparted by the teacher. This could be interpreted as her not having a well-formed set of beliefs yet. An alternative explanation could be that she is all too aware of the complexity of the learning process and is attempting to select different approaches for different purposes. It could be said that she has a finer grained understanding than she did at the beginning of the PGCE course and that this has complicated matters for her. She has deconstructed some of her conceptions and is still in the process of reconstructing them.

9.4.3 Values evident in teaching

The interview was too brief to explore this in any detail, and it formed a large part of the interview later on the same day after teaching episode 3.

9.4.4 Summary of conceptions in action.

1. The persuasion Becky stated she was putting into practice on this occasion was environmental. This persuasion was certainly evident in the interview, but the actual lesson had more evidence of a scientific persuasion.
2. As before, there continues to be a mismatch between what Becky thinks she is doing and what is observed.

3. Becky continues to value ‘making them think’ and this appears to underpin her strategies of guided discussion, asking one child to explain something to another, and taking an active part in the session.
4. Becky’s conception of teaching and learning is becoming more fine-grained but this is confusing rather than helping her at this stage.

9.5 Conceptions in action: Teaching episode 3

The final lesson observed was part of an ongoing topic on contrasting localities done through following the travels of a bear who accompanied children on holidays or weekends away. Over the course of the year the bear went home with children for weekends and this was used as a stimulus for questioning, writing and drawing. During the summer term the bear was going further a-field and therefore introducing the class to more distant places. There was evidence of this in a classroom display of a map of the world with the question ‘Where have you been?’ as a title and postcards received from the children place around it.

9.5.1 Conception of geography in action.

A lesson plan was not available for this session. However, the main aim of the activity was to enable the children to help turn the home corner from a Vet’s Surgery into a Travel Agents. The purpose of this, in terms of children’s geographical learning, was

Mapping really. Thinking about where they’re going for their holidays, as well as environmental. Thinking about people. Looking at where they’re going, how they’re going to get there. Good routes. Kind of what we have to do to get there. How we book it and how we travel. (lines 4-8)

As a reflection of her conception it is difficult to place these objectives. The main purpose seems to be to develop locational knowledge and that this is linked to the development of a set of life skills (using maps, planning holidays). In this respect the lesson could be said to reflect a vocational conception of education. This is confirmed in other, future objectives for the use of the Travel Agency which include browsing through brochures, talking about

whether it's hot or cold, and what type of money might be needed. Becky also gives a rationale for the use of the home corner for role play as her approach as being:

Just so they get the best language out of it. (lines 28)

It could be said from this that the geographical learning was secondary to the language, literacy and numeracy learning. However, Becky also was keen to build on the children's knowledge of other places and to identify hot and cold places and start thinking about where they are in the world and how far away.

Becky herself stated that her conception of geography now reflected all three paradigms

Well I think now it's all of them. Where I think before I perhaps would have come to [been influenced by] my own idea of geography ... but now I realise that they were interlinked. (lines 286-292)

9.5.2 Conception of teaching & learning in action

In contrast to the previous lessons observed, the work was done with a small group while the rest of the class were doing other activities under the supervision of the assistant teacher. Of the 45 minutes available, 25 were used for the introduction and 20 for the activity.

Use of the home corner for different types of role-play is a strategy Becky has been using all year:

With Santa's Grotto we were doing festivals (lines 114)

And things like the shop, for example, we would write a shopping list but also let the children draw a shopping list (lines 126-127)

With the Post Office ... we set that up, they wrote envelopes with their own addresses, so that was very geographically based. (lines 138-139)

It reflects her conception that children should be active in their own learning and make sense of things for themselves, aspects of the growing theory. However, she also directs and shapes when it seems appropriate.

Well, I'll probably be the travel agent and R [assistant teacher] will be the customer. She'll come in and browse through the brochures ... that sort of things ... model the writing, model the tickets ... just model it really just so they get the best language out of it. (lines 18-27)

There are times when you do need to impart knowledge but I don't think that is a way I would teach all the time. That is a very small part of my teaching really. But there are times when you do have to say it is a travel agents you know! You do have to give them knowledge they haven't got. ... I do often go from where they're at, just have to model it and shape it from where they're at really. (lines 368-374)

This directing and shaping provides a sound base from which to then move into the growing experiential and enquiry based methods.

I mean experiential, spontaneous enquiry I think is so important. Obviously it's like when they suddenly say, oh why is this, how does that work, what does it work for and you can say well, how do you think it works? Why do you think it works like that? You know, and often there isn't a right or wrong answer with a lot of things, it could be because of that or it could be because of this. (lines 392-396)

9.5.3 Values evident in teaching

Aside from the *conception* of geography evident in Becky's teaching and what that suggests about what she values in the subject, the classroom itself provided evidence of the fact that geography is a subject that is valued in its own right in her early years practice. Two of the large displays in the classroom had a geographical focus – one of a visit to Bishop's Wood Environmental Centre where the children took part in a Teddy Bears Picnic, and the other 'Where have you been?' as mentioned above.

The rationale of raising children's awareness of places beyond their locality and what life is like in these places reflects Becky's humanistic persuasion. However, while recognising that her own persuasion is humanistic, she places value on all persuasions and sees it as her role to try to achieve a balance in her teaching and the children's learning over time.

But now I realise they are interlinked. And like you say, the trip to Bishop's Wood was very scientific and geographical but you couldn't really isolate the two ... and environmental, I don't think I would have looked at that a great deal but now, as I say, it is in my long term plan and I do realise that children do have an awareness of caring for the environment and what the environment is really. (lines 292-295, 300-304)

In this respect Becky's experience of working in an early years setting (which she also did as a classroom assistant before doing her PGCE course) has either led to, or cemented (the evidence could be interpreted either way) her understanding of how young children learn – that is, holistically through an integrated curriculum, where developing literacy and numeracy through, for example, the use of the home corner is as important as developing geography, science, D&T and so on.

Valuing all conceptions, persuasions, theories was also evident in her rationale for teaching approaches taken in the classroom which, she admitted, were an eclectic mix from all theories – transfer to growing – and selected according to the principle of best fit with the purpose for learning identified. This, in turn, reflected a pragmatic view of the purpose of education.

I think that's [achieving a balance] realistic really. Because ... although I wouldn't have said that before ... I would have said, I would have given them the opportunity just to investigate and work it out where as now I realise that you need a bit of [everything] (lines 408-410)

And you've always got this dilemma that you don't want them to have the wrong information, if you do know a fact, obviously you don't want them to go away with the wrong information. So if they're not going to come to it on their own then you're going to have to input information. But on the whole I think, you know, I

think that it's more holistic really. When you've been in teaching you realise that you need a bit of this and a bit of that, rather than it just being all idealistic ...
[pause] (lines 415-421)

And I still very much believe particularly in early years, they've got to have the hands on experience, they've got to experiment, they've got to investigate. If they don't you're just giving them the answers and they don't really know how they've got there or the knowledge behind it, the understanding behind it. (lines 436-440)

The emphasis continues to be very much on valuing child-centred approaches but, in contrast to earlier discussions, there is more evidence here of moving towards a more socially critical view of knowledge and education and this evidence comes from Becky's reference to who should be in control of their own learning and why.

And they [children who have taken Archie Bear away with them] talk about it with the children and the children think of questions to ask and whether they're sensible answers, and think about whether we've asked that question before. (lines 73-75)
And each time we always plan what's going in there [the home corner] with the children and make a list with the children. We don't just produce it over night. They've thought about it and then I start to get the thing together. (lines 158-160)
As you can see, they were crossing things off the list themselves. ... Sam came over and he said telephone, I've got that so I can cross that off. (lines 242, 246)

It could be said, therefore, that while Becky is happy to draw from all persuasions and theories of teaching, she is doing so because she is developing a greater awareness of a whole range of teaching and learning approaches and their suitability for helping children develop selected learning objectives. She is also using this greater understanding to begin to put into practice what she states she values, which continues to be a liberal progressive approach to education but with elements of a socially critical approach.

9.5.4 Summary of conceptions in action.

1. Becky now appears to have a finer-grained understanding of how a teacher can draw on all teaching and learning theories and match them to purpose, ability, the need to achieve a balanced curriculum, and the range of learning styles she might encounter in her children.
2. Her views of what is 'geographical' have perhaps been blurred by experience; in the Foundation Stage science, geography, history and D&T all come under 'Knowledge and Understanding of the World' (QCA/DfEE 2000) and planning does not need to differentiate between subjects in the same way. It is harder now to identify the geographical type learning in some of her teaching, beyond the content. It could be that this blurring was possible because she did not start off with a strong conception of geography in the first place.
3. However, geography is clearly valued as evidenced in the classroom displays.
4. While her range of teaching approaches is extending as a result of her first year in teaching, there is a tendency to rely on the two approaches of learning through discussion and learning through doing – with the assumption that doing = learning. Scaffolding children's learning from these discussions and experiences by use of a clear conceptual framework is still lacking.
5. One might question whether Becky is aware of suitable resources that exist to support geographical learning with this age group. On reflection this was a lost opportunity during the post-observation interview. It did not occur to me until analysing the data at a later stage that this might be a factor that was impeding her development.

10 Carrie

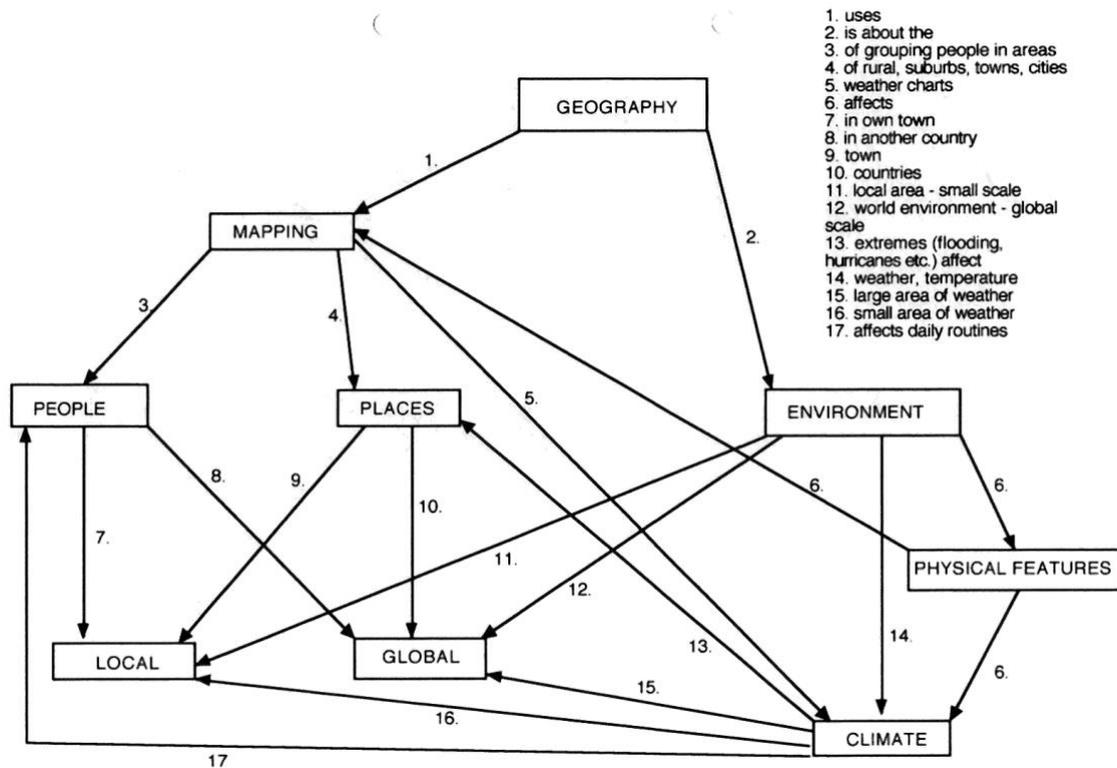
Carrie is a student who has a psychology degree, which she gained in 1996. In the first year of her degree she also did modules in geography and philosophy. In the three year period between gaining her degree and starting the PGCE primary course, she travelled around Australia for a year, worked for six months as a holiday representative in Mallorca, and worked in the retail industry for one year while getting experience in a local school on her day off to support her application for a place on the course. Carrie remembers being taught geography in infant school and went on to do GCSE and 'A' level for which she gained A and B grades respectively. She puts her enjoyment of geography at school down to the fact that 'I was lucky to have a positive and enthusiastic teacher who really encouraged me to understand the concepts'. She remains extremely positive about the subject, stating that she is 'looking forward to teaching geography as I find it such an interesting, useful and fun aspect of the curriculum and I want to project this image to the children'. In this respect, although not considered a geographer according to the definition developed for the purposes of this research, she clearly has a wider range of geographical experiences to draw on than B.

Carrie stated her interests as tennis, diving, playing the piano, aromatherapy and health.

10.1 Carrie's Conception of geography

10.1.1 Geography: Pre-course elicitation

Carrie's concept map does not appear to have any discernable structure. It is not hierarchical; although 'geography' is placed at the top, there is no indication from the way in which the other 8 nodes are placed that any one is seen to be more important than another. On the other hand it is not cyclical in the same way D's is, nor sequential in the way that L's is (chapter 7, p.132). It might be argued that the left hand side contains aspects that could come under the heading of human geography, while the right hand side is more about physical geography (the links made to and from the node 'environment' being to physical elements and scale, but not to human elements of the concept map).

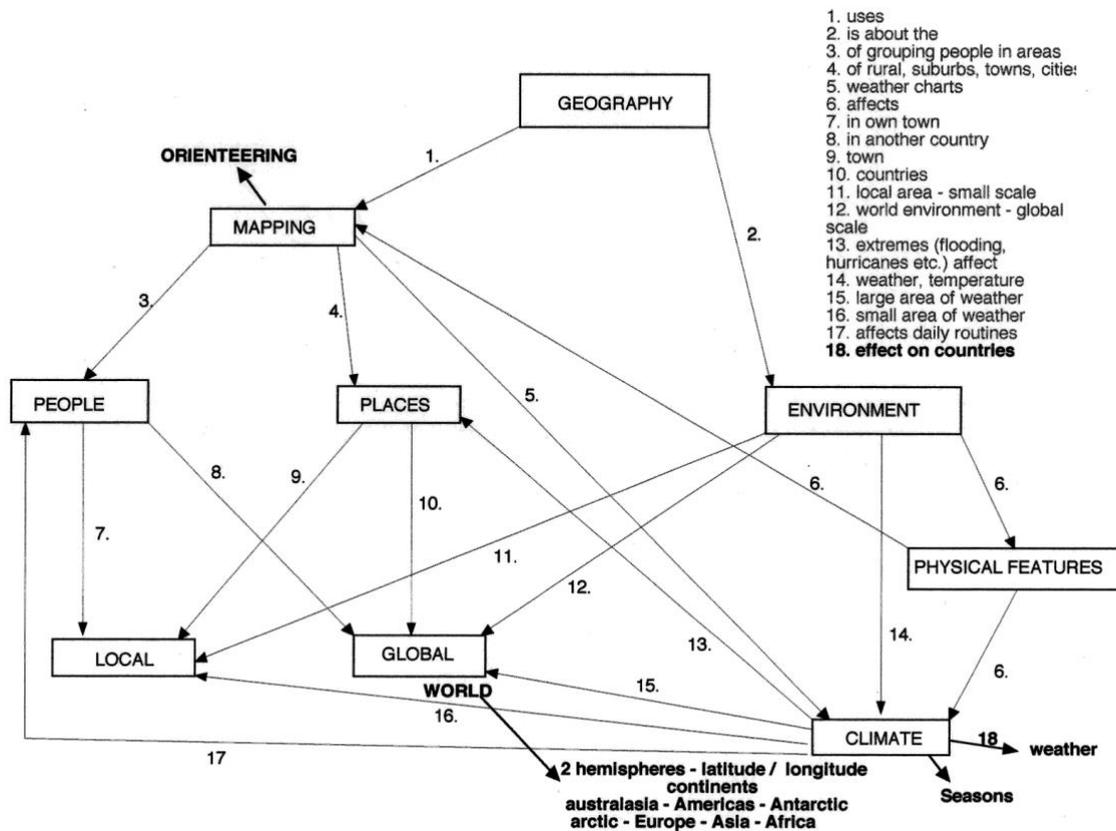


On the basis of what is shown on the concept map, Carrie’s geographical persuasion appears to be scientific. It is not content-based in the sense that Carrie has not added any concepts beyond the 8 provided, but this could also be interpreted as lack of knowledge. There is evidence of a process-based conception along the links but as mentioned above, how one thing affects another is the key process shown. The scientific persuasion is also evident here, for example in the emphasis on extremes in weather and their effects on places, but not on people.

Using the analytical tool Carrie’s concept map therefore scored low for both structure and geographical relationships between nodes. The links between nodes are all unidirectional, indicating that the inter-relationship that exists between geographical phenomena is not part of Carrie’s conception. Whilst all the links are labelled, the majority of the labels are descriptive rather than explanatory. The key concept mentioned is effect but because links are unidirectional there is not enough evidence to infer interactions of cause and effect between nodes. Geographical skills are implicit in mapping, which is represented as a tool for recoding how things are grouped together – weather charts, people in areas and settlements of different sizes. This hints at an understanding of patterns in location and

spatial distribution, but there is not enough explicit reference to this to score it. Her concept map has therefore been placed in category three.

10.1.2 Geography: Annotation of concept map after taught course



The changes that have been made to Carrie’s map, shown in bold above, suggest that she is now conceptualising geography in a more hierarchical way, the example she uses to illustrate being a hierarchy from the node ‘global’. Orienteering has been added as an example of a further use for maps, and another example of how climate affects phenomena is given. Beyond this there is very little change in the conception as a whole. However, the addition of specific concept terms and the suggestion of a hierarchical structure mean that the conception moves from category 3 to category 2. The map as a whole continues to reflect a scientific persuasion.

10.1.3 Geography: Stimulated recall interview

The interview with Carrie was conducted at a much later stage than the other interviews – at the beginning of May 2000 rather than December 1999/January 2000. This is because, of

the students who were interviewed on the first occasion, many did not have the opportunity to teach geography during school experience, and some dropped out of either the research project or the course as a whole. Carrie had indicated earlier that she would be interested in participating in the project and so she was approached again and agreed to take part.

In addition, due to a technical hitch the interview with Carrie did not record. However, the interviewer realised this within quarter of an hour of finishing the interview and immediately typed up the discussion from memory. This document was then given to Carrie for her to read through and check for accuracy, add any further comments and so on. She agreed that it was an accurate record of the conversation and chose not to add anything to it. Having said that, the length of the document is 6 pages as opposed to between 18-20 for the transcripts of other interviews. Clearly the same level of detail is not available to draw on to illustrate Carrie's ideas as expressed in the interview.

For both these reasons the interview data gathered from the first interview with Carrie is considered to be less reliable than that gathered for the other students.

Carrie said she felt able to represent her conception of geography successfully but that, on reflection, she had drawn on her memory of school geography more than other experiences, and that this had affected the conception portrayed quite significantly.

I relied very much on memory of geography taught at school – the sort of topics covered. I preferred physical geography to human, although we covered both. For physical geography I did an independent project looking at the local stream and the processes there, then we moved on to more global things such as volcanoes and glaciers. (lines 6-12)

This is clearly evident in Carrie's concept map; what is less evident is reference to the spatial aspect of geography or enquiry. However, Carrie stated that these were both part of her conception.

... the link between mapping and people and mapping and places could be about that [location] (lines 16-17)

In the way I have linked the nodes together, what I have written along the link is what I would investigate. ... I did a lot of fieldwork in school and that is part of my view. (lines 29-31)

On the other hand, she admitted that there was no reference to the time / changes aspect of geography on her map because she didn't think of it at the time.

When asked about the structure of her concept map, Carrie replied:

I have tried to show it as a cycle, with Places in the centre but with everything being linked to places and to each other. Everything is interlinked. (lines 35-37)

This suggests a much more structured and integrated conception of geography than was inferred by the researcher. It also demonstrates the importance of follow-up interviews, without which the extent of her conception would not be revealed. Carrie was now showing a far more complex and broad conception, for example, she had started by making links such as 'geography uses mapping, geography is about the environment' but had then decided to:

Give examples of what you would study if you explored the link between two things. So, for example, the link between environment and climate is weather. (lines 43-45)

When asked about her geographical persuasion, Carrie was unable to choose between humanistic-welfare and environmental. However, she said it was

Definitely not scientific. (line 52)

This was in direct contrast to the interpretation made by the researcher, and Carrie justified her choice by referring, once again, to the influence of her schooling.

Yes, I can see that. Perhaps that [scientific] is what my concept map shows, but my own persuasion would be more the other two, and mostly environmental. I think

what I did was to show on my map what I had been taught at school, but my own view has changed since then. (lines 62-66)

This indicates the strength of these earlier, more formal experiences, which were identified as geography as opposed to the later, informal experiences which were part of 'life', such as the year spent in Australia. It will be interesting to see whether Carrie draws on these informal experiences in her own practice, or whether she reverts to the school-based conception represented in her concept map.

With reference to any changes in her conception of geography as a result of the taught course, Carrie said that she hadn't

... really changed my overall conception. When I looked at it again I thought, yes, that is how I would do it. So what I did was how could I develop it further so I have added examples. (lines 77-79)

The geography component of the PGCE course aimed to help students recognise that their informal experiences are valid as a source to draw on, and there was an emphasis on geography in its widest sense, rather than confined to that portrayed by the National Curriculum. This does not appear to have had much of an impact on Carrie, suggesting that she may continue to draw predominantly on her school experiences to inform her geographical conception.

She was then asked if she felt anything had changed as a result of the taught course and replied:

I have realised that geography is everywhere and doesn't have to be complicated like my view from A-level. I had also thought it wouldn't be appropriate to take young children on fieldtrips but now I can see that this is possible, you just look at things that are relevant to them in their area. (lines 89-93)

This seems to be at odds with what she has said earlier. One interpretation could be that her conception of geography is not sufficiently well formed for her to be able to articulate it adequately, either in discussion or through her concept map. An alternative interpretation

could be that she has two conceptions, one developed as a learner, that she portrayed in her concept map, and one she is beginning to develop as a teacher. These are not necessarily conflicting conceptions, she is just probably not aware that she is responding from two different bases.

10.2 Carrie's Conception of geographical education

10.2.1 How and why do we teach geography?

Content	What teaching methods would you use / how would you teach this?	Why would you use these methods? What would be the gains for the children?
Climate	Thinking about the weather each day – how does it change. - temperature / hot + cold Thinking why does it change How does it affect different countries - Africa = very dry England = generally wet Australia = has both rainforest and desert Does it change around country, from home to school? -	?
Physical features	Features of environment and how they change Look at school in a town (where they are) e.g. buildings, a few trees. Go on a trip to a farm – wide expanse of fields, a few buildings Compare the two – could include 2 areas of school area, e.g. playing field V school buildings. How features change form town □ country	A school trip – actually 'doing' helps the children remember features more easily. A field trip outside the classroom also has same effect.
Mapping	Have carpet map of a street. Let children play with maps in extra time. Plot where all children in class live on a ready drawn map – maybe introducing a scale. Use instruction on an easy map to get a child from school – back home or from one room to another e.g. 4 steps left, 2 forward, even to an area in the room.	Make lesson meaningful by including where each lives. Make it fun so children can compile maps of how to get to school from home or of the school and the different rooms.

Table 10.1: Carrie's pre-course conception of teaching and learning in geography

Carrie was training to teach children in the early years and this comes through in her ideas about how to teach certain aspects of geography. The emphasis on how geographical phenomena affect each other shown in the concept map comes through strongly in her ideas about climate, although she is unclear about what the benefits of such learning might be for children. What is also evident here is that she *does* place the effects of phenomena within a framework of understanding about change, which was not explicit in her concept map. Other aspects of geography that are evident here but were not in her concept map are:

- focus on comparisons within and between places
- fieldwork as a means of gathering data
- maps as a tool for route finding

This is a more active, investigative conception of geography than previously inferred, and one that sees the importance of creating learning experiences that are fun. Perhaps these aspects emerge because the second task asks students to consider the value of geography, through consideration of the gains for children’s learning. However, even this does not lead Carrie to reveal that values are integral to her conception of geography, despite what she says about her geographical persuasion. On the other hand, there is evidence that she is able to break her conception of geography down in smaller parts and that this might be helpful to her when considering how to provide a sequence to children’s learning.

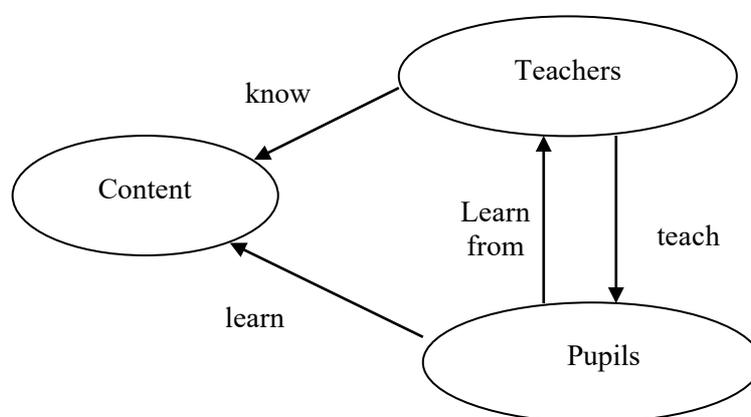


Figure 10.2: Carrie’s concept map for teaching and learning

Based on table 10.1 and the concept map shown in figure 10.2, Carrie's ideas seem to reflect the transfer theory with some aspects of the shaping theory of teaching. Whilst there is evidence that she recognises the value of building on children's current and prior experiences and the use of first hand experience, the gains for children are all very knowledge orientated and figure 10.2 indicates a far more transmissive style of teaching than the ideas in table 10.1 suggest.

10.2.2 Teaching geography: Stimulated recall interview

When asked to give a rationale for the ideas she expressed in table 10.1 Carrie first responded that:

I'm quite surprised actually, because I have put fieldwork and making things meaningful and I didn't think I had that view beforehand. But I would still agree with what I've written there – that children should learn through active experience and that learning should be fun. (lines 90-93)

The emphasis on fun was reiterated later in the interview:

... the children learnt measuring through songs and ... it was really fun. They learnt a lot without even realising they were learning. (lines 172-173)

These ideas had come from her experiences in school just before the course

I did one day a week for five months in a primary school and now I come to think of it a lot of my mapping ideas come from there. (lines 101-102)

Which perhaps explains why these ideas portray a different conception of teaching and learning than those shown in her concept map for teacher, pupil and content. She was asked to expand on the ideas represented in her concept map and remained of the opinion that teachers should know what they are going to teach and should always be in control

Because the children are too young to choose for themselves – they don't know what geography is so they can't make choices until later, perhaps GCSE and beyond. (lines 121-122)

Here Carrie is confusing children have a sense of control and ownership over their learning with having free choice of content and being self-directed; hardly surprising at this stage in her development. However, she did say that her thinking had changed slightly since the elicitation exercise and that now she might

Say how the teacher might teach and also that the content should be meaningful to the pupils (lines 112-113)

And that, by making things relevant to the children's lives that they would, in a sense, be directing the teacher's choices as much as the curriculum:

Yes ... I suppose you could, and their locality would direct your [the teacher's] choices as well. (lines 132-133)

When asked which theory of teaching she believed her conception reflected she stated travelling and growing because

I do believe that knowledge is a terrain to be explored and that it is not independent of the sense. I am not sure pupils can choose which route to take but I agree with the rest of it [the definition in front of her]. Also pupils develop personally and methods are experiential and we do help them to make sense of their experiences. (lines 141-144)

She recognised that this was at odds with what her elicited ideas portrayed

Yes, I can see that, and I would change that now. I think my view now is more the growing one but it wasn't then. (lines 152-153)

10.2.3 Values underpinning Carrie's conception of geographical education

Due to the lack of detail in Carrie's interview it is harder to draw inferences about the values that underpin her conception of geographical education. There were indicators which will be discussed below, but these are offered tentatively given the slim evidence base at this stage.

Values derived from Carrie's cultural background

There is sufficient evidence to show that Carrie values geography as a subject in its own right. Her schooling and travel around the world have contributed to her view that geography is a very interesting and useful subject. There is also some evidence to suggest that, while she sees both the formal and informal experiences as contributing to her conception of geography, it is the formal that predominate in her concept map and it will be interesting to see if this unwittingly affects her practice in the classroom.

Values derived from the substantive element of Carrie's conception of geography.

Carrie states a preference for the physical and environmental aspects of geography. The fact that she selected climate, physical features and mapping as the elements to explore for teaching and learning supports this claim, although there is insufficient data to provide evidence of how she interprets the term environmental. At the moment it would appear as though her interpretation is likely to be one that envisages physical-environment linkages rather than human-environment linkages. Her ideas about teaching and learning suggest that she does see geography as a dynamic subject and values the way in which it helps us to actively investigate how the world changes and the effects of those changes on features and environments.

Values derived from Carrie's conception of education and the nature of knowledge

Carrie's understanding of how children learn – that it is important to draw on their present knowledge and understanding and to select content that is meaningful to them – is reflected in what she said about the nature of knowledge. She was quite clear about why she did not prefer the vocational conception of knowledge:

Some knowledge is in books but depending on who wrote the book it might have a different view of that knowledge so I don't agree with the first one. (lines 190-192)

but she was undecided between the other two,

I agree with bits of the other two – liberal-progressive and socially critical. I think that knowledge is an individual matter that has significance in individuals' lives; it is about the integration of mental and manual in individual work.

Interviewer: What do you take that to mean?

That while you are doing you are also learning and thinking. (lines 171-178)

This suggests that she values a 'learning by doing' approach, but that the doing would be as individuals, suggesting that the role of language through talk is not part of her conception at this point. The value of groupwork was mentioned, but in such a way that suggests that while her conception of knowledge may be socially critical, her conception of learning is predominantly liberal-progressive.

I also think that knowledge is socially constructed, that our family, community and social groups affect what we know.It is integrated in group work, but not only group work because people learn individually as well. (lines 182-183,189-190)

10.2.4 Summary of Carrie's conceptions and values

	Geographical persuasion	Theory of teaching	Conception of nature of knowledge
Conceptions identified by researcher	Scientific	Transfer with some shaping	
Conceptions espoused by Carrie	Humanistic / welfare and environmental	Travelling and growing	Liberal-progressive with some socially critical

There appear to be many inconsistencies in the interpretations made by the researcher and Carrie's conceptions and values as espoused during the interview. A possible concern for

Carrie is her relatively narrow, knowledge-based conception of geography and lack of a clear conceptual framework for this knowledge. It is clear that Carrie values geography and the contribution it can make to children's learning, and that she would like to employ activities that have a sense of purpose and are fun. However, her lack of geographical and pedagogical knowledge (learning through doing, but not clear what 'doing' means) may make it hard for her to put this into practice. One thing that does not emerge from any aspect of the data at this point is a values element to Carrie's conception of geography. It is possible to hypothesise from this that the values inherent in the humanistic and environmental persuasions will therefore not be evident in her teaching, which may reflect the scientific persuasion more than anything else.

10.3 Conceptions in action: Teaching episode 1.

Carrie was observed first on 26.06.00 during the latter part of her final block school experience. She was teaching a Year 2 class in a large suburban primary. There were 29 pupils in the class and she was observed teaching the lesson from 2.00 – 2.50 p.m.. The lesson was fifth in a planned unit of six sessions focusing on a contrasting UK locality. The unit as a whole was planned by the school and Carrie drew on this for her own weekly plans. Included in the previous sessions were fieldwork activities in both the contrasting area (a nearby village) and the children's own locality. The data gathered through field sketches, data sheets and photographs were then available for the children to use when making comparisons between the two localities.

10.3.1 Conception of geography in action.

The objectives stated on Carrie's lesson plan were exactly the same as those on the unit of work, namely for the children to:

- describe key features of an area that contrasts with the local area
- be able to say how the local area and the contrasting area are similar and how they are different

Carrie's lesson plan also identified a learning outcome:

- to produce information showing similarities and differences of the local area and 'X' [name of contrasting area]

whereas the school's unit showed outcomes as being to:

- use the information to produce a mini guide to 'X'
- name lists of features
- give reasons for the differences

Unfortunately the introduction took place before the observer arrived. Children were already working in groups on a range of different activities which were:

- using Venn diagrams and information collected on fieldtrips to help identify similarities and differences between 'X' and local area
- individually creating guide books to 'X' supported by examples of guide books that were on the table to use as a resource
- completing a data record sheet also aimed at contrasting two localities
- creating a computer generated map of 'X'

When asked which aspect of her concept map the lesson reflected Carrie said:

Places, definitely, and local, um, people, mapping and physical features. (lines 5-6)

However, there was very little reference to physical features made throughout the lesson. Landscape was interpreted as the human landscape.

'X' was a small town and we were saying in the classrooms that there was one class per year but within this area it's a bigger school because there's more people and as we looked at the landscape it was just houses (lines 21-24)

... 'X' was only small because it was just a small community (lines 30-31)

While people in relation to society at community level is evident in what Carrie said this was not evident in the activities the children were doing which focused on lists of features (Venn diagrams and record sheet), descriptions of features (for the guide book) and locations of features (for the computer generated maps).

There was a clear aim, through the planning, to develop children's conceptual framework by focusing largely on classification (features you would find in a town / village), comparisons and causes. However, this was not evident in Carrie's teaching, although it must be remembered that the introduction was not observed. During the activity phase Carrie's talk was mostly directional (source, lesson observation notes)

T: What you do is put 'X' there, local area here and then write ... [she goes on to describe the Venn diagram activity]

P: I know what to do

T: You know, okay

[moves to another table]

T: Make sure you've got your names on those

rather than supporting or extending children's understanding of the two settlements. This mirrors the conception shown in her original concept map where the relationships shown between nodes were limited in nature, as opposed to what she espoused during interview.

Geographical skills of enquiry and fieldwork were evident, but it is difficult to determine the extent to which this is a reflection of Carrie's conception because she drew so extensively on the school's planning. When working in a large school where there are several classes per year group team planning of this nature is crucial, but it does make it harder to draw conclusions about Carrie's own conception in action.

During the interview she was asked about whether the children were aware of the process (of enquiry) they had gone through in an explicit way:

I don't know actually.

Interviewer: For example, 'what did we try to find out when we went there? Did what we collected help us to find out?'

Yes, maybe not, because we haven't actually got to that stage ... so probably not at the moment. (lines 491-498)

And her rationale for the ICT activity while intended to be

For them [pupils] to get an idea of how roads link and the sort of spatial side of things (lines 91-92)

In reality was something, which Carrie recognised, where

All they were doing was literally copying it [a map done by Carrie when modelling the activity] but it's very hard when you're looking at a picture and then you've got to move the mouse to move things ... it was just trying to incorporate ICT really. (lines 93-95)

Carrie appears to be having difficulty putting her conception into practice, perhaps because her conception is not well formed, or perhaps because her knowledge of suitable teaching strategies is, as yet, limited. That it might be the former could be inferred from her response to the question:

Interviewer: ... when you check what they've understood, how do you go about that?

Well, I either ask them, so with the guidebooks I was asking them to read it to me because sometimes if their spelling's not as good, just to check that they understand ... and I often ask sort of quite open questions ... I can't think of any examples right now ... (lines 171-176)

where she is floundering to think of the sorts of questions that might help the children to demonstrate what they know and understand.

Carrie was quite clear that the lesson reflected a scientific persuasion because

... it's focusing on the knowledge and understanding of the world and although you're focusing only on two local areas it is definitely spatial patterns and how

each one relates, although it's not necessarily a town as such, but a town with the country. (lines 426-429)

She also expressed regret that there was not an environmental aspect to the unit

It's an interesting area though, because I've read some information on that before and some of the stuff that you gave me as well, but it's a shame actually because that's quite a good one but they [the school / year planning team] didn't focus on that at all (lines 442-444)

But, while there was the opportunity to incorporate, for example, an environmental quality survey as part of the fieldwork giving an extra dimension to the sense of place developed, she did not do so, possibly due to a lack of confidence.

10.3.2 Conception of teaching and learning in action.

As has already been stated, Carrie's role was mostly one of monitoring rather than teaching during the activity phase of the lesson. Because of this it seemed as though the learning objectives were not explicitly referred to with the children and that the activities were an individual repetition of what they had done as a whole class in the introduction.

I did a large Venn diagram on the board and had 'X' on one side and the local area on the other and said, what were the features that were in 'X' but weren't in the local area and showed them on the board. ... So what was the same and different about the areas. ... that's why I rubbed it off the board, so they could go back and actually look at the tick list and they weren't just copying it, they were thinking for themselves. (lines 38-47)

The modelling provided here gives some evidence of the shaping theory of teaching in practice, but the strategy she used while they were working was

Checking that they're on task. Checking their behaviour, that they're not being silly and they're not just sitting there. (lines 164-165)

That she might check for understanding by asking the children what they thought the purpose of the task was seemed a novel idea to Carrie

Do you think that I should be sort of explaining that to them when they're doing it ... I want you to do this because? (lines 254-255)

And this response was another indication that her practice reflects the shaping theory. However, she was unclear about how to scaffold the children's learning, as discussed above, and she also did not capitalise on the potential of the activities in the plenary because

I didn't get my timing absolutely perfectly, and I wasn't sure if they were going to tidy up in time ... and stuff like that I guess part of me thought they've got two more weeks so we will – it's not like 'this is it', otherwise I would definitely have done that [a more structured plenary]. But because time was going on and they were enjoying it and stuff like that I just sort of left it really. (lines 305-306, 326-329)

This is not to say that there was no plenary at all, just that it was shorter than she intended. The notes recorded at the time show that she did follow a successful line of questioning to introduce why the two areas were different in some respects:

T: Who can tell me why there are 4 classes for each year here and only 1 class in each year in 'X'?

P: Because there are more children here.

T: Well done. Because when we were in 'X' and we looked at the landscape around what did we see?

P: Fields, animals

T: Yes, and when we looked at the landscape here what did we see?

P: Roofs, houses

T: Yes and that's why our school is bigger, because more people live here.

This single example of Carrie using questioning to scaffold children's understanding indicates real potential, but the strategy was not really used during the activity phase. The remainder of the plenary focused on valuing the children's work. In interview afterwards she appeared to judge the success of the lesson more in terms of whether the children enjoyed it and completed the tasks set, rather than whether the learning objectives were achieved.

[the guide book] ... *was quite a nice idea and they enjoy doing it ... it seems quite fun* (line 134)

I think they did some really good work... Just, you know, the plenary I wasn't happy with, other than that I felt it went really well because they were on task.

A positive aspect of Carrie's practice at this point is that she did an honest evaluation and was realistic in her appraisal of her own teaching and the conceptions it reflected. During the interview she said that she would like, for example, to try more paired and collaborative group work but that at this stage she was still playing it safe due to a lack of confidence

I did try that [ask children to work collaboratively] in my first term and I found it very hard, it didn't work (lines 229-230)

Actually I have done that with music. ... other than that I didn't really feel confident enough to do it. (lines 235, 239-240)

Two points emerge here. Firstly, Carrie's concerns mirror those of the majority of students in training, that management and control of pupils and their behaviour over-rides anything else. Secondly, one could infer that her desire to 'play it safe' is symptomatic of the pressure of formal assessments of students' practice and that risks can lead to unsuccessful lessons which may lead to failure (as perceived by them) of the practical element of the course. In the dual role of tutor and researcher it is possible that this was a factor.

On the other hand, it emerged during the interview that Carrie had given the children the choice of which activities to do and in what order, making it impossible to organise for collaborative learning. In addition to the shaping theory of teaching, this suggests that she

is also putting the travelling theory into practice. Carrie herself thought that her lesson reflected the growing theory

Because they're definitely developing all the time and they're certainly not, as the first one [transfer] ... a container where they're just filled. They've got their own ideas and they bring their own personalities, um, especially the enquiry and making sense of experience. I think it's very important. (lines 449-453)

But that it was none-the-less mostly teacher led because

It's been outside as well; we've obviously discussed it in the plenary when we've got back, right, so what have we found out, but it has been very much teacher led.

10.3.3 Values evident in teaching.

It is quite a challenge to identify which of Carrie's values about geography she is putting into practice. Perhaps a combination of a weak subject knowledge and a lack of confidence in the use of some strategies led to her relying on the school's plans and the work done with the other Y2 teachers rather than adapting them to her own style. There are hints that her persuasion is more scientific than she realises, since she has not taken the opportunity to move beyond the 'factual' side of geography to introduce values and opinions.

There is evidence of what she values in her own personal theory of teaching, such as learning should be fun and that children should be encouraged to think for themselves, not just emulate what the teacher has modelled or demonstrated.

When relating these ideas to educational ideology Carrie had some trouble interpreting the definitions, but thought that she probably believed in the liberal-progressive ideology

I don't believe that it [knowledge] just exists in books. I mean a lot of knowledge does ...

Interviewer: Well, what they were doing didn't reinforce that at all did it, because they could see that knowledge was out there, in the environment

Yes, I guess it's liberal-progressive, that's subjective ... it's what they think really. ... I mean it's integration, it's mental and manual. I think that's why I like hands on because, you know, doing that they do understand it ... and when they can come and get it on a piece of paper that's where it's transferring it sort of thing. (lines 505-517, 521-522)

10.3.4 Summary of teaching episode 1.

- There was potential for an appropriate match between learning intentions and activities, but Carrie's intervention during teaching did not capitalise on this – she tended to focus on managerial aspects of learning or giving praise for effort rather than asking questions that would enhance geographical understanding
- Carrie displays a lack of confidence / knowledge of range of strategies
- There is some evidence to suggest that Carrie equates doing with learning. As with Becky though, this thought did not occur until I was analysing the data and so the opportunity to ask the question at the time was missed.

10.4 Conceptions in action: Teaching episode 2.

Carrie secured her first teaching post in an inner city primary school that had a high minority ethnic population. She was allocated a Y1 class with 26 children and was observed first on 8/12/00 at 11.30 a.m. teaching a lesson that had a focus of developing mapwork skills and associated vocabulary as part of a unit on the local area. Evidence of work done before the visit could be seen in around the room where there was a large display entitle 'A Plan of Our Classroom' that made use of shape and colour with a key to show the location of areas, tables, where each child sits and so on. There were also questions beside the display asking 'Where do you sit? Can you find Miss Carrie's chair?'. There was another display of plan views of everyday objects which had the heading "Look at these plans. Do you know what objects they are?". This all suggested a focus on developing map skills and associated subject specific vocabulary in everyday, meaningful contexts.

For the lesson observed Carrie had identified one key objective for learning; for children to

- Use geographical vocabulary when describing a map (positional)

The lesson plan also identified that she would assess for the children's ability to 'work out routes using positional vocabulary', indicating that being able to use the vocabulary in context was important. The lesson was introduced by some discussion linking it to previous work on maps, and by reading the story 'Rosie's Walk'. The tasks she had devised to enable the children to achieve the objective were differentiated and consisted of:

- Finding treasure on a treasure map
- Pairs of children directing each other from one place to another using a map of the classroom
- Children individually sticking pictures onto a base picture according to instruction (on the table, under the chair, above the picture etc)
- A small group of children giving instructions to Roamer to make it move from one place to another in the classroom

In addition, some other activities were available (making a computer generated map using 'My World', construction toys for making a map, small world play on a floor map) for children to choose once they had completed their main activity.

10.4.1 Conception of geography in action.

The aspect of Carrie's concept map being put into practice here was the development of maps skills with the emphasis (as indicated by the types of task and the assessment) on these skills being a useful life tool that need to be applied to specific contexts. This was confirmed during the interview when she described the previous lessons leading up to this one, where she had used a variety of resources to help the children understand what a map is and that it is a 2-dimensional representation of the 3-dimensional world. The resources were maps and oblique aerial photographs as well as objects and pictures of the objects from side and overhead perspectives. Then,

We looked at the classroom and thought which objects in the classroom would be important if we were going to actually make a map, so we decided those, then we decided how we were going to put those onto the map ... we'd have to do a plan view ... and the children cut those [the shapes] out themselves and we made a class map (lines 12-14, 17-19)

And the overall purpose (of the unit as a whole) was

Basically linked to the mapping skills in the local context ... because we're going to do a walk around the local area as well to sort of link it in. (lines 104, 109-110)

The notes recorded during the lesson show the use of subject specific vocabulary.

T: [showing children plan views of objects] What are we doing? We're looking from

...

P: The top

T: Yes, and what do we call that?

P: Plan view

T: Plan view, yes, well done

[moves on to class map on display]

T: Can anyone recognise what this is? It's the

P: Cupboard

T: Cupboard, well done, it tells us on the key

And her rationale for this was

Well I don't think there's in a way, any point in beating around the bush. If they know that word then they'll probably ... [hesitates] ... I was thinking, plan view, will they understand? ... but I thought I might as well call it a plan view because that's what it is. And they do pick it up at this age ... (lines 278-279, 285-287)

It appeared in the lesson, and the interview afterwards, that Carrie was much more secure in her subject knowledge than on the last time she was observed. The focus on mapping

and its associated vocabulary was made explicit throughout the lesson and the activities were a good match for this. Carrie explained this by saying

When you're on teaching practice you're just stuck with, you feel you've got that lesson and you can't sort of relate it to anything because you don't really know what else is going on. Whereas now, because I've done everything I can say 'remember when we did this, or maybe we can link that in ... (lines 395-399).

This seemed to give her the confidence to be able to put her own conceptions about geography into practice, and this confidence was evident in her approach to planning:

It [the book planned into the QCA unit of work] was supposed to be Katie Morag and the Two grandmothers but I ended up doing 'Delivers the Mail' because that one was more geographical because you've got her going over, you see where she's going on the map' (lines 74-76).

The geographical persuasion evident in her teaching was categorised as scientific by the observer but as a mixture of humanistic/welfare and environmental by Carrie, although there is evidence that she misunderstood the question.

Interviewer: Starting off with the geographical persuasions, can you think about where what I observed fits in with each one in turn?

It's between these two really, humanistic/welfare and environmental, because I'd say it's ... definitely about the people and the environment and the interaction and the relationships. But I think it focuses on more than just pollution and global warming ... it's to do with social organisation, cultures, ways of life, so I'm torn between those two really.

Interviewer: Is that your own personal view of it [geography] or ...

Yes, and more so now I've been doing it with this class. (lines 472-486)

When asked to expand on why she thought *this* lesson was humanistic / environmental she replied:

I had to think, right it's too hard, how am I going to do this geography? And it's trying to make it more practical and I guess with the cultures, because I've got such a cultural class, that I've had to sort of think about that as well. (lines 492-495)

Suggesting that although the geography in the lesson had objectives that were more scientific, the way in which she taught it took account of the cultural context. She appears to be confusing geographical persuasion with conception of teaching & learning here. Carrie's justification might have been more convincing had the story she chose reflected the children's cultural context, but as it was, Rosie's Walk is set in the countryside on a farm that is, to all intents and purposes, British and was in the English language rather than a dual language book.

10.4.2 Conception of teaching and learning in action.

Many of the aspects that Carrie said she aspired to in the previous post-observation interview were now becoming evident in her practice. For example, her conception that learning needs to be practical, fun and concrete was very evident in this lesson, and her rationale for this was linked to motivation:

We're going to do lots of things about maps ... and I thought that would probably be easier for them to understand if they actually got up and did a walk forwards, walk backwards, walk left and right, so they are doing it practically. (lines 124-127).

In the hall ... they had to go over, under, through, around, you know, so they were actually using the language there and something like that, again, it's practical, it's really good fun, they enjoyed it but they're learning. (lines 381, 383-385)

In terms of established theory, Carrie seemed to relate this to Piagetian notions of stages of development

Doing it themselves, it's a lot more hands on, yes, whereas with the older children you could really do something on the board and it could be a bit more abstract
(lines 151-153)

and that her aim with this Y1 class was to provide a wide range of play-based experiences, some of which they would not necessarily understand, but that would lay the foundation for deeper learning later on (lines 252-254)

Like with the roamer they probably don't really understand what they've got to do because they're following my instructions or they're reading the instructions but, sort of, the sooner they do everything then it'll become easier as they go ... up the school and now that you can introduce something that's probably quite hard but you can introduce it as play so when they do get higher up the school they've got to actually understand the really deeper meaning of what they're doing then at least they've kind of had a go beforehand. (lines 248-254)

Another aspect Carrie aspired to was to try more collaborative groupwork and this was very evident in the lesson observed.

I always try and get groups ... and I always sort of say that 'we're working together as a team' (lines 205, 207)

Her rationale was that children learn better when in groups because

they're talking about it and they're discussing and they're, I've seen them in literacy and they're sort of, if one of them's not doing it right and the other one's spotted it they help them (lines 214-216)

Throughout the lesson there was also a big focus on subject specific vocabulary

Because I think that sometimes they need to know it ... okay sometimes they probably don't understand ... but then I'll usually repeat it but in more simple language (lines 164, 168, 170)

and making learning objectives explicit

Yes, those are the group targets, but we have individual targets in their books as well. ... but I do try and say, right, now, you know, the objective ... today is mapping skills and we're going to do lots of things with maps ... it's much better because they know what's expected of them. (lines 435, 438-9, 456)

This was a significant shift from the previous lesson observed.

Finally, Carrie was asked to discuss her teaching in relation to the theories of teaching and, on this occasion, she could not choose between shaping, travelling and growing:

I think you're definitely shaping the pupil with the knowledge, um, but then they're exploring things alongside of you. You're sort of leading them really to learn about various information. But then they're growing as well because as soon as they get that then ... like I said, ... they're developing it and they're, you know, sort of growing, so it's ... quite hard to choose between all of those. Lines 520 – 526)

Which could be interpreted as putting the concept of match and fitness for purpose into practice. However, there was evidence in the interview overall that her conception in action was more travelling and growing than shaping, because although she talked about the usefulness of modelling for pupils (as she did for the group working with the roamer) she saw modelling in the sense of scaffolding rather than moulding or shaping because they weren't expected to replicate what the teacher had done, but to play with it and come up with their own ideas.

10.4.3 Values evident in teaching.

As with the previous lesson it is not easy to identify what geographical values Carrie is putting into practice. On the basis of the university phase data, it appeared as though what she said in interview (recognising the importance of informal, life experiences in geography) was not reflected in her concept map (which drew predominantly on her formal, school experience) and this still seems to be the case. Although continuing to

express a preference for humanistic and environmental persuasions she appears to put a scientific one into practice – one that is more closely aligned with her concept map.

As shown above, she is much clearer and more certain about her pedagogical knowledge. A common pattern during the interview was that, if asked to explain a geographical aspect of her teaching, she often provided a pedagogical response. However, some of what she was saying did seem to relate to her ideas about epistemology,

I guess knowledge is in a way, it is a private and individual matter because everybody's going to have ... to take the information on board in a different way and they might not all remember the same things, they might pick out specific bits that are kind of related to them and their life, so I'd probably go for that one, liberal-progressive (lines 550-554)

although when asked to relate this directly to what she had done in the lesson it was not clear that she had fully understood the term.

'Today they definitely got different views about mapping because some just sort of did the positional language you'd need ... whereas others were actually following a physical map in their head and then some of the others were just doing it abstract on the floor ... with the roamer. (lines 572-576).

10.4.4 Summary of teaching episode 2.

Overall the aspects of Carrie's conceptions of geography and teaching and learning in practice that seem to come through strongly are her:

- Explicit focus on appropriate learning objectives and subject specific vocabulary
- Desire to develop map skills in real, meaningful contexts at a variety of scales classroom – local area
- Ability to manage / organise her and the teacher assistant's time more effectively with smaller groups so that time spent teaching rather than managing increased

- Ability to adapt to situations as they arose and to support or scaffold children's learning accordingly
- Recognition of the need to make things as concrete as possible if the children are going to understand them
- Finer-grained understanding of the concept of match, or 'fitness for purpose'.

However, it was difficult during the interview to focus on subject matter because pedagogy appears to be what she is concerned with. In this respect she seemed to have a realistic perception of the theories of teaching her practice reflected, but not for the geographical persuasion. It could be hypothesised that Carrie's pedagogical knowledge is developing to the point that she is feeling much more confident, but that her subject content knowledge is not secure enough for her to articulate a clear rationale. It is as if the geography has been subsumed in 'good learning' and, while a very competent lesson, it was less evident that the children were developing their understanding of map skills in context in the way that Carrie intended. The necessary subject knowledge to make these connections was not evident. One comment made during the interview that seems to support this is

I realised when I was on my teaching practice that it was very "right, this is geography and that's all I'm doing" in a little package whereas now, because I'm doing it all the time I link in everything (lines 191-193).

This is typical of the holistic approach to learning in the early years but it is possible that this was impeding her ability to scaffold their learning geographically.

10.5 Conceptions in action: Teaching episode 3.

The final lesson observed, on June 14th 2001 at 11.30-12.15, was part of a series of lessons on the children's local area. Previous work included fieldwork in the local area, focusing on a local shopping street, to gather evidence through photographs and observations which would eventually contribute to a display of a pictorial map of the street, and an Estate Agent's home corner area for the purposes of role-play. There were also displays showing work on buildings with labels for parts of houses, materials and types of houses. The specific learning objectives for the lesson, written on the board, were:

- To know the jobs people do
- To know what a building is used for

After an introduction, which reminded the children of previous work, the children worked in groups on different activities none of which seemed particularly well matched to the learning objectives:

- Writing labels for photos and paintings of buildings (for a display)
- Programming roamer using instruction strips in a bag
- Paintings – of cars observed to go on their display
- Town base map with buildings, people and street furniture to put on
- Building blocks to create a model on the carpet

10.5.1 Conception of geography in action.

Carrie felt that the lesson observed would fall into the places - people –local part of her concept map

Because it's jobs and buildings within the locality. Looking at how the locality is used ... and from that we're going to develop a map so it's linked to the mapping as well. (lines 6-7, 12-13)

She went on to describe how the lesson today fitted in to the sequence of lessons as a whole, and much of the previous work seemed to centre on mapping (routes home to school, enlarged version of the A-Z map of their area), location (children's addresses, where they live in relation to each other and other key features within the environment) and fieldwork (in the local area to gather the information about different buildings). Her rationale for the emphasis on buildings was that it was providing the focus for learning in most curriculum areas

They are eventually going to be making their own house (line 50)

In science we are doing about materials so what the different parts of the house were made of (lines 54-5)

We looked at bricks, how to put them in the right order so that when you roll a ball they won't fall over (lines 57-8)

So basically the focus for geography was looking at the buildings in the area ... and what they're used for (lines 64-65)

This would appear to confirm what was inferred from the previous observation, that in the holistic, cross-curricular approach some of the potential for geographical learning is getting lost. Carrie is sticking with the tried and tested in terms of developing children's map skills in real, meaningful contexts, but beyond this the potential understanding that might accompany the content focus is missing, as is the value element. She was quite happy providing a rationale for the focus on mapping, but when pressed to provide a geographical purpose for the focus on buildings she was hesitant:

Um, just to be aware of buildings in their locality, what they're used for really (line 204)

Interviewer: And the purpose of that for them?

Just, again, to make them more aware really, of the fact that there are people that work in the area and that things are going on down there. (lines 209-210)

That this could contribute to the children's understanding of settlement – what makes a settlement and how their settlement might be different to others – did not seem to be a part of Carrie's thinking. There was also no suggestion that she might encourage the children to sort the photographs of buildings collected into groups, or consider why these types of buildings were there but not others. This perhaps explains why there seemed to be a bit of a mismatch between the learning objectives and the activities provided.

The introduction itself had a clear focus on the objectives. Carrie had a number of photographs of buildings taken on their field visit, plus some paintings of these buildings done by the children. She showed them each in turn, using them as a stimulus for discussion about the types of buildings they were and what jobs people might do in them. In the activities the group that wrote the labels (e.g. this is a pub, they serve beer and food

to people) was the closest to the learning intentions, although it could be considered more of a literacy than geographical activity.

The interview sought to explore how she felt the other activities related to the learning objectives. Again, the potential to use the town base map and buildings, play people and street furniture to create a community and to help the children be explicitly aware of what a community needs was there, but not developed by Carrie and, as the discussion continued, she could see what I was getting at and became a little defensive:

So ... the main focus is the jobs and getting the labels done and that is for the display. It's related activities really, to what we've been doing, or consolidating what they've done before. It's not just sort of doing literacy, you know, or something completely way out. (lines 275-278)

It is difficult to tell whether Carrie's lack of geographical knowledge was impeding her planning and teaching, or whether this was one of those lessons where for pragmatic reasons children are working on different things that do not necessarily relate to each other, but enable some work to get finished.

As with the previous lessons observed, the researcher characterised this as scientific / descriptive rich but Carrie said she thought it was a mixture of humanistic/welfare and environmental because

It's definitely to do with people and how they affect the environment really, as opposed to how the environment affects people ... um, but I do think definitely it's about, ... especially at this age, is about individuals and society and how it affects, um, how they affect the area (lines 297-301)

When asked why she never chose the scientific persuasion she said

That's definitely higher up again (line 326)

meaning it was more appropriate to do that sort of geography higher up the school. In terms of a progression, she thought

It goes from the humanistic to the environmental to the scientific, I would have said
(lines 330-331)

because

it's something that you've got to measure or quantify or test hypotheses, (line 335)

whereas the humanistic persuasion is

just people and what happens, what they're doing (line 320).

In her interpretation of the statements, Carrie is focusing on what she understands of the term humanistic and ignoring the welfare aspect and its focus on power, wealth and inequality.

10.5.2 Conception of teaching and learning in action.

Aspects of Carrie's conception that had emerged in the second lesson continued to be evident. She often referred to the children's stage of development when discussing what was feasible or not, and still provided a range of practical and play-based experiences that would motivate the children. An example of this was the change of use of the home corner to an estate agents which the children had helped to create and had real house details gathered from local offices, along with a street map of the area and other relevant props.

Another feature was that of being explicit about the learning objectives, but she had developed this further

I've started to do a 'what I'm looking for is ...' and this is because, and I explain to them why I want them to do it. Not just draw a map ... but why does she want me to do this? (150-152)

The lesson was characterised by the researcher as predominantly shaping with some travelling and this was certainly implicit in many of the things Carrie said during the

interview such as using the display as a means of modelling the environment but then using it as a teaching tool to reinforce understanding, and her rationale for providing instructions for the children to follow with the roamer this time

You have to do a sequence of instructions otherwise it won't work ... with the roamer you have to put in things in a certain order otherwise it's not going to do what you want it to do (lines 100-102)

Which was much more teacher-led than the way in which it had been used previously. However, her thinking behind this what that it enabled the children to work more independently of her which they have enjoyed and it is possible that following or having instructions gave them greater confidence which might lead to more exploratory approaches later on.

When asked to state which theory of teaching she thought had been evident in her lesson she was still adamant that it was not the transfer theory because

I think all of them [the children] have got experience however small, none of them know nothing ... (lines 355-256)

But that it could be any of the other three because she felt on occasions she was moulding the pupils, but

Then again they are sort of exploring it alongside you as well (line 365).

Carrie then began to describe how they might relate to each other

You're sort of modelling it and then they create ... I think they do grow with this as well ... because I agree with 'knowledge is socially constructed and open to change' (lines 371, 377-379)

which seems to substantiate what was being inferred from the previous lesson – that one might select the approach that is most appropriate for a given purpose or ability. Although this is not necessarily working in practice yet, she aspired to a more interactive, enquiry-

based approach to learning but felt that her first year of teaching had been a learning curve and that

Having done the year now, going back to redo it I would definitely bring that [enquiry] in and have more ... where they're doing the thinking. I'm not necessarily just giving it to them and saying right, this is what we're going to do. Actually get them to think about how we can find that out ... (lines 405-409).

10.5.3 Values evident in teaching.

In many respects there has been little change in the values evident in this lesson and the previous one observed. It is clear that Carrie continues to value geography in the curriculum because a significant amount of time is given to it in her planning. In both terms that lessons were observed the geography 'topic' gave the focus for much of the learning in other foundation subjects. However, although she expresses a belief in the power of thinking skills approaches and letting the children generate their own meanings, she is not yet at a stage where she can put this into practice. The conception of geography evident in practice remains quite narrow, centred on mapping skills and the development of some knowledge about the local area which is largely content based.

In terms of her approaches to teaching it is clear that she also continues to value children's own knowledge and aims to select content that is meaningful to them and that children learn best by doing. Although not part of the interview, it is clear that she also places great value on the nature of interpersonal relationships in her class. Circle time is a key feature of the week and she has built up an excellent rapport and culture of mutual respect with and between the children and any other adults that help in the classroom.

Finally, Carrie seems a little more certain this time that she believes in a socially-critical epistemology because

As a child you're gaining your knowledge from the teacher but also from the other children. ... and then, you know, everyone's sort of linking in and even me as the teacher, I'm learning from the other teachers. ... and that's the way it is,

everyone's got their own opinions and so I definitely think it's socially constructed.
(lines 435-440)

In the lessons observed there are hints that she puts this into practice, whether consciously or not. For example, she draws on the children's own knowledge, uses contexts that are meaningful to them and then extends their understanding through play-based, collaborative activities.

10.5.4 Summary of teaching episode 3.

To summarise, based on the evidence of the lesson observed, the classroom displays and the interview, key elements of Carrie's practice to emerge are:

- Learning is holistic, so any opportunities to link learning in geography with, say, literacy, maths, ICT are exploited
- This is sometimes detrimental to geographical learning because the geographical element gets lost and appears not to be explicit to either Carrie or the children
- Carrie's pedagogical knowledge is developing more than her geographical knowledge leading to well-planned activities that do not always match well with the geographical objectives
- Carrie is keen to develop children as independent learners – some activities have a clear purpose and do not rely on high levels of literacy (such as the town planning game)
- A belief in the power of collaborative learning and the role of talk, although some of the potential is lost – for example, she appeared not to recognise the potential of the Estate Agents role-play area for promoting geographical learning
- She is developing her understanding of how to provide logical progression in children's learning
- All takes place within a strong ethos of mutual respect and support alongside clear boundaries for behaviour

11. Beginning teachers' development as teachers of primary geography.

This chapter proposes a model for beginning teacher development in the field of primary geography that has emerged from interpreting and synthesising the evidence from the three case studies. The model is applied to the series of lessons observed for each case study providing an overview of their development as teachers of primary geography. This, in turn, leads to the generation of a number of ideas about beginning teacher development in the field of primary geography, including a possible 'stages of development' model. These ideas are related to the variations in the experiences of each student prior to beginning their PGCE training and, as a result, some factors that appear to affect transition from one stage to another are identified. The chapter concludes by considering the implications of the research and proposing some ideas for developing and researching a new framework for primary geography.

However, before this it seems appropriate to consider some of the methodological issues that arose during the course of the research and which will have an impact on the trustworthiness of the models and theory set out below.

11.1 Methodological tensions in the research

During the course of the research several methodological issues arose which require further clarification. These are addressed under the following headings:

- Grounded theory and the use of frameworks
- Case study research
- The impact of the researcher on data quality and their interpretation

Inherent in the discussion of these issues will be the identification of the factors affecting the trustworthiness of the research findings and the models for beginning teacher development that are proposed later in the chapter.

11.1.1 Grounded theory and the use of frameworks

One of the tensions that emerged during the analysis and subsequent write-up of the case study material was my decision, at an early stage of the research, to make use of conceptual frameworks presented in previous grounded theory studies. The use of conceptual frameworks in grounded theory research is acceptable *as long as they do not constrain the codification process when analysing the empirical data.*

There is some debate between grounded theorists about whether it is acceptable to refer to the literature widely before gathering data. Glaser (1978) recommends

... reading widely while avoiding the literature most closely related to what you are researching. His fear, which I share, is that your reading may otherwise constrain your coding and memoing (Dick, 2002)

I had already done a great deal of background reading that was directly related to what I was researching before I developed my proposal because it was also the focus of my MA dissertation (Martin, 1997). I could not ignore this fact, but other grounded theorists (Strauss & Corbin, 1998; Lankshear & Knobel, 2004) suggested that the use of concepts and conceptual frameworks from previous studies can be helpful as sensitising concepts – that is, if they are used for background information and the researcher does not use and privilege them as data. Furthermore, they state that these conceptual frameworks can be of particular use *if they have emerged from grounded theory* and are related to the current study. The ways in which conceptual frameworks from previous studies (appendices 3, 14 and 15) were used in this research were:

- as an elicitation tool during data collection, and
- as an aid to analysis and interpretation of the data (they formed part of the coding framework initially developed using NUD*IST and then transferred to the Word© indexing and cross-referencing tool)

They were found to be useful as an elicitation tool because they provided a common prompt (as were the concept maps) for each of the students when they were asked to elaborate on their conceptions about geography, pedagogy and knowledge. In addition,

these frameworks were used during every interview enabling development of the students' ideas to be identified. Their use in this way is supported by Charmaz (2000) who agrees that theoretical assumptions from other studies can inform the data gathering process, but that care must be taken not to privilege these over other assumptions that may begin to emerge during the process.

As an aid to analysis, however, the frameworks were found to be less than helpful. As mentioned earlier (chapter 5, table 5.2) NUD*IST was the original analytical tool chosen and the frameworks were used a part of the initial coding system. However, it became clear that this initial system was not reflecting the key points emerging from the data and at this point I explored the possibilities of Grounded Theory, particularly the first stage of open and axial coding, as a means of analysing the data. I found I was creating a whole set of new codes which, in conjunction with those originally provided by the frameworks, became unwieldy and got in the way of letting the data speak for themselves. At the time I put the problem down to the software package. In hindsight I realise it was also due to my becoming, subconsciously, attached to the imported concepts. I then moved to the use of Word © indexing and cross-referencing tool and took the advice of Dick (2002) who suggests that if emerging theory does contradict theory from the literature that it should not be assumed that the emerging theory is wrong. If frameworks from previous studies are used the researcher needs to be particularly assiduous in grounding them through interplay with the data and continuously 'seeking disconfirming evidence' (ibid). The analytical process therefore followed this sequence (ref. chapter 5.2) in order to avoid the pitfalls of using imported concepts:

- interviews interpreted and coded using Word (applying conceptual codes to the data and grouping sets of like codes into categories)
- as each new interview was coded there was a process of constant comparison with codes developed from the previous interview; thus the coding system was expanded and refined (properties of each category identified and located along a continuum e.g. use of a strategy frequent / infrequent, confidence high / low – also known as axial coding)
- these codes were then widened through comparison with the concepts from other studies

- two interesting things emerged from the final stage – the students sometimes interpreted the imported concepts differently to the researcher; the persuasions did not appear to have any relevance as a means of describing *primary* students' conceptions of geography

The things of interest that emerged in this final stage might not have done so if the coding system had not been widened through comparison with concepts from previous studies and yet it was these observations that led, in part, to the proposals set out in chapter 12.

11.1.2 Case study research

The second tension that arose was that, already referred to in chapter 5, of using Case Study as the research strategy and then deciding to analyse the data using a grounded theory approach and therefore needing to make hard decisions about what and how to report from the case's data. The data gathered for the case study were:

- Concept maps and written accounts of teaching aspects of geography (n=79)
- Recordings of stimulated recall interviews (n=11)
- Lesson observation notes of three teaching episodes (n=4x3)
- Lesson plans and medium term plans for three teaching episodes (n=4x3)
- Recordings of post-observation interviews for three teaching episodes (n=4x3)

These data were rich in detail and decisions had to be taken about how to present them. Case studies can be purely descriptive, providing a meta-narrative to the case that the researcher has been immersed in. Cases can also be reported as a mixture of description and interpretation, known as 'thick description' (Geertz, 1973). The purpose of thick description is to avoid a descriptive 'cataloguing of culture', and to identify connections and patterns in the case from which one could generalise, rather than theorise. The tension, having decided to use grounded theory as the analytical tool (ref. chapter 5.2), is one of balancing the aim of case study research, which is to understand the individuality of the case itself (Stake, 1998), and the aim of grounded theory research, which is to create theory from the generalisations. Due to the constraints of a Ph.D thesis I decided to reduce the amount of description (all the concept maps were analysed in detail, but the written

descriptions of teaching and learning were only analysed for those who agreed to take part in the stimulated recall interviews; the number of examples given of students' development was reduced from four to three) with the result that some of the detail has not been reported. In the case of the reduction from four to three examples this was decided on the basis of 'saturation', a concept from grounded study that refers to a saturation point reached in the generation of a concept beyond which it is not necessary to gather more data (Strauss & Corbin, 1998; Charmaz, 2000). This means that, while theory about students' conceptions of geography and the influences on them has been generated on the basis of 79 students, theory about the relationship between these and students' development as teachers of primary geography is generated on the basis of three examples and can therefore only be tentatively expressed.

11.1.3 The impact of the researcher on data quality and their interpretation

As mentioned in chapter 5, in this project I had the dual roles of tutor and researcher and needed to guard against my role as tutor influencing the quality of data collected and the validity of the interpretations I made of them. In chapter 4 (section 4.3) I made it clear what my own conceptions of geography and pedagogy are and how these had informed the course content, design and teaching methods employed. Two questions then arise: as their tutor did I try to influence the students to develop a conception of geography that mirrored my own and if so has the quality of the data collected been compromised? As the researcher have my own conceptions and beliefs prevented me from letting the data speak for themselves?

To address the first point, while I have a clear view that a conception of geography that is descriptive-rich / scientific is narrow and constraining, my main goal is to enable the students to elaborate their conceptions by considering the possibility that other types of geography are also valid. It is for this reason that I introduce students to other conceptions of geography (including the geographical persuasions). By examining alternative conceptions it is possible for students to confirm or disconfirm aspects of their conceptions. This is the approach that is, in part, based on that aspect of PCP that Kelly refers to as alternative constructivism and that each new experience (in this case comparing their concepts with those of others) can enable change to happen.

It is not just disconfirmation that leads to a change in construct systems. Confirmation may also lead to reconstructing because a confirmation gives one an anchorage leaving you free to explore beyond. (Kelly, 1970:15)

To sum up, I tried to influence the students to elaborate on their conceptions, but I did not consciously try to influence them to hold the same conception as myself.

The second point has been partially addressed under 11.1.1 above. During the analysis I abandoned the coding system initially built using the imported concepts in favour of a system that was developed from the data and *then* compared with the imported concepts and accordingly elaborated. This process is referred to as using ‘sensitising concepts’ to widen the researcher’s vision (Charmaz, 2000). To respond to the possible criticism of the validity of my interpretations I would like to refer back to a concept introduced in chapter 5.

In chapter 5, I proposed that Richardson’s (1997) idea of conceptualising validity in a crystalline, rather than triangular, form would be appropriate for this research. Application of crystalline validity suggests that, whilst letting the data speak for themselves, I cannot ignore the fact that I will have been affected by my own prior experiences, assumptions and beliefs or that, depending on the stage of analysis, it is possible to see different things at each time of looking. This latter point does not seem to me to be a negative one; I would expect, using the constant comparative technique, that I would see different things as my ideas developed and I revisited the data to check for their validity. However, this does lead to the challenge of developing a coherent theory in which the complexity of the detail and the multiple perspectives does not become obscured. This obvious tension between identifying patterns during the codification process but being aware of the complexity and individuality of the cases can lead to doubting the trustworthiness of the theory subsequently generated. As Richardson stated:

‘Crystallisation provides us with a deepened, complex, thoroughly *partial* understanding of the topic. Paradoxically, we know more and doubt what we know.’ (Richardson, 1997:92 *my italics*)

Lankshear and Knobel (2004) offer an alternative approach to the concepts of reliability and validity that is concerned with the way in which the findings and theory developed from these are communicated. In communicative validity the essential criteria are whether

the argument stands up and is persuasive, whether it is believable, coherent and sufficient (trustworthiness) and whether it makes sense in a way that can be defended (defensible interpretation). The most appropriate people to be judges of these criteria will be the community which the research serves (ref. chapter 5 and Christians, 2003, community model of ethics) but in this instance the community this research serves is made up of several groups: beginning primary teachers, practising primary teachers and primary teacher educators. The question of which section of the community to prioritise then arises and, in the Feminist tradition within which the communitarian model was developed, that would be the group with the least powerful voice – i.e. the students. The model proposed below (section 11.2) has therefore been generated from the data gathered during the university-based phase of the course. It is then applied to the data gathered during the school-based phase of the research, thus providing an interplay between theory and data and enabling the model to be refined. The data and models as generated from the three examples are then compared (11.3) providing a further opportunity to refine the overall model itself and identify any further factors that appear to be significant. This leads to the proposals made in 11.4 when the implications of the model are considered. While the models themselves were not communicated to the students that generated them, the interpretations I made of the data gathered at each stage did form the basis of a subsequent interview and in that sense the three students in the examples had the opportunity to comment on them from their perspective.

In addition, the perspectives of the other communities have not been ignored. The model and proposals set out in this chapter have been aired in a number of professional arenas (Martin 2004c, 2005a, 2005b, 2005c). Where feedback has been given it has been largely positive. Primary geography teachers have recognised themselves in the three examples, primary geography teacher educators seem to have found the model and further proposals coherent and to reflect some of the ideas they have developed over years of working in initial teacher education, and primary teacher and teachers educators from other disciplines have indicated that they are able to apply the ideas to their own subjects.

11.2 Knowledge bases for primary geography teaching.

Chapters three and four outlined a range of knowledge bases for teaching and identified subject and pedagogical knowledge as the bases that provided the focus for this research project. In addition, chapter 2 (p.37) briefly discussed the work of Mair (1977) who showed how people will often behave in what appear to be contradictory ways depending on the ‘base’ from which they are acting. The evidence from the concept maps suggests that, at the beginning of an ITE course, students conceptualise subjects from the base of learner and that this limits their accessible knowledge base to that experienced as a pupil in school (see chapter 7, p.119, 134). Evidence from the case studies supports this and shows how, even when he held a geography degree, David did not, at first, recognise the value of geographical life experiences as a knowledge base for his teaching (chapter 8). ITE therefore needs to enable beginning teachers to shift from the base of learner to the base of teacher.

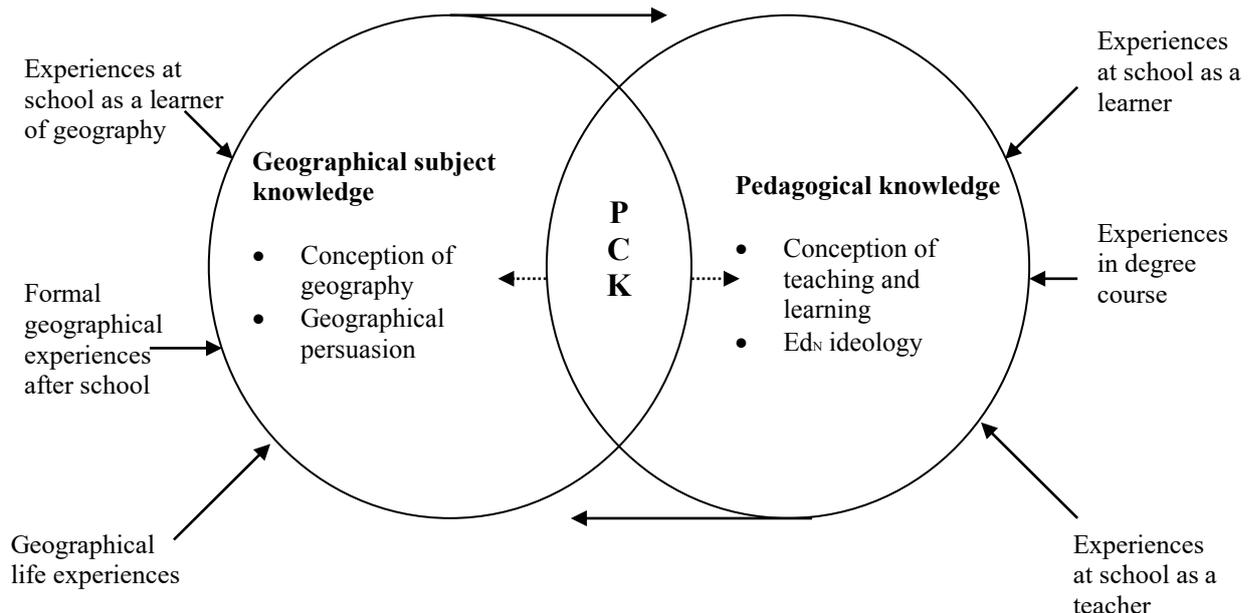


Figure 11.1: Model to show the influences on geographical and pedagogical knowledge which in turn influence pedagogical content knowledge.

A model (figure 11.1) has been developed which shows the possible influences on students' geographical and pedagogical knowledge bases before they begin their ITE course. The model developed as a result of comparing the data gathered from the university phase with the reading. For example, I already had an idea about how PCK might be developed (but not represented in the format shown in figure 11.1) but it was only from the data that I identified more clearly the impact of prior experiences on this process and what those prior experiences might be - that is, the ones that came through the data as significant in one way or another. In terms of the time-line of the research, I did not develop this model until after I had gathered all the data.

Clearly each individual student will have had differences in the amount and quality of the experiences that will affect the ways in, and the extent to, which they contribute to that person's knowledge in both areas. How these factors act for individuals can be seen in their geographical conception and persuasion, on the one hand, and in their conception of teaching and learning and the purpose of education on the other. It is proposed that, for many students, at the beginning of their PGCE course these bases, represented by the circles, are separate because subjects and pedagogy are still conceptualised from a learner's perspective – that is the perspective they developed when they were pupils in school themselves. My understanding, developed from experience in teaching and research, in conjunction with the literature (e.g. Medwell et. al. 1998; Turner-Bisset, 1999) is that if ITE focuses on the dual roles of subject and pedagogical knowledge, then conceptualising a subject from the base of teacher happens when the two elements are brought together and become pedagogical content knowledge (PCK). In order to shift from the perspective of learner to teacher, students therefore need to become explicitly aware of these different perspectives. In addition, as the two circles to begin to overlap and thus to establish and expand an area of PCK this becomes a viable knowledge base from which it is possible to start working as teacher of primary geography.

This model seems to have potential as a framework that can be applied to the three students for each of their teaching episodes. Application of the model to each student will enable the validity of the model to be assessed using the criterion that it should be seen to be something that is faithful enough as a means of representing points in beginning teacher development 'that ... the members of the community in which the research is conducted'

(Lincoln & Guba, 2003:277) may feel safe in acting upon it. It also provides a conceptual structure that moves the lens back from the minutiae of the data presented in chapters 8-10 and enables broader comparisons between students at each transition point (11.3) and their development as a whole over time.

One further comment on the model and the way in which it is applied to each student is that the circles are not intended to be statistically accurate. Data to enable this sort of representation has not been gathered. The size of the circles is therefore broadly representational of the balance between the two knowledge bases.

11.2.1 David's development as a teacher of primary geography

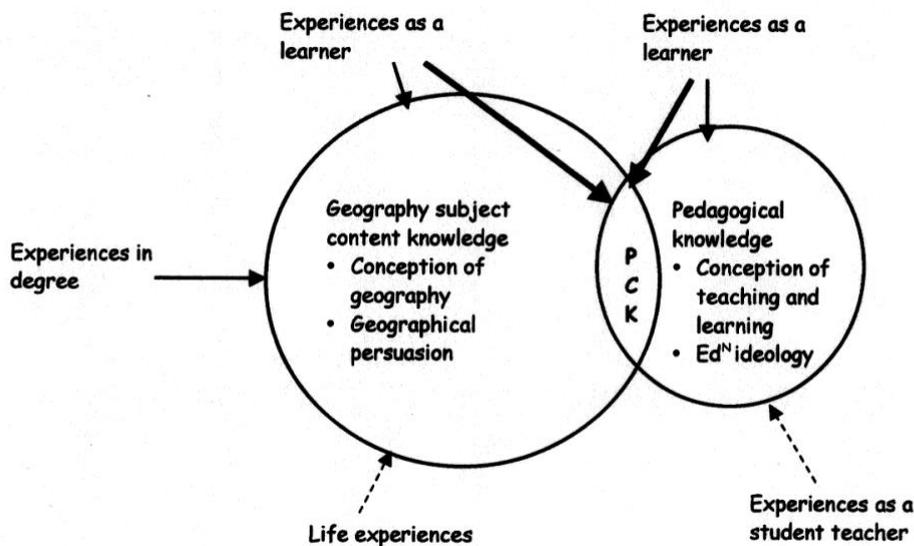


Figure 11.2 David's lesson June 2000: working from the base of learner

Figure 11.2 represents how, at this early stage of his development, David's geographical knowledge seemed to be greater than his pedagogical knowledge. This was evident in his post-observation interview (chapter 8.3.2) where he was much more able to articulate a rationale for the geography than for the pedagogical element of his lesson. He seemed to have a limited understanding of teaching and learning and a narrow range of strategies to draw on. In terms of his geographical knowledge base he does not seem to be utilising it as

effectively as he might do. For example, his learning objectives and his post observation interview both suggest that he intended to develop children's understanding of environmental geography. However the introduction focused more on 'what is a good environment?' while the activities were designed to focus on 'how can people improve and develop a responsible attitude towards the environment?' leading to a mismatch and some confusion in the children's minds. It is possible to suggest that David has a good substantive knowledge base in terms of facts and concepts, but that he is not yet able to transform his geographical knowledge into a form that is understandable to pupils, *in the act of teaching*.

Similarly, although David has a sound syntactic knowledge base and had good intentions about taking an enquiry approach to the lesson, the reality was very different because the evidence (pupils' notebooks, photographs, posters) was either not available, or not explicitly referred to so the pupils worked from memory. The activity sequence also jumped from identification of a problem to asking the pupils to design a way of communicating a solution, thus missing out the skills of identifying a range of solutions, evaluating them and deciding which was the most suitable alternative. This suggests that he is not yet able to put his syntactic knowledge into practice. This is something that has been observed by those researching secondary geography teachers and, due to his geography degree, David could arguably be seen in a similar category. Secondary students have commented that their degree is not helpful to them as teachers (Barratt Hacking, 1996; Leat, 1996). When this is compared with the evidence of David, it seems as though specialists have a secure substantive knowledge base but are not explicitly aware of their syntactic knowledge base – i.e. how to teach it. Having a geography degree, in this respect, appears to be no advantage at this early stage of development.

David's unsophisticated pedagogical knowledge also appears to be affecting how he makes sense of other experiences he has during his teaching practice. For example, he interprets observations of an experienced teacher scaffolding pupils' learning as 'clever questioning' but when applying this to his own practice he transforms it into a teacher-led, question and answer session. His personal theory appears to be that learning should be child-centred, but his understanding of this is that 'you can't tell them things'. He wants the children to learn (gain knowledge) but thinks they should come up with the ideas themselves. Finally, his

view of successful learning at this point is product orientated. His PCK is therefore relatively small because his conception of teaching and learning does not help him to utilize his geography content knowledge base effectively, *and* he does not consciously ‘know’ his subject in a way that helps him to teach it.

It is therefore possible to hypothesise that David is working from the base of learner. Further evidence to support this is that, during the geography component of the PGCE course David had direct experience of simulation activities and role-plays that would help pupils develop concern for, and responsible attitudes towards the environment. It is interesting that he chose not to use any of these approaches and to plan a lesson that was not like anything modelled by his course tutor. This, taken with the evidence of his narrow pedagogical knowledge base, suggests that the key experiences David falls back on when planning and teaching a lesson are those he had as a learner of geography, and it is more likely that he was selecting his formal school experiences, rather than his degree, because the latter might have been perceived as being too complex to apply to primary school children.

One final observation about the model in 11.2 is that life experiences are shown as a hatched line because, during his stimulated recall interview David acknowledged that he was only using his formal education experiences to inform his conception of geography. It did not occur to him that experiences from life would have a value in this context and nothing that was observed or heard during the interview seemed to contradict this.

Eight months later on analysis of the data for the second lesson observed indicates that David’s knowledge of teaching and learning strategies is growing and that this is beginning to have a positive effect on his teaching and the level of the children’s engagement in the activities. He is continually learning from his experience in the Y1 classroom and, although not always able to put it into practice, is improving in his ability to judge things such as pace:

I certainly felt at the end that we had ... they’d sat there for too long. Although they’d sat there for the whole time the focus was, that was too long for a whole class discussion (lines 214-216)

It could be hypothesised that the growing pedagogical knowledge means that more of his geographical knowledge was useful to him because he could see better how to transform it into forms that are helpful to children – in other words, his pedagogical content knowledge has increased (figure 11.3).

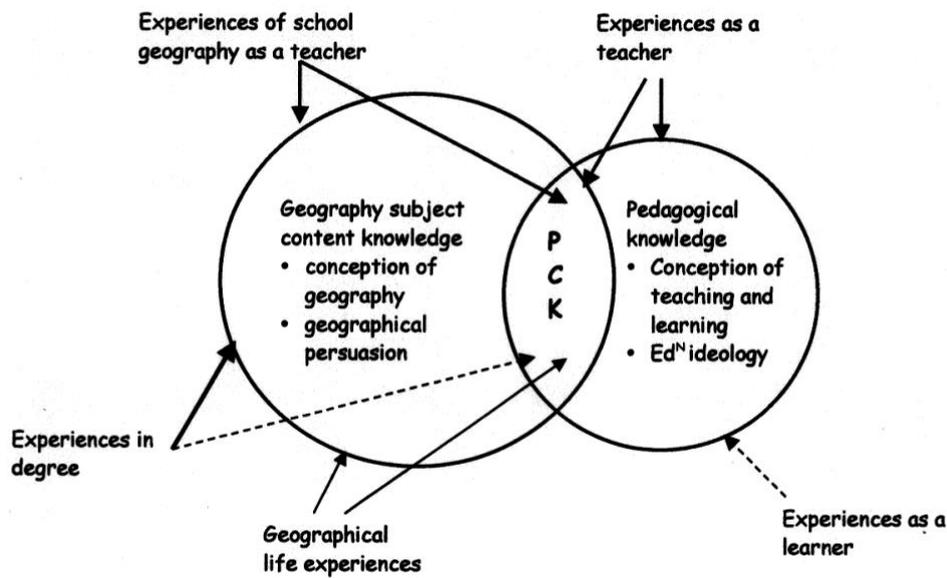


Figure 11.3: David’s lesson March 2001: working from the base of teacher

Evidence of this can be seen in the way that the learning activities had shifted from requiring children to recall (as they were in June 2000) to recognise (ref Matthews 1992 for research on recall and recognition tasks) and develop their own meanings about geographical phenomena. David was using maps and photos as a way of representing the local environment in a concrete way for young children. In this way, consciously or not, the activity automatically became more enquiry based and child centred, as the children’s cognitive processes were more focused on ‘making sense of’ than ‘remembering’. However, after an interesting mixture of group and class interaction for the first part of the lesson, the remainder (35 minutes) was still a teacher-led, question and answer discussion.

During the post observation interview, David’s thoughts indicate that while he is beginning to be better able to draw on his geographical base, his substantive knowledge in terms of

conceptual frameworks that might help scaffold children's learning is still limited, and this has led him to using tried and tested approaches, rather than taking more risks and trying out new approaches.

Yes, and I've done that a lot. I've just repeated something that's worked almost to death and now they're bored with it. But I have started to try new things ... I sort of feel like I should be doing a better job helping them but I haven't got the skill or the experience or even the confidence maybe to try a certain way.

This could be evidence that he is shifting from the base of learner to teacher, but that this is causing him dissatisfaction and a loss of confidence at this stage. None-the-less he is beginning to organise the children's thoughts in a way that indicates he is drawing much more successfully on his educational ideal, that of developing children who are able to think for themselves and question things around them. For example, he organised the children in mixed ability, friendship groups so that they could support each other, and he tried not to answer the children's questions during fieldwork – just pose them for children to think about. This was the first indication that he is encouraging the children to generate their *own* meanings and that knowledge is not certain, but open to interpretation. However, his understanding of how to frame this thinking through the use of conceptual frameworks is still a challenge for him, as the following extract from the post-observation interview indicates:

David: Yes, I'd come marching in with my agenda of 'let's develop some thinking' without having ...

Interviewer: The framework for that thinking.

D: Yes, and that's been hard for me, it's been hard for me to work out how to get the framework and I still don't think I've got it right.

I: Why is that do you think?

D: I think it's probably experience.

I: One of my working theories at the moment is also possibly, and it's to do with experience, is that um you just haven't had enough time yet to become aware of the variety and the full range of different strategies and what each strategy is best for.

D: I think you're right

(Lines 328-346)

In addition, when David was asked if he was explicit with the children about when they were doing geography, or being geographers, and he reflected on this he reached what might be called a 'road to Damascus' moment when he said

So I need to put my geography hat on and say right, I've got to think for this session I've got to think like a geographer haven't I?

This could be interpreted as David being at a stage in his development where he has moved from the base of learner to teacher, but that this has not yet incorporated his geographical base. However, the comments above indicate that he is becoming aware of how he might incorporate the base of geographer within his teaching.

For these reasons the model shows David as drawing predominantly on his experiences in school as a teacher – and from this it is possible to hypothesise that the eight months he has had in school have contributed to his pedagogical knowledge and his geographical syntactic knowledge and that these experiences have replaced those he had as a pupil in school himself. This syntactic knowledge seems to have enabled him to break down his degree level knowledge (something that he acknowledged during the post observation interview was linked to the fact he was teaching a Y1 class) in such a way that this is beginning to become part of his PCK.

Finally, there was evidence that David was beginning to recognise the importance of life experiences as a valid geographical knowledge base. This was evident in the way in which he explicitly used children's own knowledge of their local area and then provided activities that helped them to think about these experiences in a more structured way. In hindsight it would have been useful to ask David, during the post observation interview, why he thought it important to use the pupils' own knowledge in this way and it is possible to hypothesise that it was also linked to his teaching a Y1 class and the emphasis in the early years of always building on children's existing knowledge and understanding.

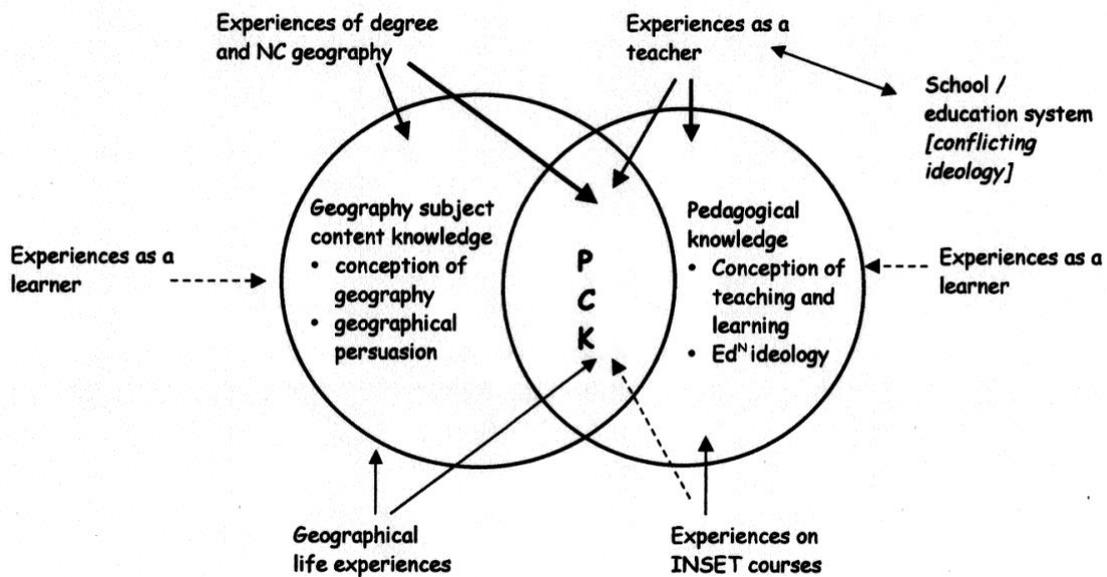


Figure 11.4 David's lesson June 2001: working from the base of geography teacher

Just three months later, analysis of the data indicates that David's area of pedagogical content knowledge (PCK) has grown considerably (figure 11.4). On several occasions (appendix 00) David mentions sources he has used to develop his pedagogical knowledge, such as reading books, talking to other members of staff, and some INSET courses he attended. He now appears to be 'working from the base of geography teacher'. The key elements he appears to be drawing on to inform his PCK are his degree geography, his and the children's geographical life experiences, his growing experiences as a teacher and accompanying broader theoretical base (personal and established theory). It could be hypothesised that this growing pedagogical knowledge has enabled him to utilize more of his geographical knowledge; geographical and pedagogical knowledge therefore begin to blend together creating a larger area of PCK and his geographical knowledge begins to be embedded in his practice. In terms of his conceptions, this is evident in the closer match between his preferred ways of working and what is observed in action.

From the outset David made it quite explicit that it was a geography lesson and, as for the lesson observed in March, the children worked in groups and had photographs of various people (or in some cases artefacts that represent people – such as the milk crate) to work from – a recognition task. The whole approach was then, through a careful interchange of

collaborative group and teacher-led / whole class activities, to enable the children to develop their own set of criteria that would help them to identify what a visitor is. The activity enabled them to do this by sorting the photos into sets of their own choosing and this was because David had an understanding that they would be far more likely to remember their definition than one provided by someone else

I think now if somebody asked them what's a visitor they'd certainly all have something to say. So that's good.

Further evidence of his growing pedagogical base and his confidence in it can be seen in his comments

They would have to have it sorted out I their minds if they had to tell me. If I'd just told them it would have been more passive wouldn't it?

Yeah, a thing I picked up from a conference about children and their concentration levels. I have major concentration problems here, so just change the strategy – have a chat to your partner about it

This growing pedagogical base is perhaps what has helped him create a clearer focus for both his planning and teaching (his talk during the activity phases is predominantly about teaching / scaffolding rather than monitoring / managing as in June 2000). The growing PCK also means that he is now better able to identify what are more appropriate ways of representing geographical knowledge (he has a more developed understanding of the concept of 'match' or 'fitness for purpose')

I had that dilemma – should I chop them up, the little pictures, ... obviously was more of a literacy skill so I chose not to do that ... cutting and sticking wouldn't have been appropriate.

To sum up, David's growing pedagogical content knowledge helps him to better envisage what his conceptions might look like if put into practice in his classroom. This lesson has been conceptualised as working from the base of geography teacher, rather than teacher of

primary geography, because David has a degree and, combined with his growing use of life experiences, his substantive base is effectively that of a subject specialist.

11.2.2 Becky's development as a geography teacher.

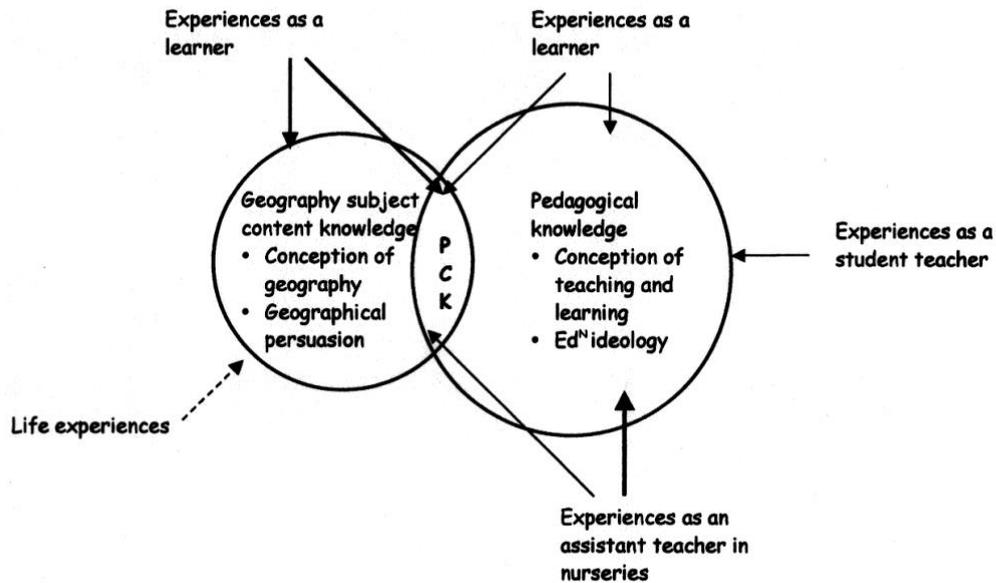


Figure 11.5 Becky's lesson November 2000: working from the base of learner and teacher

When she annotated her concept map, in December 1999, and was then interviewed it appeared as though the taught course had had a profound impact on Becky's conception of geography. Becky had introduced an investigative element along with the notion of helping children to make sense of what they already knew about places and environments. In this respect, she appears to be able to incorporate 'life' or informal experiences into her subject knowledge base. However, her geographical base was smaller than her pedagogical base because she had simply not had the depth or range of experiences. Her pedagogical base is relatively large because she worked as a nursery and classroom assistant before the PGCE course and because the first opportunity to observe her teaching was as an NQT (figure 11.5).

Evidence that Becky's geographical knowledge base had not developed much since the university phase was seen in the examples she used to help children develop their understanding of similarity and difference between buildings observed on their fieldtrip.

Making comparisons is an important aspect of geography, but it is necessary to draw on geographical concepts (such as location, use and function) as illustrations, whereas Becky used mathematical ones of size and shape. In this respect, although she was aware of the importance of informal, life experiences in discussion, she did not appear able to utilize this knowledge in practice – her substantive knowledge of what would make a geographical question, or of a question that would help the children to make a geographical connection, was limited.

Further evidence of a narrow knowledge base came from points in the interview when she was unable to break her conception down and said that ‘it’s all interlinked really’ and that she thought the lesson was humanistic because it focused on ‘people, their concerns and ways of life’. In fact this seemed to be more of an intention as she said that she was going on to ask the children why the houses observed are or aren’t the same as theirs, and how many people they thought would live in each house. These opportunities existed during the fieldwork itself and would have been useful to start the geographical thinking that she intended to follow up in the classroom, but the opportunities were not taken. However, it must be taken into account that the context Becky was working in was a reception class and they were working with the Foundation Stage Curriculum which is based on a holistic approach to learning.

Pedagogically the lesson observed indicated that she was attempting to teach using an enquiry approach and to make the process explicit to the children. Becky had a confident and assertive manner in the classroom, the structure, timing and pace of the lesson, and the amount of time spent teaching rather than managing children. In contrast to David at this point she had a range of experiences to draw on, including those from her two years as a classroom assistant and a nursery teacher. On the occasions when the lesson lacked structure, such as the plenary, this was more due to her lack of subject knowledge than of strategies to employ.

Theoretically Becky was keen to continue taking an enquiry approach to learning, to build on the children’s current levels of knowledge and understanding and, where possible, to let the children have ownership of their learning. However she also said that, for pragmatic reasons, she had to resort to ‘telling’ the children things from time to time. This seemed to

worry her because *'directed teaching ... doesn't allow you to, the child to explore on their own'* (SE1: line 660). In this respect it seemed as though Becky's knowledge of educational theory was still at a theoretical level and had not been incorporated into her practice in geography lessons yet. Overall this lesson was very promising. It had many strong features pedagogically speaking, and now needed a clearer conceptual framework for the geographical element.

At the end of her first year of teaching Becky seems to have a much more sophisticated understanding of pedagogy (figure 11.6). However, the lessons observed were not as successful as they might have been due to her lack of a secure substantive knowledge base.

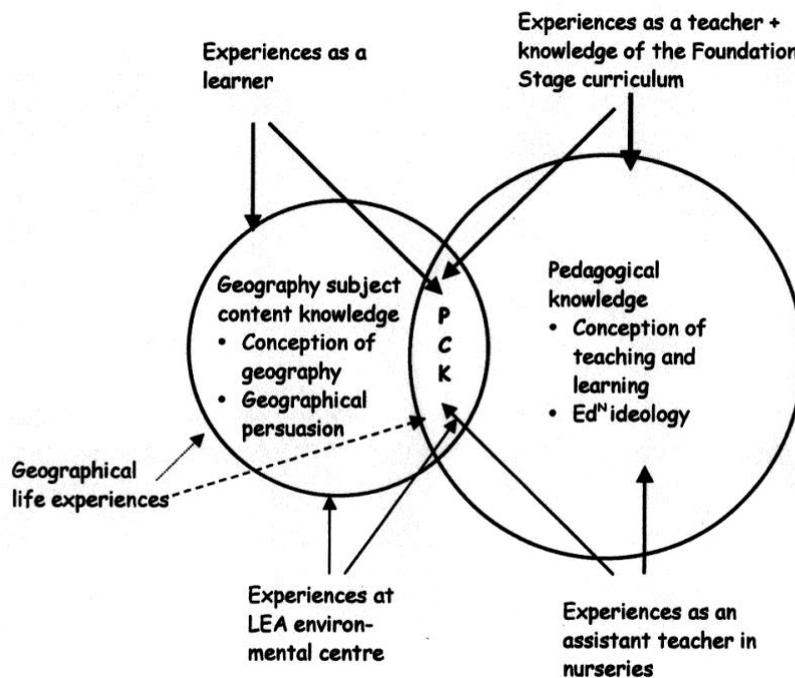


Figure 11.6 Becky's lessons June 2001: working from the base of teacher.

In particular, it appears as though she did not have a clear organising framework to support her teaching. The way in which she understands the subject has not moved much from when she was a learner of geography herself. Of the conceptual frameworks introduced during the geography component of the PGCE course, she is attempting to use the syntactic framework of geographical enquiry but, in the lessons observed, the substantive frameworks seem to have been forgotten. This is not to say that others are not taking their place – for example, Becky mentioned on several occasions the impact of a visit to, and INSET at, a local environmental centre which had helped her thinking about waste

management and how it might be introduced in appropriate ways with this age group. However, an organising framework of reduce, reuse and recycle is of limited support in developing children's geographical understanding if not also linked to one of the specific geographical frameworks such as provided in the NC programmes of study (DfEE/QCA 1999) or key concepts (Leat, 1998; Martin & Owens, 2004).

In the lesson observed the following week there was a clear stated focus on location (linked to the 'Where have you been?' topic) and again there was a strong focus on the process of learning where children were actively engaged in deciding what materials or artefacts would be needed, gathering them and ticking them off a list themselves. However, the teacher and pupil talk was mostly about organisation, independent learning and maximising opportunities for literacy development.

The evidence seems to suggest that her geographical knowledge base has grown a little, mostly as a result of her experiences at an environmental centre, but overall she seems to have reached a plateau with her geography teaching and this is linked to her lack of suitable organising frameworks for geography. It must be remembered, though, that the lesson observed was a snapshot of the activities planned for the unit as a whole and evidence in medium term planning and classroom displays suggested a securer geographical knowledge base than was observed in practice.

11.2.3 Carrie's development as a geography teacher

Carrie's conception of geography was originally classified as category 3 as she did not score highly for either structure or relationships in her concept map. The interview and annotations indicated that her conception was broader than originally thought, but her knowledge base was still relatively narrow and thus represented by a small circle. Her pedagogical base was considered to be greater because of her experiences prior to the PGCE course (a day a week as classroom assistant for 5 months; a psychology degree with child development module) and the fact that the PGCE course has a pedagogy and management strand which accounts for about 1/6th of the taught course, plus her experiences on two block practices before the summer term.

The first lesson observed is characterised, from a geographical perspective, as working from the base of learner (figure 11.7). In respect of the subject focus it could be said that Carrie seems to be working from the base of learner because the conception shown in action was similar to that elicited at the beginning of the course. It was relatively narrow and she did not use clear geographical frameworks for organising her teaching or the children's thinking. The majority of the teacher talk recorded during the observation focused on organising and managing the children's behaviour, on offering praise of a general nature, or on aspects of literacy for written work.

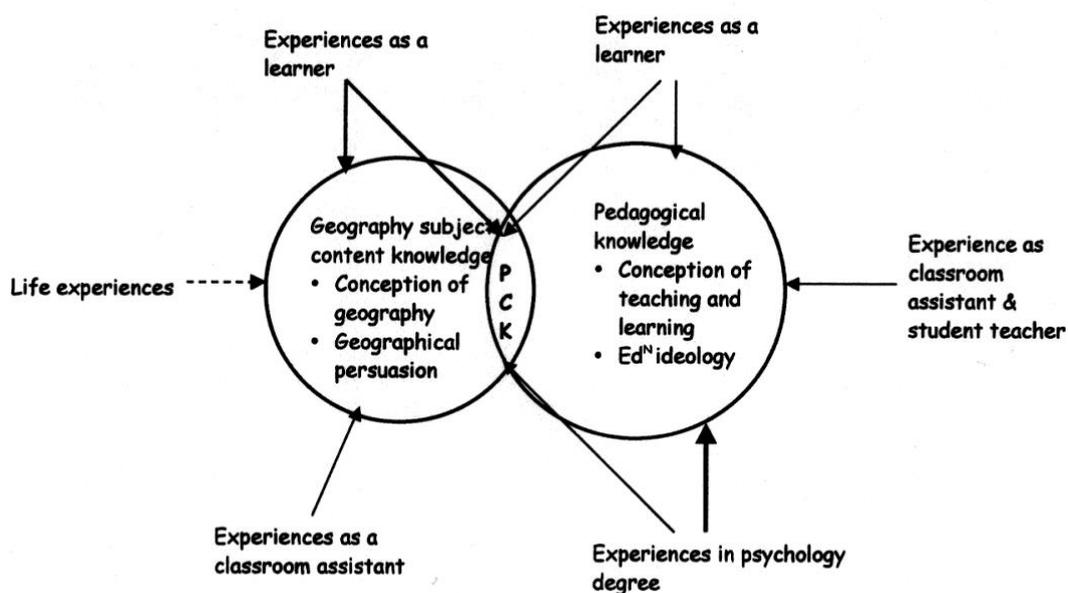


Figure 11.7 Carrie's lesson June 2000: working from the base of learner

The pedagogical circle is represented as larger than the geographical one for the reasons mentioned above, and because of the evidence in her lesson and post-observation interview. She emphasised the importance of enjoyment in children's learning and made an attempt to plan activities that are interactive and have some sense of purpose (the guide book, using ICT software to build a town), something which was mentioned as part of her personal theory, developed as a result of classroom experience and her psychology degree. The post-observation interview also shows that she was able to reflect on the efficacy of her approaches and had begun to identify ways in which she could improve. She recognised that her approaches were mostly shaping, but stated that her ideal was to use

those reflective of the growing theory; she talked about collaborative learning and encouraging children to think for themselves, but a lack of confidence had prevented her from trying out new ideas yet. In this respect, Carrie is operating from the base of teacher, however the evidence also suggests that at this stage in her development she equates doing with learning, and the majority of the teacher talk during the activity phase of the lesson was monitoring and organising rather than teaching, indicating an unsophisticated conception of active learning and one that might be characterised as perceiving teaching from the base of learner. Overall, therefore, she appeared to be working from the base of learner.

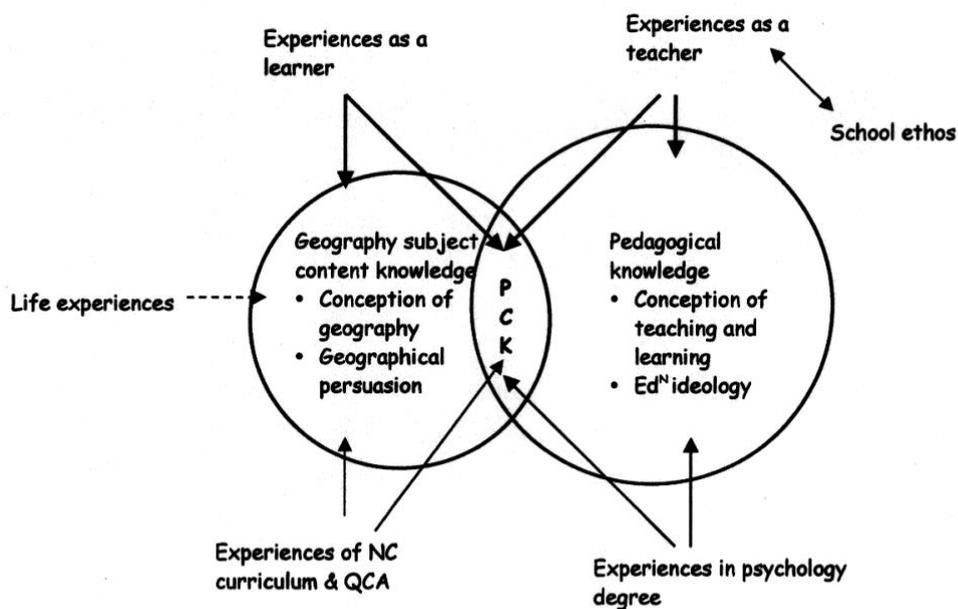


Figure 11.8 Carrie's lesson December 2000: working from the base of transition from learner to teacher.

Six months later Carrie's teaching has developed considerably and both her geographical and pedagogical knowledge bases seem to have grown (figure 11.8). The geographical focus for the lesson was much clearer on this occasion and, although it continued to reflect the scientific persuasion she held of geography as a learner, there were indications that she was beginning to utilise her syntactic knowledge more successfully. She was developing children's mapping skills because they would be necessary for a later stage in the unit

when the children will conduct some fieldwork in the local area. Her teaching emphasised substantive geographical knowledge to the extent that she was keen to develop appropriate subject specific vocabulary, and she was beginning to be selective about the resources she used to support her geography teaching, for example, she chose the story ‘Katie Morag Delivers the Mail’ rather than ‘Katie Morag and the Two Grandmothers’ (the latter of which is suggested in the QCA unit of work (QCA 1998) because

that one was more geographical because you’ve got her going over, you see where she’s going on the map.

But then she did not have enough ideas to use the book effectively or to extend the work that she did from it

It was not a very exciting book – it’s good to do one or two lessons but we were doing like a series of six lessons and it was just too much, to read that story, they were bored with it

A further factor that seems to be affecting Carrie’s substantive knowledge base is the holistic approach to learning that she is developing in her early years classroom – an approach supported by the school. For example, during the introduction she was asked

Interviewer: And why did you choose to get them to read it with you? Rather than you read it to them?

C: Probably just because, um, that’s what we do in the literacy hour and I think it’s nice for them to get, if they can read the words, again just bring in, now I’m trying to bring in more literacy and numeracy in everything

and this was providing more of a focus than the geographical content of the book.

If there’s a big book I’ll use the pointer that we’ve got, and try and get them to read it, and what’s the title, who’s the author you know, Even when I read a story book they’ll always ask me ‘whose the author, whose the illustrator’ and I haven’t got time, you know! They’re constantly asking me that so I just try and bring in as much as I can if there’s a link

On the basis of the lesson observed, the learning was very much skills-based and focused on syntactic knowledge – such as leaving the children to work out how to get Roamer to move in certain directions themselves, using a problem-solving enquiry-based approach. Teacher talk during group work was therefore centred on asking questions and modelling skills for the children to then try out for themselves. On this evidence it is possible to suggest that while her pedagogical and syntactic knowledge are developing, Carrie's substantive knowledge remains similar to what as it was at the beginning of the course.

The causes of this growth in syntactic geographical knowledge are not clear. When the data are revisited at no point during the interview did I ask a question that revealed why this aspect of her knowledge had grown and this was clearly an opportunity missed. Nevertheless her PCK does appear to have grown and evidence of this can be seen in the ways she has chosen to represent the subject matter through the planned activities. Children were working in pairs to direct each other around the classroom using a map (a recognition task), and groups were giving instructions to Roamer to make it move from one place to another. Her knowledge of the need to make learning as concrete and practical as possible for this age group was being applied in a geographical context (syntactic knowledge) and leading to the selection of representations appropriate to the learning objectives identified for the lesson. Overall it seems as though the growth in pedagogical and syntactic knowledge has helped her make more effective use of the substantive base she has and enabled her to begin making the transition of working from the base of learner to that of teacher, but not yet teacher of primary geography.

In the final lesson observed (figure 11.9), while Carrie's pedagogical base appears to have grown, her PCK does not seem to have been extended over the last six months. That her pedagogical knowledge base has grown is evident in the approaches she uses such as drawing on the children's own knowledge, using contexts that are meaningful to them, and making use of play-based, collaborative learning activities. Carrie has also developed her knowledge of, and rapport with, the learners in her class and this has combined with her pedagogical knowledge to create a sound base for working as a teacher.

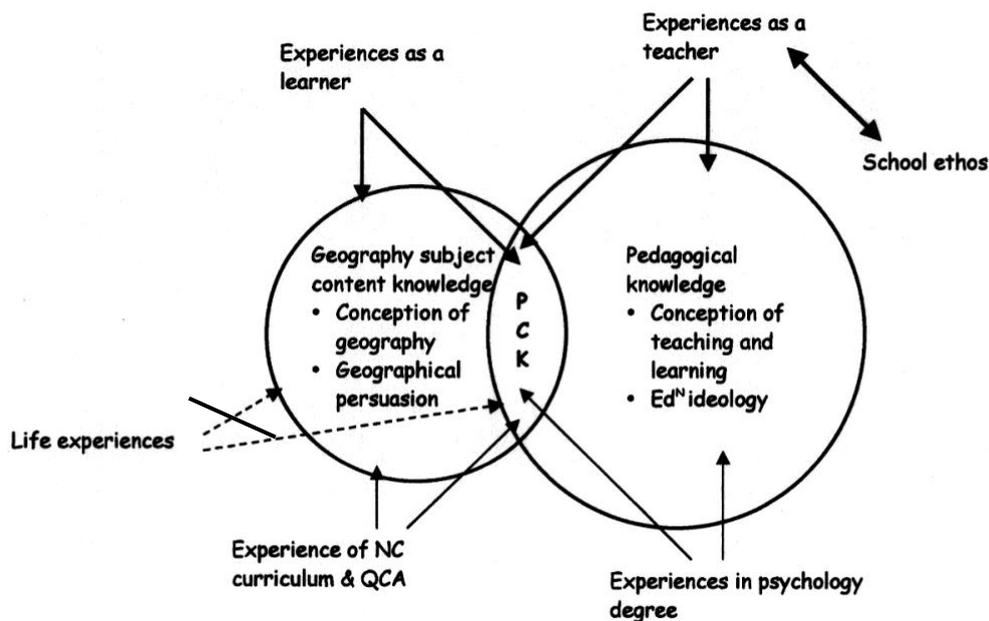


Figure 11.9 Carrie's lesson June 2001: working from the base of teacher.

However, Carrie's substantive geographical base does not appear to have developed much since the last lesson observation. In some respects there is progress – for example, during the introduction Carrie explicitly stated:

'we're going to do a map – we'd like to give information to people walking past about what the buildings are and what jobs people do. ... so if anyone walks past they can look at the photos, they can look at the paintings and the label and know what it is'. (Observation notes, 14/06/01)

which suggests that she is continuing to move away from recall to recognition tasks, in the same way as David. However, the activities planned for the children to do in groups did not then match the learning objectives. Pedagogically the activities were sound, but the stated geographical focus was looking at how the locality is used and activities did not support this understanding. The children had taken photos and created paintings of their locality but these were not used as a resource for the activities, which seemed to have disparate objectives making it difficult for Carrie to build on their learning (e.g. through the use of a cognitive framework) in a cohesive way in the plenary. The town baseboard with people and street furniture had potential as a means of representing their environment

and then talking about it, but no such structure was given. If anything, from a geographical perspective, this lesson was poorer than one observed six months previously and the conception of geography being put into practice is still the descriptive-rich, scientific view of geography she held as a learner.

However, evidence of the change in use of the home corner into an Estate Agents, and the way in which this has been used, contradicts this assessment (and reinforces the need to be wary of making strong statements or generalisations on the basis of what are, in reality, snap-shots of a person's practice). Although there was not the opportunity to observe the children using the Estate Agents, Carrie discussed in the interview how, through role-play, she felt it helped to develop children's knowledge of different types of homes and their understanding of how Estate Agents aim to match homes to people's needs.

However, in one respect there is evidence that Carrie's conception of geography is changing and this is in the way she is drawing on children's life experiences. On several occasions during the interview she mentioned using the children's knowledge of their local area to make geography relevant to their lives – and it is possible that this has enabled her to extend what she might now identify as geography beyond her narrower view held over from her experiences as a pupil herself. This view is partly substantiated by the evidence presented in chapter 10 that the geographical persuasions were not a helpful tool to Carrie because she was interpreting them on the basis of her prior experiences at secondary school. She perceived scientific geography to be the most and environmental to be the least cognitively demanding, with a progression from that through humanistic to scientific. Her reasoning for this was:

Carrie: I don't know why but that [points to scientific persuasion] to me makes me think of my GCSE. You know, geography when I went out to measure, you know, rocks or whatever it was in a stream, you know. Or in town.

Interviewer: So more quantifiable, yeah.

C: Where as with this [points to environmental persuasion] it's more thinking and drawing and you know, thinking about it really, rather than just getting it down on paper and making a table or that sort of thing.

Carrie seems to have a developing conception that geography for primary children was about helping them make sense of people, places and features they came into contact with in their own lives, but she does not appear to have a clear framework for making conceptual sense of this knowledge.

To sum up, Carrie is working from the base of teacher, but has not developed her substantive geographical base sufficiently for this to be a base of teacher of primary geography. One of the key factors affecting this could be the strong school ethos, which has continued to influence Carrie's work significantly. Geography is valued in Carrie's classroom, but it could be argued that her holistic approach to learning is squeezing geography out. Her *perception* is that geography has a central role in her planning and teaching, but this central role focuses on content rather than enabling the children to think as geographers. Although she is drawing on a relevant knowledge base (the children's own knowledge) the substantive knowledge needed for her to be able to plan for, and extend, children's geographical understanding more effectively is not in evidence.

11.3 Transition points in beginning teacher development.

The application of the model for beginning teacher development to the three cases has enabled the identification of what appear to be three stages in terms of the base from which they are acting. Table 11.1 shows these stages as teaching from the base of learner, teaching from the base of teacher and teaching from the base of geography teacher. It also identifies the points at which transition from one base to another occurs, namely transition point A: learner – teacher, and transition point B: teacher – geography teacher.

Base for teaching		
Learner	Teacher	Teacher of Primary Geography
Conceptions		
Narrow conceptions of geography & pedagogy	Broader conceptions of geography and pedagogy	Conceptions of geography and pedagogy embedded in PCK
Impact on knowledge accessible in teaching		
Geography experienced as a pupil, models of teaching gained through apprenticeship	More explicit awareness of alternative models of teaching and geography; beginning to recognise value of life experiences	Geographical life experiences are increasingly used; increasing awareness of range of alternative models of teaching
	Transition point A	Transition point B

Table 11.1: Stages in beginning teachers’ development as teachers of primary geography with transition points

Other researchers have identified stages in beginning teacher development (chapter 3.2.2), but these tend to focus on students’ development during the course of their training. Indeed, Calderhead and Shorrock (1997) identify the real need for longitudinal studies that investigate beginning teacher development beyond ITE because, ‘learning about subject matter and the teaching and learning strategies associated with it ... is an extremely demanding task ... [and] such a task is only likely to be achieved over a lengthy period of time’ (Calderhead & Shorrock, 1997, p. 209). In addition, in the context of geographical education Corney (2000) and Leat (1997) (ref chapter 4) identify the need for further research that identifies ways in which students can be enabled to make the transition from one stage to another. Whilst acknowledging the small sample from which data were gathered, the model and stages presented here do seem to offer a means of identifying some of the factors that affect beginning teachers’ development in the field of primary geography. Firstly, the stages of development can be applied to each student to verify its applicability and secondly, the distinctiveness of each student’s development can aid the identification of key factors that appear to affect transitions.

Firstly, the evidence suggests that even for those students, like David, who have a geography degree, at the beginning of their PGCE course they are reduced to novices as *teachers* of geography and this appears to affect the way in which they conceptualise the

subject – i.e. they do so from the base of learner. For example, despite an initial conception (p. 147) that explicitly drew on his university degree experiences, during his first teaching practice David reverted back to his experiences as a pupil at school when he began to think about the subject for teaching. As a novice teacher, he had a limited range of experiences of teachers and teaching to draw upon and so he used those with which he was most familiar.

Becky, on the other hand, had considerable prior experience of teachers and teaching as an adult and perhaps, in lessons other than geography, she was acting from the base of teacher from an early stage. However, her lack of geographical knowledge meant that in the geography lessons observed she was acting from the base of teacher, pedagogically, but learner, geographically. This could therefore be conceptualised as transition point A in the diagram above. I did not have a participant in the research who had both a geography degree and prior experience of teaching as an adult but it is possible to hypothesise that such a person may have had transition point B as a starting point. However, in light of David's case and evidence from other researchers (Bennett & Carré, 1993; Barratt Hacking, 1996; Turner-Bisset, 2001; Parker, 2004) it is likely that the geographical knowledge base would need to be conceptualised in a different form and therefore not be available in an appropriate way at an early stage, so such a person may also begin, like Becky, from transition point A.

Carrie had an 'A' level in geography and was very positively disposed towards the subject, but her conception as revealed in her concept map (p.213) appeared to be relatively unsophisticated, although in her stimulated recall interview she demonstrated a more complex conception than I had initially thought. She had also had some experience in schools as a classroom assistant prior to the course, but these experiences were not as extensive as Becky's. In terms of her prior experiences Carrie had more geographical and less pedagogic experience than Becky, but less geographical and more pedagogic experience than David. Like David, her first lesson was characterised as working from the base of learner.

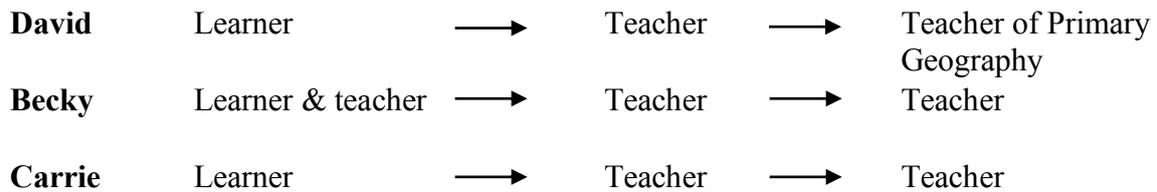


Figure 11.10: Transitions from one base to another made by David, Becky and Carrie over the research period

Figure 11.10 provides a summary of the stages the three students went through over two years and the most striking thing is that David seems to be the only one who reached the base of primary geography teacher during this time. If the data for all three are revisited it should be possible to identify the factors that enabled them all to make the transition from learner to teacher, but only David to make the transition from teacher – primary geography teacher. With respect to the latter, this will mean identifying whether these factors were missing in Becky and Carrie’s case.

11.3.1 Factors affecting the transition from learner to teacher

In order to move through transition point A David needed to develop his pedagogical knowledge base. In particular, he needed to develop his knowledge of the range of teaching and learning strategies both in general, and in relation to geographical syntactic knowledge. Furthermore, despite holding a geography degree, he needed to reconceptualise his geographical knowledge so that he became more explicitly aware of the substantive conceptual frameworks that he could draw on to help scaffold children’s thinking during his geography lessons.

Carrie also had a weak pedagogical knowledge base, a lack of knowledge of a wide range of learning and teaching strategies and her teaching, initially, focused on monitoring behaviour. Like David, this contributed to a lack of confidence and reluctance to try out new ideas. For both of them, once this pedagogical base had begun to develop, their confidence rose and they moved into a teaching style that could be characterised as working from the base of teacher.

In contrast, Becky's pedagogical knowledge base, and (or so it seemed) her geography syntactic knowledge base were fairly well developed on the first occasion she was observed. For this reason she was characterised as working from the base of both learner (geography) and teacher (pedagogy). Never-the-less, it was further development of her knowledge of a range of teaching and learning strategies that enabled her to move completely to the teacher base. In Becky's case a key factor was that she did not have the opportunity to do any geography teaching until her NQT year so, although she appeared to have had a significant change in her conception of geography during the university phase, she was unable to put it into practice for almost a year. As a result it is possible to hypothesise that she had begun to revert to her original conception.

To summarise, the key factor enabling the transition from the base of learner to teacher seems to be the development of pedagogical knowledge. This knowledge is developed partly through experience, but it could also be hypothesised that it was developed in a more explicit way due to the students participating in the research and having to articulate their conceptions and beliefs at various points during the two years. Being explicitly aware of your thoughts about teaching and learning is known as metacognition and, as Turner-Bisset states,

The three attributes of metacognition, that it is conscious, critical and gives rise to immediate or later experiment, are essential for changes in one's practice to occur. In order to develop one has to be aware that one is thinking about a teaching or learning problem, critical of one's previous performance and intending to experiment with other ways of working. (Turner-Bisset, 2001:112)

This level of metacognition is much harder to achieve without opportunities to discuss thoughts and ideas with another, knowledgeable, professional. In this respect the development of a metalanguage for talking about teaching and learning is essential.

11.3.2 Factors affecting the transition from teacher to geography teacher

During David's second post observation interview he demonstrated that he was beginning to try out new teaching and learning strategies as a result of a confidence that came with

his widening pedagogic knowledge base. He also, through the conversation, became aware of the need to ‘think like a geographer’ himself, and to do so explicitly with the children. The speed with which David seems to have moved from the base of teacher to primary geography teacher could be explained in terms of his substantive knowledge base. Once his developing PCK enabled his geographical knowledge base to be available to him as a teacher, he had a depth of knowledge to fall back on. In addition, his pedagogical knowledge of how important it is to use the children’s current knowledge as his starting point seems to have enabled him to recognise the value of everyday experiences as geographical.

Conversely, because the 14 hours of the PGCE geography component had not been sufficient to develop Becky and Carrie’s substantive knowledge bases, they appeared to be ‘stuck’ in the teacher base and almost in danger of forgetting what little geographical knowledge they had been able to develop during that time. A major contribution to this factor could well be the status of geography in primary schools and particularly in early years settings (both Becky and Carrie were teaching in reception as NQTs) where a holistic approach to learning can lead to some subjects getting ‘lost’. There is, however, some evidence that Becky and Carrie, again (perhaps) due to their pedagogical knowledge, were beginning to recognise the value of life experiences as a valid geographical base. What they did not appear to be able to do was provide a conceptual framework for this knowledge.

The key factor here seems to be one of substantive knowledge. David had a substantive knowledge base so the pedagogical focus of school experience and his induction year was sufficient for him to develop his PCK and thus begin to utilize his subject knowledge base. Becky and Carrie, however, received few opportunities to continue developing that part of their subject knowledge base that is concerned with the subjects key ideas and concepts, so no matter how well developed their pedagogical base became, or how positively disposed towards including geography in the curriculum they were, it was not possible for them to develop a broad PCK for geography. In terms of participating in the research, all three clearly had opportunities to articulate their geographical conceptions. However, David already had a metalanguage for geography while Becky and Carrie did not. Once in school

as a newly qualified teacher there are arguably far fewer opportunities to develop a metalanguage for geography than there are for pedagogy.

11.4 Summary

This chapter has proposed a model for showing the influences of conceptions of geography, pedagogy and knowledge on beginning teacher practice, and a model for showing stages in beginning teacher development along with two key transition points. This indicated that, despite variations in prior experiences, all three students were, at the end of their PGCE year, working from the base of learner in their geography lessons. That is, they were predominantly utilising the geographical and pedagogical knowledge recalled from their own learning experiences as pupils to inform their teaching practice. The wide knowledge base they have all built as people living in the world therefore appeared to be unavailable to them in their teaching. Gradual development of pedagogical knowledge enabled all three to progress to the base of teacher, but only David, with his extensive prior experiences in geography, was able to progress to the base of geography teacher by the end of the two year period during which the data were gathered. It is proposed that the lack of opportunities for Becky and Carrie to develop their substantive geographical base once they began their NQT year, plus the fact that they were both teaching in the foundation stage where a holistic approach to teaching is emphasised, prevented them from making the transition from teacher to geography teacher.

12. Implications for policy and practice.

‘In subject disciplines, different conceptions of the nature of the subject or different paradigms can affect the way one perceives that area of human activity. This is [also] true of teaching’ (Turner-Bisset, 2001:143)

As I prepared to undertake this research project I was keen to apply Turner-Bisset’s assertion to my own area of interest, that of primary geography teaching. Previous research had shown how secondary student teachers conceptualise geography and how primary student teachers conceptualise teaching. Few researchers had investigated how primary student teachers conceptualise geography and few had investigated the interplay between geography and teaching conceptions on each other, either in a primary or secondary context. Research into learning to teach also tended to focus on the student teacher learning *during* PGCE courses, and several people had identified a gap in our understanding of how learning to teach continues beyond Initial Teacher Education. This project therefore took a more longitudinal approach and researched those who are developing as teachers of primary geography from the beginning of their PGCE course to the end of their NQT year. In addition, I had a notion that something more fundamental than conceptions about subjects and teaching affected beginning teachers’ practice and that this was concerned with the values they held which perhaps underpinned their conceptions. Turner-Bisset (and Shulman, 1987) both recognise the importance of knowledge of educational ends – societal, school and teacher – and the influence of this on other conceptions and knowledge. However, they do not appear to relate this to teachers’ understanding of epistemology and yet our understanding of how children (and beginning teachers themselves) acquire and construct knowledge is partly dependent on how knowledge is conceptualised in the first place.

Chapter 7 described in detail the prior conceptions of geography and teaching that the PGCE cohort of 1999-2000 held at the beginning of their course and how these changed after the geography component. Stimulated recall interviews with eleven students enabled their perspective on, and explanations of, their conceptions to be heard and the influences of these conceptions to be explored. Chapters 8-10 then examined in detail, for three beginning teachers, the relationship between these conceptions, their conceptions of knowledge and their practice as primary geography teachers in the classroom by analysing data gathered on three separate occasions over an eighteen-month period. Chapter 11 drew

together all that had been learnt from these data and proposed a model for conceptualising how all the elements relate to each other and how these relationships change over time. This led to the identification of stages in development and the factors that might enable a beginning teacher to make the transition from one stage to the next.

This chapter will now consider the implications of these for beginning teacher development and the development of primary geography. It will conclude by outlining some possible areas for future research.

12.1 Implications for beginning teacher development

Firstly, it is important to restate that although the context of this research was a PGCE primary *specialist* course, the specialisms offered were English, maths and science. In terms of the geographical input, therefore, students were generalists whether they held a geography degree or not – all students followed exactly the same programme for primary geography and so the implications can only be considered in detail for PGCE primary *generalist* courses.

The model and supporting evidence show how the students initially needed to make the transition from learner to teacher, and that this process could begin during the ITE course. However, the transition from teacher to ‘teacher of primary geography’ did not occur until *after* the ITE course had been completed, if at all (ref Becky and Carrie), suggesting that this transition is inappropriate at the *initial* teacher education phase and more appropriate as a focus for the induction phase and beyond.

‘... appropriate support for trainees in learning to teach needs to address the synthesis of both subject and pedagogy, an approach that engages students in reflection on their own cognitive development in their engaging with ideas during the learning process itself. (Parker, 2004:835)

When beginning the research the view expressed in the quotation above was one that I held and that affected the way in which I acted as the students’ tutor, and the decisions I made about the focus of the research and its design. However, one of the most striking things that has emerged from the data is less about how to synthesise subject and pedagogy and

more to do with the effect of how the subject is conceptualised on what is perceived as valid knowledge within this conception. The lack of perceived relevance of everyday, life experiences as a source of geographical knowledge was something that I was aware of but not something I had considered to be of such significance prior to this research. As the examples of David, Becky and Carrie show, although they varied in their geographical and pedagogical knowledge bases they all, at an early stage of their development, appeared to conceptualise their geographical base from the perspective of learner *when thinking about it for teaching*. The evidence suggests that (a) they were not aware that this is what they were doing, and (b) as a result some of their geographical knowledge (e.g. developed from degree or life experiences) was unavailable to them in their professional roles.

The significance of this for many of the students interviewed (n=11, ref. chapter 6 and 7) was that they appeared to think that they did not ‘know much geography’ and that this contributed to a lack of confidence in their ability to teach it. Because they thought they did not know much, they cast back in their minds to the geography they learned at school when constructing their concept maps. Becky and Carrie are both examples of this. In her stimulated recall interview Becky said she did not know much geography and did not really have a view of the subject, while Carrie said she had relied on her experience as a pupil at school. In both cases, though, the taught course had developed an awareness that whilst geography is complex, it can be simplified in ways that are relevant to primary children, and geography is all around us (a beginning recognition of the value of life experiences), which appeared to have had a positive impact on their levels of confidence (ref chapters 9 & 10).

As argued in previous chapters (2-4), much has been said about the importance of subject knowledge in effective teaching, so it would be an understandable position to believe that ITE courses should use what little time there is for foundation subjects to develop students’ subject knowledge. It is clearly unrealistic to expect that PGCE primary students, many of whom did not study geography beyond the age of 14 or 16, would be able to develop a secure, sophisticated knowledge base during the 14 hours allocated for the geography component. Indeed, as Turner-Bisset states:

To be an expert teacher in the primary phase is a massive undertaking. It would be necessary to have subject specific pedagogical content knowledge in all subjects in the primary curriculum. (Turner-Bisset, 2001:161)

This does not mean to say that there is no role for foundation subject components on generalist primary courses. Developing subject knowledge seems to be about recognising what their current conception is, explicitly considering the influences on that conception and thus becoming aware that they are drawing predominantly on knowledge developed in formal (school) experiences. In terms of the bases from which they are teaching there seems to be an argument for a stage in-between shifting from learner to teacher, and that is shifting from learner to adult – a person who lives in, and interacts with the world on a daily basis. This adult perspective can then be incorporated into the teacher base along with the pedagogical base to form the beginnings of a useful PCK.

I therefore propose that the geography component of a PGCE primary generalist course needs to focus on replacing students' prior experiences as pupil learners with *new* experiences as adult learners, the latter of which explicitly examine a range of alternative conceptions for geography, knowledge and pedagogy. These new experiences can be reflected on metacognitively from the perspective of learner, and then again from the perspective of teacher. The aim would be to transform students' conceptions of geography, pedagogy and knowledge and so a transformatory pedagogy would be required such as that proposed by Askew and Carnell (1998) for teacher education, Sterling (2001) for sustainable development education, and both of which are partly based on the work of Freire (1972). Deliberate reflection on a range of perspectives / conceptions would develop a level of consciousness that would enable the students to take informed action about how to develop and change as teachers of primary geography. The educational activity, situated in the lived experience of the students, would therefore need to draw on, and make explicit, their experiences as learners during their own schooling and to contrast these with their experiences as learners during the course. In terms of perspective, the students' own would be central and so the 'curriculum' would also draw on their experiences of and in the world, and show how these relate to alternative geographical conceptions only one of which would be the National Curriculum. Concept mapping appears to be one method of effectively enabling this process.

12.2 Implications for the development of primary geography

What I have learnt from this research is that students begin the geography component of a PGCE primary course with a wide range of conceptions and attitudes towards the subject based on their prior experiences. When answering the question ‘what is geography’ students appear to think they are being asked about their view of school geography – not surprising since they are on a primary teacher education course. Therefore, what they reveal, through concept mapping, of what they ‘know’ and what they **actually** know and understand about geography in its broader sense are often two different things. This appears to be because they tend to discount life experiences as a valuable source of geographical knowledge. They do not discount life experiences altogether, but do not appear to readily perceive that many of their everyday experiences are geographical. The factors behind this could be a complex mixture of the way in which geography is portrayed through the media, the way in which geography was portrayed when they were at school and, perhaps, whether they have consciously thought about geography since leaving school. Whatever the factors, it seems as though students are unaware that they are already thinking geographically on a daily basis.

In addition to this, it became evident during the course of the research that the non-specialist primary students did not perceive the geographical persuasions (developed in the secondary context) used during the elicitation activities as being particularly relevant to them as a tool for conceptualising the types of geography that would be appropriate and relevant to primary school children. It therefore seems necessary to develop a way of conceptualising primary geography that (a) enables students to recognise the value of everyday experiences and that they are already thinking geographically in their everyday lives, and (b) is suited to the context that the students are working in – that of the primary school, and the evidence emerging from the data suggests that this could be an ‘everyday’ or ‘ethno’ geography’.

12.3 Everyday (Ethno-)geography

As a result of the data analysis and application of the model theory to each of the three students I was already developing the idea of ‘everyday’ geography when I encountered what seems to be a parallel in the field of mathematics, that of ‘ethnomathematics’:

a key underlying assumption in this field ... is that, through interacting in a myriad of daily-life activities, people already think and, more specifically, they think mathematically. (Frankenstein & Powell, 1994:74)

Frankenstein and Powell assert that the dichotomy between subjectivity and objectivity, action and reflection, teaching and learning, and between knowledge and its applications is a false one and that ‘underlying these dichotomies is the split between practical, everyday knowledge and abstract, theoretical knowledge ...’. They make the further point that ‘knowledge is produced as we, individually and collectively, search and try to make sense of the world’ (ibid:76). If so, this poses for geography the question of what geographical knowledge would be appropriate if it is used by students for living effectively in the world on the one hand, and for teaching primary school pupils to live effectively in the world on the other. This might be a geography that would reflect the culture of the everyday *and* its application in a primary education context.

Ethnomathematics ‘emerged from the discourse on the interplay among mathematics, education, culture, and politics’ (Frankenstein & Powell, 1994:77), founded on Freire’s ideas (1972), which demonstrates how the dominant discourse is that of the powerful and does nothing to reflect the lived experiences or culture of the oppressed. In Initial Teacher Education the voices that have been ‘oppressed’ are those of the students while in primary schools the ‘oppressed’ (or perhaps suppressed) voices are those of the pupils (for full treatment of this point see Catling, 2003b).

As referred to above, a conclusion emerging from the research is that students seem to assume that geography is academic and so they do not appear to recognise that their life experiences are valuable in the context of teaching primary geography. At the same time, even when some students did acknowledge the relevance of their everyday experiences, these did not match with the conception of geography as it is set out in the English National Curriculum programmes of study (DfEE/QCA, 1999), or the persuasions

developed by Barratt Hacking (1996). I therefore believe that there is a need to develop a geography that recognises students, teachers and pupils' lived experiences and cultures and that gives them a voice. Due to the parallels with ethnomathematics (and my understanding of the term 'ethno-' meaning of people, culture) it seemed appropriate to call this ethnogeography.

Ethnogeography would reflect the view that all students are geographers because they all live in the world. They all negotiate and interact with a variety of landscapes (human and natural) on a daily basis. For example, they have all planned routes and holidays, they have all stopped to admire a view, and they have all made decisions about where to live, work and play. Through these daily interactions and decisions they will have built up a wide knowledge base about the world, near and far, whether through first or second hand experiences. What they don't perhaps recognise is that this knowledge is useful geographical knowledge and a point from which deeper conceptual understanding can be developed. I therefore think that there is a distinction to be made between academic geography, the discipline, and being a geographer in the everyday sense described above. I believe that this would provide a suitable base from which beginning teachers could then help children develop as everyday geographers, in other words to help them learn to live in the world, an aim closely allied to the overall purpose of citizenship education and thus the New Agenda (Grimwade et. al. 2000).

So how *do* geographers make sense of the world? Why is being an everyday geographer a valuable goal to have for our children? To answer these questions I would like to make brief reference to an idea that has its roots in sociology.

12.3.1 Geographical Imaginations

In sociology there is a concept known as sociological imagination (Giddens, 2001; originally a book title by C Wright Mills, 1959) which refers to how any everyday experience or event, such as sitting in a café having a cup of coffee, can be looked at in a different way through the 'eyes' of a sociologist. Sociological imagination 'requires us above all to think ourselves away from the familiar routines of our daily lives in order to look at them anew'. This does not mean to ignore the everydayness of our experiences, but to see them from an alternative perspective. The example given is one of sitting

drinking a cup of coffee in a café. This very familiar experience can be viewed from a sociological perspective by looking at the number of interactions between the person drinking the coffee, and the people in the café – both customers and workers. These interactions will be a mixture of verbal and non-verbal and could be related to certain sociological theories about how people behave in certain social situations and so on.

There is a similar concept called geographical imagination (Massey, 2005; Geographical Association, 2005a) that has been used in academic geography for some time and is integral to some degree courses in the UK (<http://www2.glos.ac.uk/gdn/qaa/gloshg.htm>). As Massey explains:

It is probably now well accepted, though it is still important to argue, that a lot of our “geography” is in the mind. That is to say we carry around with us mental images of the world, of the country in which we live (all those images of the North/South divide), of the street next door. ... All of us carry such images, they may sometimes be in conflict or even be the cause of conflict, and digging these things up and talking about them is one good way into beginning to examine what it means to think geographically’ (Geographical Association, 2005a)

If we take the same example of drinking a cup of coffee in a café. What sort of geographical imagination could be applied to this activity? When I am in Worcester shopping and stop for a cup of coffee there are a number of decisions that I make which have a geographical dimension. First of all I think about where the nearest café is which serves the type of coffee I like best in the time I have available and which offers the type of environment I prefer (comfortable armchairs, modern art on the walls, daily papers to read). Once in the café I make decisions about where to sit so that I am warm enough, where I will be least disturbed by movement in and through the café, and do some people watching! Underlying some of these choices is an implicit understanding of location, sense of place and micro-climates. Whenever possible I choose a café that serves Fair Trade products (issue: economic exploitation). This decision is based on my knowledge of the impact of the coffee industry on farmers, their families and the environment in coffee producing countries, and my desire to live in the world sustainably (issue: sustainable development). My choice is based on a mixture of social, economic, environmental and political factors all linked to places that have local (the café itself, the city I am in) and global (where the coffee is grown, for which company) dimensions.

This is an example of what it means to think geographically, and is the sort of thinking that Massey (ibid) recommends we ‘dig up’ and examine. It is the type of understanding that would be missing if geography was not in the curriculum. Therefore the purpose of geography in the curriculum is to raise children’s awareness of the geographical dimensions of our everyday experiences (i.e. to see the world anew, from the perspective of a geographer) so that they can make better, more informed decisions about how to live their lives.

I do not, however, believe that there is one geographical imagination. As shown in chapter 4 and appendices 3, 5, 7, 8, 21 and 22, there are many types of geographical imagination each with its own emphasis. While the concepts of place and space might arguably be essential to all (and a recent debate within the Geographical Association (2005b) suggests that this would be the case) there are then a variety of perspectives of which ‘ethnogeography’ would be one.

12.3.2 An ethnogeographical imagination

What might an ethnogeographical imagination look like? What is it about living in the world today that, coupled with a geographical dimension, would enable us to live more effectively? One example of the impact of the 21st century on our lives has recently been written about by teacher educators in Finland who have noted that

The ability to obtain geographic information has grown considerably as the use of the Internet has become more commonplace; a fact that leads to even greater demands being placed on students’ information skills. In addition to locating and interpreting the information and being able to evaluate it ... a central part of civic skills is being network-literate. Attention is increasingly drawn to this in teacher training in Finland.

(Houtsonen, 2004: 191-192)

Another example is the growing concern that is now permeating society about geographical and environmental issues such as climate change that relate to the sustainability of life on earth. Acting locally and thinking globally is a slogan that has developed from the Earth Summit in Rio de Janeiro in 1992 which was translated, at a local level, into Agenda 21 and is built on an understanding of the interdependent nature of the world. These are all geographical notions that have developed as a result of human activity but there are some notions resulting from human activity that have *not* become part

of ‘privileged’ subjects. It seems essential that we pay attention to the perspectives and ideas “manifested in written or non-written, oral or non-oral forms, many of which have either been ignored or otherwise distorted by conventional histories” (Frankenstein & Powell, 1994: 88, referring to mathematics).

Over the last four years I have been involved in a project that has been part of the work of a partnership between TiDE (Teachers in Development Education, Birmingham, Martin 2004b) and the National Environment Agency of The Gambia. The project focuses on developing teacher understanding and practice about climate change and sustainable development. One of the key features of this project has been the ways in which, through intercultural, collaborative learning, teachers in both countries have developed a more complex understanding of the issues because they have had their own knowledge and perspectives challenged by perceiving it from other points of view. This has, at the same time, given the teachers an expanded frame of reference from which to evaluate information available on the internet and reported in the media. I would suggest that, from an adult perspective these are the sorts of ways of thinking that stem from everyday experiences that could form part of ethnogeography.

Ethnogeography would therefore reflect people’s experiences and the cultures that bound them but I am aware, in the examples I have given, that I have drawn on my own life experiences and these will clearly not be the same as those of my students. Whose everyday experiences and cultures should be reflected in an ethnogeographical imagination? Some of the perspectives that are currently missing from geographical imaginations have been identified by Catling (2003b) and Robertson (2003) as children’s geographies and personal geographies respectively. Morgan (2003b), in the same publication, notes that even within the field of cultural geography the culture of the masses has been neglected; ‘the most sustained commentary on the everyday has resolutely dismissed it as dangerously mindless “mass culture”’ (Morgan, 2003b:219). All three writers agree that it is time for the knowledge generated through everyday experiences and culture to be recognised, valued and given a place within a geography curriculum for the twenty-first century. Morgan goes on to suggest that some of the missing perspectives of everyday or popular culture include virtual geographies, gendered geographies and consuming geographies – an understanding of each of which could arguably enable children to live more successfully in the world.

12.4 Conclusion

To conclude, I believe there is a strong argument for developing a new framework for primary geography based on an approach I have called ethnogeography and what this, and its development of geographical imagination, might look like, and how it might be implemented, requires further research. Frankenstein & Powell make some suggestions for how ethnomathematics might develop which are also pertinent to ethnogeography, namely (rephrased as appropriate) to

1. Develop co-investigations between students and teachers to discover each others' ethnogeographical knowledge.
2. Constantly relate formal geography to real geography so that the relationship between the two is established and the false dichotomy between practical, everyday knowledge and abstract, theoretical knowledge is removed.

These imply the need to

- Develop methodologies that 'probe effectively and ethically' students' geographical knowledge. Concept mapping has proved an effective elicitation tool in this project and the concept maps themselves provided a rich source from which students could begin to compare their conceptions with those of others (other students as well as other formal geographies)
- Incorporate students' perspectives into educational research – this project has begun this process for primary student teachers, but there is a need to extend this to a wider group and to use the current findings to refine the tools that might be used
- Relate students' perspectives to our own critical and theoretical frameworks (as geography teacher educators and researchers).

In relation to this final point, within a liberatory paradigm the voice of the academic should not be ignored. To replace the privileging of one group with that of another would be just as questionable, so the approach recommended is to find ways of helping students to become aware of their ethnogeographical knowledge without 'denying the inequality of knowledge, but as much as possible 'based on co-operative and democratic principles of

equal power' (Youngman 1986: 179 cited in Frankenstein & Powell, 1994: 92). As teacher educators we need to avoid uncritical faith in the 'people' so

'... while we listen to students' themes, we organize them using our critical and theoretical frameworks, and we re-present them as problems challenging students' previous perceptions. We also suggest themes that may not occur to our students, themes we judge are important to shattering the commonly held myths about the structure of society and knowledge that interfere with the development of critical consciousness' (Frankenstein & Knobel, 1994:92)

This seems to me to be a goal worth working towards.

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Appendix 1: Extract from Original Research Proposal submitted February 1999

Title: ‘An analysis of the relationship between primary student teachers’ professional values and their development as effective teachers of geography’.

Aims:

1. To critically review previous research into the relationship between teachers’ values and effective professional practice.
2. To identify student teachers’ values about geographical education in ways that allow them to be appropriately represented, understood and acted upon.
3. To explore the impact of student teachers’ values on their development as effective teachers of primary geography.
4. To consider the impact of the findings for ITE course design and implementation.

In order to address these aims, the research is designed to be conducted over four phases.

Phase 1 (ref: Aim 1)

A critical review of the literature pertaining to:

- pre-service teacher development
- effective practice in primary geography
- the impact of teachers’ values on their thinking about geography and teaching

Phase 2 (ref: Aim 2) n=75

2.1 Biographical details

2.2 Use elicitation techniques that enable student teachers’ values to be identified:

- concept maps to elicit pre-course conceptions of geography and geographical education
- annotation of their concepts maps by students after university sessions to indicate how conceptions have changed
- students are given a further opportunity to annotate concept maps, or construct a new one, to indicate their conceptions of geography and geographical education at the end of the course

2.3 Select students as representative of the whole (although geography is not offered as a specialism in this course, some of the sample will have a geography degree) (n=10)

- repertory grid to elicit conceptions of teaching
- stimulated recall interviews

Phase 3 (ref: Aim 3)

3.1 Three techniques will be used to enable investigation of the relationship between the values identified in phase 2 and effective teaching and learning in the classroom during block school experience (SE) 2 and 3. The sample will be the same as those mentioned in phase 2. It is thought unlikely that all 10 students will have the opportunity to teach geography during both SE2 & 3, so the number of lessons observed may vary for each student. In order to avoid potential conflicts of interest, the researcher will not be the school supervisor for these students.

- concept maps of students’ National Curriculum geography ‘units of work’ and individual lessons
- tape recording of teacher discourse during ≈6 sample lessons for each student
- pupils’ concept maps constructed at end of each lesson and at the end of the unit

3.2 Stimulated recall interviews using concept maps and teacher discourse

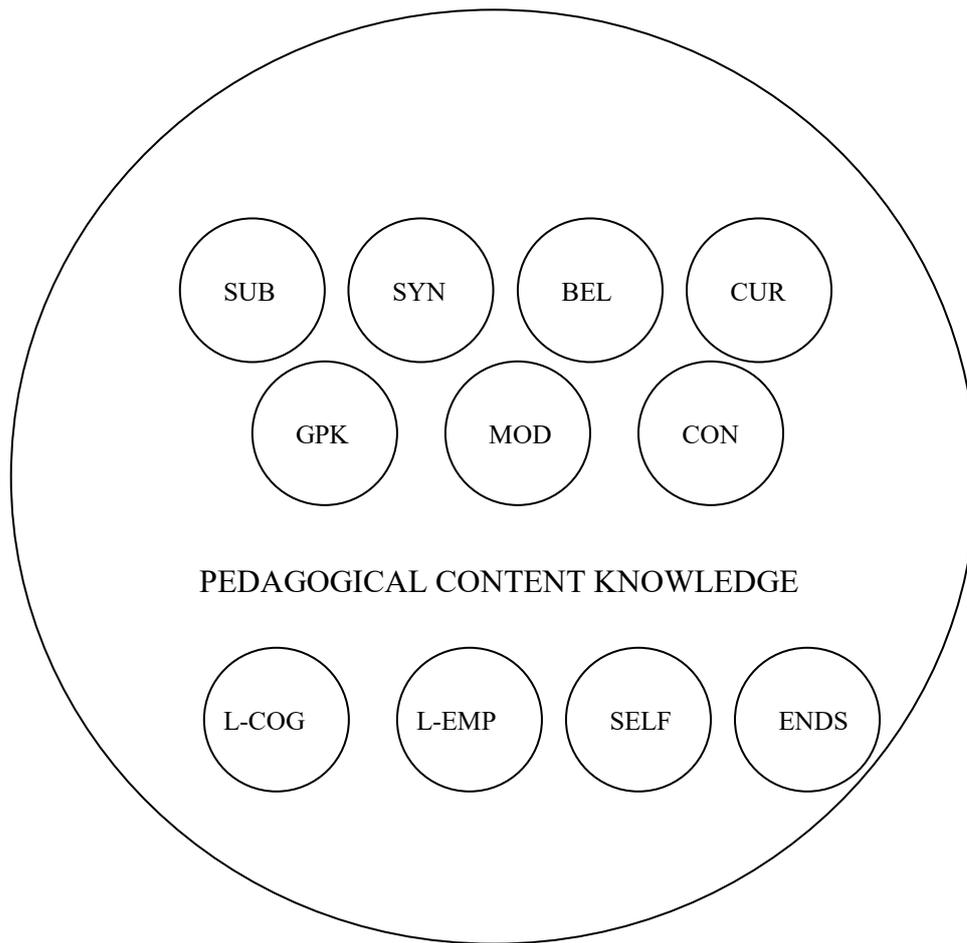
Phase 4 (ref: Aim 4)

4.1 Analysis and interpretation of data

4.2 Feedback and critical evaluation of results within the Postgraduate Teaching team

4.3 Consideration of the implications for Policy and Practice in Initial Teacher Education

Appendix 2: Knowledge bases for teaching: the model (Turner-Bisset, 1999:47)



KEY TO CODES:

SUB Substantive Knowledge
SYN Syntactic Knowledge
BEL Beliefs about the Subject
CUR Curriculum Knowledge
CON Knowledge of Contexts
SELF Knowledge of Self
MOD Knowledge/Models of Teaching
L-COG Knowledge of Learners: Cognitive
L-EMP Knowledge of Learners: Empirical
ENDS Knowledge of Educational Ends
GPK General Pedagogical Knowledge

PCK Pedagogical Content Knowledge

Scientific / descriptive-rich persuasion Geography is a discipline which focuses on knowledge and understanding of the world with a particular emphasis on spatial patterns. It builds up a wide range of knowledge, which is hierarchical. Much of this knowledge can be measured, quantified and used to test hypotheses. It allows for the physical and human elements to be studied separately.

Humanistic / welfare persuasion Geography is a discipline which focuses on people - their concerns, ways of life, cultures and social organisation. It considers issues such as 'who gets what and why?'. It looks at the opportunities and constraints acting on individuals and society and how these affect ways of life. It allows for the subjective experience of place. It is often about challenging stereotypes, and detecting bias and attitudes in the way information is presented.

Environmental persuasion Geography is a discipline which is concerned with people / environment interactions and relationships. It focuses on issues such as pollution, global warming and the depletion of the ozone layer. It is concerned with how and why different environments are managed, who makes decisions and issues surrounding the concept of sustainability.

Appendix 4: PGCE Geography Component outline 1999.

Week	Content / Key Issues to be covered	Suggested readings	NC and cross-curricular links
1 2hrs	<p>What is geography and why teach it?</p> <ul style="list-style-type: none"> students consider own conceptions through concept mapping task cognitive and affective elements that contribute to views of geography contribution geography can make to individuals and society – alternative views National Curriculum view of geography 	<p>IGU (1995)</p> <p>DfEE/QCA (1999)</p>	<p>Geography as a bridge between the arts and the sciences</p>
2 2hrs	<p>How do children demonstrate what they know and understand about place?</p> <ul style="list-style-type: none"> environmental cognition graphicacy, spatial awareness and developing a locational framework Children's 'private geographies'; building on their knowledge & understanding of the world 	<p>Wiegand (1993) <i>Children and Primary geography</i> p.22 - 27</p> <p>Matthews (1992) <i>Making Sense of Place</i> Ch 5</p>	<p>Maths, spatial awareness and gender issues</p> <p>Sense of place and place attachment</p>
3 2 hrs	<p>The local area and geographical enquiry:</p> <ul style="list-style-type: none"> conducting a locality appraisal process of geographical enquiry fieldwork and the use of ICT geographical concepts, vocabulary, (language and thought) 	<p>Martin (1999)</p> <p>Chambers & Donert (1995) p.25-27</p> <p>Carter (1998)</p>	<p>Speaking and listening and vocabulary development</p>
4 2 hrs	<p>Contrasting localities within the UK</p> <ul style="list-style-type: none"> Using secondary sources (story, video) Developing pupils understanding of place from a variety of perspectives Lesson planning 	<p>Primary Geographer issues 37, 35 & 26</p> <p>Lewis & Watts (1995) PG 21 p.33-35</p>	<p>Making meaningful links between subjects when planning</p>
5 2 hrs	<p>Contrasting localities beyond the UK</p> <ul style="list-style-type: none"> perceptions of other people and places presenting positive images and counteracting stereotypes use of secondary sources developing planning skills <p>Skills, Places and Themes - how can these be integrated through study of contrasting localities?</p>	<p>Wiegand (1992) <i>Places in the Primary School</i></p> <p>Catling (1995) <i>Wider Horizons: PG (20)</i> p.4 - 6</p> <p>Scoffham (Ed) (1998) p46-47</p>	<p>Multiethnic education and equal opportunities</p> <p>English and critical examination of texts</p> <p>English and use of story, literacy hour</p>
6 2 hrs	<p>Issues based geography -</p> <ul style="list-style-type: none"> role-play interaction between people and their environment the decision making process and change 	<p>Mackintosh, M (1996) <i>Rivers: cut it out!</i> PG (25) p. 4-5</p>	<p>Making meaningful links between subjects</p> <p>Environmental & sustainable development education and values</p>
3 weeks block school experience			
7 2 hrs	<p>Assessment in geography : What, when, why, how?</p> <ul style="list-style-type: none"> deconstructing the level descriptions using the level descriptions for planning: linking assessment with progression and differentiation 	<p>SCAA (1996) <i>Expectations in Geography at key stages 1 & 2</i></p>	

Appendix 5: The National Curriculum Conceptual Framework for Geography

The National Curriculum – The NC Programmes of Study for Geography (DfEE 2000) provide the following framework for organizing children’s thinking about the world:

NC heading	Related Understanding
Geographical Enquiry and Skills	<p>This section outlines the <i>processes</i> by which pupils develop geographical knowledge, understanding and values.</p> <p>Enquiry methods are used such as asking questions, planning how to answer the questions, using geographical skills to gather data/information, communicating findings, drawing conclusions and evaluating.</p> <p>Geographical skills include using geographical vocabulary, fieldwork skills, map skills, ICT, using secondary sources etc</p>
Knowledge & Understanding of Place	<p>A ‘sense of place’ – ability to identify features that contribute to the places ‘character’ – and recognition of how places are linked; people, communities, social and cultural groups</p> <p>Key Concepts: Place, location (including locational knowledge), scale, settlement [size & function], interdependence</p>
Knowledge & Understanding of Patterns	<p>The way physical and human features are arranged in a landscape or occur in an environment (e.g. the layout of hedgerows in a farming landscape, the way streets are arranged in a town)</p> <p>Key Concepts: Location / spatial pattern or distribution; similarities and differences</p>
Knowledge & Understanding of processes	<p>A series/sequence of events that cause changes in a place or environment (e.g. flooding, river flow eroding the banks of a river; increasing traffic, closure of local shops)</p> <p>Key Concepts: Change, cause & effect</p>
Knowledge & Understanding of Environmental Change & Sustainable Development	<p>Environmental change is clearly linked to geographical processes, but takes it further to consider the quality of the effects on the physical and human environment – includes notions of attractive and unattractive environments, good and bad change, subjective views, perspectives etc.</p> <p>Sustainable development then looks at how an issue relating to change might be resolved to improve environments or maintain environments in ways that are sustainable – environmentally, economically, socially.</p> <p>Key Concepts: Change, cause and effect, sustainability, power [who decides], conflict, citizenship</p>

Appendix 6: Oxfam – Key elements of Global Citizenship

The key elements for developing responsible Global Citizenship are identified as:

- Knowledge and understanding
- Skills
- Values and attitudes.

Knowledge and understanding

- Social justice and equity
- Diversity
- Globalisation and interdependence
- Sustainable development
- Peace and conflict

Skills

- Critical thinking
- Ability to argue effectively
- Ability to challenge injustice and inequalities
- Respect for people and things
- Co-operation and conflict resolution

Values and attitudes

- Sense of identity and self-esteem
- Empathy
- Commitment to social justice and equity
- Value and respect for diversity
- Concern for the environment and commitment to sustainable development
- Belief that people can make a difference

<http://www.oxfam.org.uk/coolplanet/teachers/globciti/curric/index.htm> Nov
20th 2004

Appendix 7: Key Concepts for Geography

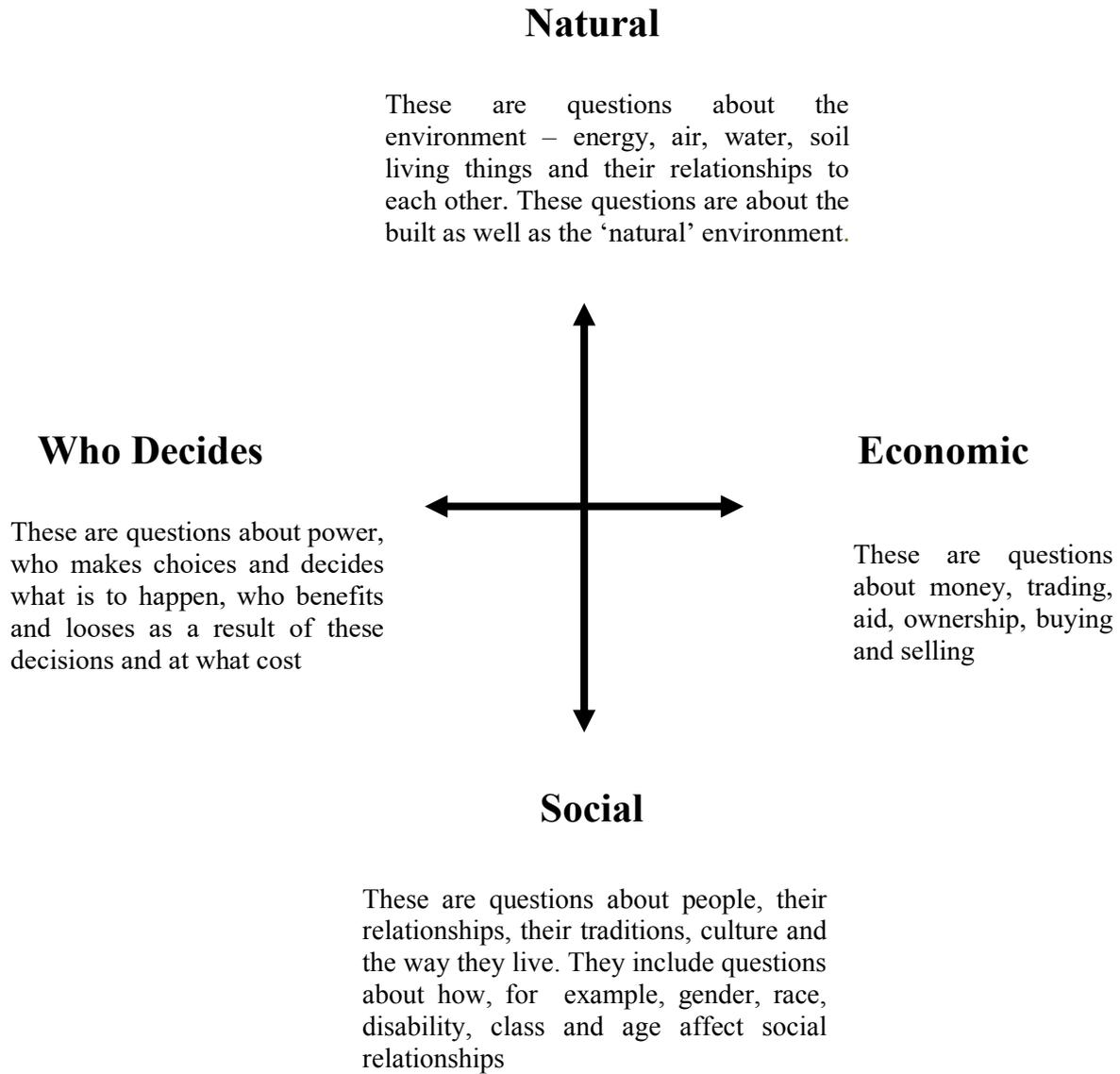
LEAT et. al. (1998)

- Cause and effect
- Planning
- Decision making
- Location
- Classification
- Inequality
- Development
- Systems

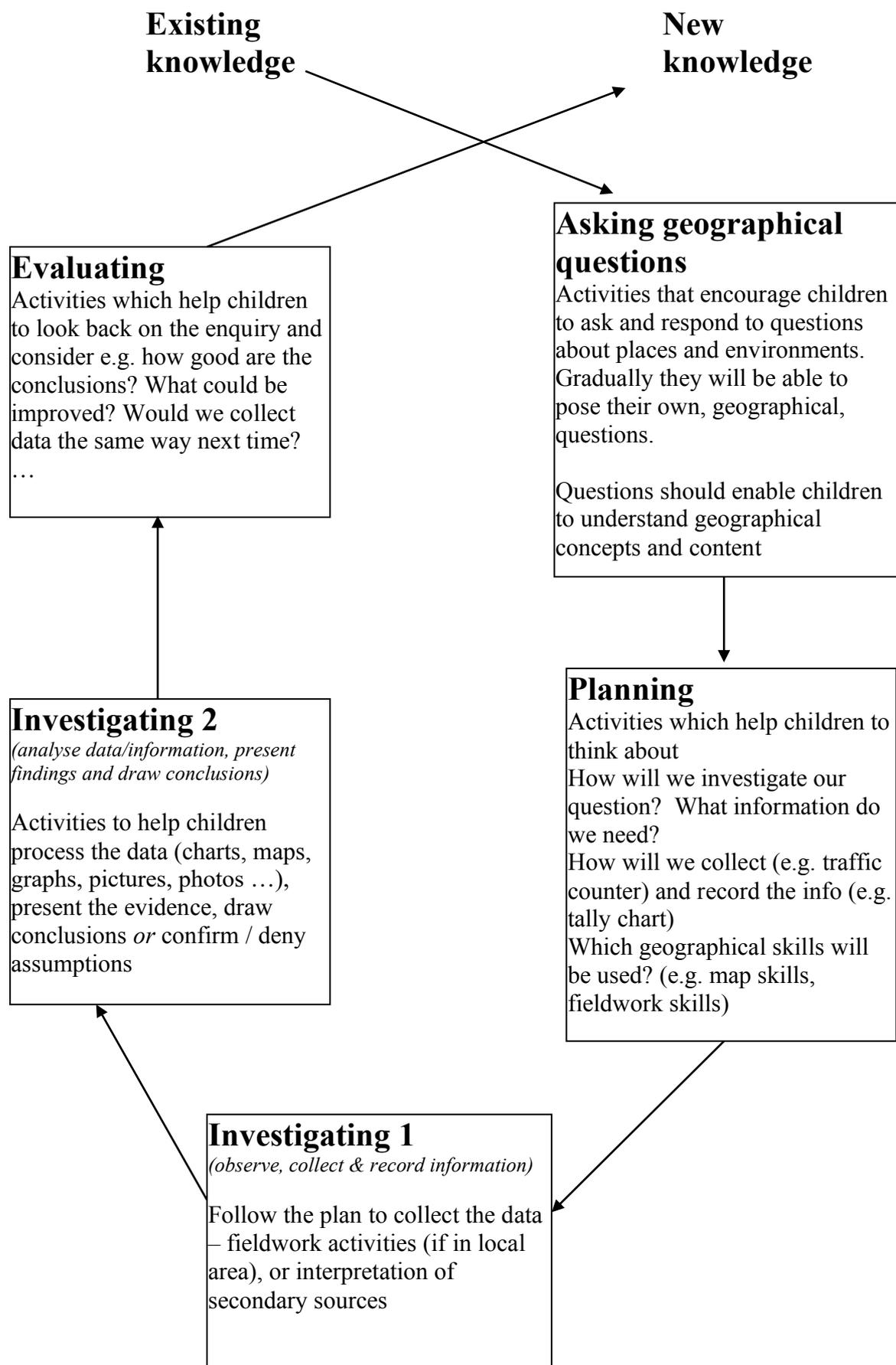
Martin & Owens (2004)

- A sense of place (character, distinctive features)
- Similarity and difference (making connections, comparing)
- Location and spatial pattern (where things are and how they are grouped)
- Change and continuity (how places are changing)
- Cause and effect (processes and their impact)
- Roles, responsibility and participation (awareness, concern, decision and action)
- Appreciation [of] (diversity of peoples, places and environments)

Appendix 8: Development Compass Rose (Birmingham DEC 1995)



Appendix 9: Geographical Route of Enquiry (adapted from NCC 1993)



Appendix 10: Teaching styles and geographical enquiry (Roberts, 1996)

Stage of teaching and learning	Closed	Framed	Negotiated
Questions	Questions not explicit or questions remain the teacher's questions	Questions explicit, activities planned to make pupils ask questions	Pupils decide what they want to investigate under guidance from the teacher
Data	Data selected by teacher, presented as authoritative, not to be challenged	Variety of data selected by the teacher, presented as evidence to be interpreted	Pupils are helped to find their own data from sources in and out of school
Interpretation	Teacher decides what is to be done with data, pupils follow instructions	Methods of interpretation are open to discussion and choice	Pupils choose methods of analysis and interpretation in consultation with teacher
Conclusion	Key ideas presented, generalisations are predicted, not open to debate	Pupils reach conclusions from data, different interpretations are expected	Pupils reach own conclusions and evaluate them
Summary	The teacher controls the knowledge by making all decisions about data, activities and conclusions. Pupils are not expected to challenge what is presented	The teacher inducts pupils into ways in which geographical knowledge is constructed, so that they are enabled to use these ways to construct knowledge themselves. Pupils are made aware of choices and are encouraged to be critical	Pupils are enabled by the teacher to investigate questions of concern and interest to themselves

Appendix 11: Geography and the Key Elements of Learning (DES, 1985)

<p>Knowledge</p>	<p>KS1: Places - their physical and human characteristics Locality of school Contrasting locality Environmental change and sustainable development</p> <p>KS2: Places - their physical and human characteristics Locality of school and its broader context Contrasting locality within the UK Contrasting locality beyond the UK in an economically developing area Themes - weather, rivers, settlement, environmental change & sustainable development</p>
<p>Understanding (Key Concepts)</p>	<p>Location and spatial distribution ‘Sense of Place’ - characteristics Similarity and difference between places Patterns and processes Change and stability Cause and effect Interactions - between human and physical elements of place Decision making processes</p>
<p>Skills</p>	<p>Geographical enquiry - planning, investigating, analysing, concluding Asking geographical questions Map work Fieldwork Interpreting a range of sources Using geographical vocabulary</p>
<p>Attitudes / Values</p>	<p>Awareness of, and respect for, different lifestyles and cultures Appreciation of others’ points of view Awareness that people’s values / beliefs affect their actions Concern for the environment - awareness of issues in relation to quality of environment and lifestyle</p>

Appendix 12: Bloom's Taxonomy for the cognitive domain

Category	Type of thinking / cognitive processes	Example from local enquiry
KNOWLEDGE:	Recall of facts, naming and recognizing, basic understanding or observations	What does the second M&S shop look like? What does it sell?
COMPREHENSION:	Comparing, contrasting, describing, explaining, interpreting facts	Which is the biggest of the two M&S stores? In what ways are the two stores the same/different?
APPLICATION:	Applying knowledge to new situations, to make sense of problems, classifying, selecting & using information	Where are M&S stores usually located? Where there is an M&S store, are there usually two?
ANALYSIS:	Drawing conclusions, making inferences, seeing patterns, finding causes, using evidence	Why has Worcester got a second M&S store? Why are they both in the High Street?
SYNTHESIS:	Solving problems, making predictions, proposing, creating	People use the second store more than the original one. How could you encourage them to use both to the same extent?
EVALUATION:	Judging, evaluating, deciding, appraising	Do you think it was a good idea to open a second M&S store? Do other people agree with you? What do retailers in the High Street think?

Appendix 13: Kelly's Personal Construct Theory.

The theory of PCP, developed by George Kelly, is one of *constructive alternativism*. That is, there is a reality and therefore there are such things as 'facts', but all facts are subject to alternative constructions. Each person puts his or her own interpretation on what s/he sees and these interpretations are anchored in 'antecedents and consequents' (Kelly, 1970). The application of PCP uses techniques that help others to gain an insight into what sense each makes of their world and what their construct systems are with a view to helping them change. In this respect in the use of PCP techniques transformation is always a possibility.

The psychology of personal constructs has a *fundamental postulate* elaborated by eleven corollaries.

Fundamental postulate: a person's processes are psychologically channelized by the ways in which s/he anticipates events.

Construction corollary: a person anticipates events by construing their replications.

Individuality corollary: persons differ from each other in their constructions of events.

Organisation corollary: each person characteristically evolves, for his/her convenience in anticipating events, a construction system embracing ordinal relationships between constructs. i.e. it's important to order constructions in ways which will establish priorities in action (Mair, 1971 p.143)

Dichotomy corollary: a person's construction is composed of a finite number of dichotomous constructs. CONSTRUCTS ARE IMPOSED UPON EVENTS NOT ABSTRACTED FROM THEM. In this way the bipolar construct is a reference axis which serves as a guideline for locating events along the axis. 'A construct is the basic contrast between two groups. When it is imposed it serves both to distinguish between its elements and to group them.' (Kelly, 1970 p.13). The construct shows how one distinguishes between events.

PERSONAL CONSTRUCT THEORY IS NO MORE A COGNITIVE THEORY THAN IT IS AN AFFECTIVE OR A CONATIVE ONE. IT IS IMPORTANT NOT TO CONSIDER A CONSTRUCT AS ANOTHER TERM FOR A CONCEPT (KELLY, 1970 P.15)

Choice corollary: a person chooses for him/herself that alternative in a dichotomised construct through which s/he anticipates the greater possibility for the elaboration of his/her system.

Range corollary: a construct is convenient for the anticipation of a finite range of events only. A construct has its *focus of convenience* - a set of objects with which it works especially well. Over a somewhat larger range it may work only reasonable well; that is its *range of convenience*. Beyond that it fades into uselessness and we can say the outer array of objects simply lies beyond that range of convenience.

Experience corollary: a person's construction system varies as s/he successfully construes the replications of events.

IT IS NOT JUST DISCONFIRMATION THAT LEADS TO A CHANGE IN CONSTRUCT SYSTEMS. CONFIRMATION MAY ALSO LEAD TO RECONSTRUCTING BECAUSE A CONFIRMATION GIVES ONE AN ANCHORAGE LEAVING YOU FREE TO EXPLORE BEYOND.

Appendix 13: Kelly's Personal Construct Theory.

Modulation corollary: the variation in a person's construction system is limited by the permeability of the constructs within whose ranges of convenience the variants lie. Unless a novelty can fit into some permeable part of the construct system it is likely to be ignored. Mair (1971) - a person, like a community, maintains his/her identity by regulating the entry of new ideas or actions.

Fragmentation corollary: a person may successively employ a variety of construction subsystems which are inferentially incompatible with each other. Oberg (1986) describes this as 'new subordinate constructs may be developed which do not flow from already existing subordinate constructs, but arise from within the superordinate construct system' (p.65).

Commonality corollary: to the extent that one person employs a construction of experience which is similar to that employed by another, his/her processes are psychologically similar to those of another person.

Sociality corollary: to the extent that one person construes the construction processes of another, s/he may play a role in a social process involving the other person. Oberg (1986) 'To play a constructive role *vis-à-vis* another person, it is necessary to construe his/her construction process effectively' (p. 65).

CONSTRUING OF SOMEONE'S CONSTRUCTION PROCESSES NEED NOT BE ACCURATE IN ORDER FOR YOU TO PLAY A ROLE IN THE SOCIAL PROCESS THAT INVOLVES THAT PERSON. I.E. IF I MISUNDERSTAND MY STUDENTS' CONSTRUCTION PROCESSES I AM STILL ABLE TO PLAY A COLLABORATIVE ROLE IN A SOCIAL PROCESS WHOSE EXPERIENTIAL CYCLE LEADS US ALL SOMEWHERE. THIS IS BECAUSE I DO SO ON THE BASIS OF *WHAT I THOUGHT THEY UNDERSTOOD* RATHER THAN MERELY ON THE BASIS OF THEIR OVERT ACTS.

Kelly (1970 p.2) puts forward a contrast to constructive alternativism - *accumulative fragmentalism* - which is that 'truth is collected piece by piece'. This is the accumulation of knowledge / facts view of learning. PCP has a view of learning that is all about exploring alternative ways of construing. This is an individual, personal process but it can be said to be socially constructed in that it needs other people and events to construe in the first place. In PCP the cognitive and affective are inextricably linked - they cannot be separated.

This can be linked to Bruner's view of the learner as constructor of meanings within social and cultural contexts. He defines the role of the curriculum as the framework within which the learner joins a community of theory makers and is initiated into particular methods of enquiry. Hence the need to be initiated into the 'role' of the geographer - understanding the method of study, the types of questions geographers ask, as well as the body of knowledge to be discovered.

Appendix 14: Theories Of Teaching & Learning (John, 1996)

Transfer Theory - pupil a container to be filled, teacher sees content as a commodity to be transferred, knowledge seen as certain, unproblematic. Knowledge is separate from individuals, there is a natural hierarchy and the focus is on intellectual development.

Shaping Theory - pupil is inert material (eg clay), teacher is a skilled craftsman who 'models / shapes' pupil using knowledge as a blue-print. Methods are more experiential, often like following a recipe / workshop style. Through learning 'how' a body of knowledge is built up.

Travelling Theory - knowledge is a 'terrain' to be explored by pupil alongside expert companion / guide (teacher), methods often use independent learning, discussion, simulations etc. Knowledge is not independent of the senses and pupils are able to choose which route to take through the terrain.

Growing Theory - pupil developing personally, like a plant, with teacher a resource provider. Knowledge an experience to be incorporated into developing personality. Methods experiential / spontaneous, enquiry and making sense of experience are important. Knowledge is socially constructed and therefore constantly open to change; education is lifelong and contributes to democracy.

Vocational / neo-classical: Knowledge is objective - a public matter; exists in books; mostly described as skills and information, (facts, concepts) which have their meaning and significance in occupational or disciplinary contexts; special concern is for the scientific/managerial interest of knowledge (knowledge for control); strong split between 'mental' and 'manual' aspects of knowledge.

Liberal / progressive: Knowledge is subjective, a 'private' or individual matter; exists in accomplishments or 'in the head' of the individual; mostly described as learning, attitudes and living skills which have meaning and significance in the individuals' life context and the culture; special concern is for the practical / expressive / cultural interests of knowledge for communication, deliberation and refinement; integration of mental / manual in individual work.

Socially critical: Knowledge is dialectical, an interplay of subjective views of the world and the historical and cultural frameworks in which they are located. Sees knowledge as socially constructed. Thus, knowledge is not easily specified: it has its meaning in actions or projects whose significance is in specific contexts. It places a central value on the role of knowledge in social action: the emancipatory interests of knowledge. Mental and manual aspects of knowing are integrated in groupwork.

Appendix 16: Letter to students inviting them to participate

30 November, 1999

Dear

I hope you had an interesting and enjoyable first block school experience and that it gave you the chance to try out some of the ideas you have been developing over the last few weeks.

While you've been busy in school I have been analysing the concept maps and ideas about teaching that I collected from our first session together. From the concept maps I have identified four broad conceptions of geography. I would like to select four people from each EY & LY group (of which you are one) to represent each conception of geography.

What does this mean for you?

1. A semi-structured interview of 1 hour to give you the opportunity to discuss your concept maps. This would take place before the end of term and, if you are agreeable, I would like to record the interview on audio-tape.
2. If you have the opportunity, during SE2 and SE3, to teach geography I would like to discuss your plans, to observe some of your teaching (up to a maximum of 6 lessons), and to discuss with you how we could assess what learning has taken place (i.e. use different planning & assessment tools, possibly making use of concept map techniques etc.).
3. I would like to do a further interview at the end of the course to give you the opportunity to discuss how you feel your conceptions of geography, teaching and learning have developed during the year, what aspects of the course have aided your development and so on.

This would mean quite a commitment on both our parts. I would be committed to conducting my research in such a way that it does not interfere with your progression on the course, and in ways that I hope are helpful to your development. I would also be committed to ensuring confidentiality both during the process and when writing the thesis up.

Equally, you would be committed to (and hopefully interested in!) exploring an aspect of your practice in more depth. The benefits of this may well be felt in other areas of your practice.

If there was any question of our collaboration creating tensions that you/I felt were detrimental to you I would stop straight away!

It is quite difficult to provide a succinct but clear outline of the purposes of the research & why I have asked you, in particular, to participate. If you would like to discuss any of the above, or other things that occur to you, please don't hesitate to contact me. My home

Appendix 16: Letter to students inviting them to participate

number is [REDACTED]. In terms of the purpose of the project as a whole, I am hoping to feed my findings back to the PGCE teaching team with a view of considering whether we need to make changes to aspects of the course - particularly those elements which focus on the foundation subjects.

Then, if you feel as though this is / is not something you would like to take part in, please let me know as soon as possible so that I can make the necessary arrangements.

Thank you

work email: f.martin@worc.ac.uk

home email:

Appendix 17: Letter to head teacher

Email: f.martin@worc.ac.uk

Headteacher
Primary School

September 27th 2000

Dear Mrs _____,

Re: Newly Qualified Teacher Becky

I am writing to introduce myself as one of Becky's tutors from her PGCE Primary course at University College last year. I believe Becky may have mentioned that she participated in some research that I am undertaking as part of my Ph.D.

Briefly the research is about analysing beginning teachers' conceptions of geographical education and how these affect their development as effective teachers of geography in the primary school. This involved collecting data from the students during the university phase and then observing a small sample during their school experiences.

Becky was one of those who agreed to be observed during the summer term, but unfortunately I injured my back and was off work for the majority of the term. In consultation with my supervisor and the students concerned, the decision was taken to observe the sample during their first year of teaching.

I am therefore writing to ask for your permission to come and observe Becky teaching geography 2 or 3 times during the course of this year. Typically this involves:

- Becky choosing which lessons she would like observed
- My arriving a little time before hand to have a brief discussion about the focus of the lesson, objectives for learning etc.
- Observation recorded by written notes
- Post lesson discussion with Becky to evaluate from her point of view
- Advice / suggestions for future teaching & learning given by me if requested by Becky

In terms of the ethical aspects of the research, I have assured Becky that I would stop at any point if she felt that I was impeding her ability to complete her first year of teaching successfully. I would also stop if you felt that I was creating tensions within the school / having an adverse effect on the pupils or school community in any way.

Obviously, when the research is written up all participants, their schools and children will remain anonymous and confidentiality will be respected.

Appendix 17: Letter to head teacher

If you are happy for me to do this research with Becky could you please complete the enclosed form and send it to me using the s.a.e.?

If you would like any further information or discuss this with me please do not hesitate to contact me at the above number and / or email address.

Thank you for your time,

Yours sincerely,

Fran Martin
Senior Lecturer Primary Education (Geography)

✂-----

Name of school _____

Having read a brief outline of the purposes of the research project into Primary Geography Teaching **we are / are not*** happy for Fran Martin to conduct her research during the course of the academic year 2000/2001 with the following beginning teacher:

Becky

Reception Class

We understand that Fran has given her assurance to withdraw if her research had an adverse effect on the working of the school in any way.

Headteacher _____

Signature _____

Date _____

Please feel free to add any comments below:

Appendix 18: Biographical questionnaire

What type of degree do you have? BA / BSc Year qualified? _____

What is your degree in? Main subject _____

Subsidiary subject _____

Do you have any other qualifications you feel are relevant? _____

If you are a mature student (i.e. have not gone straight from school to university to present course) what career(s) have you pursued since leaving school / university? (This includes parenting).

What is your attitude towards teaching geography now, as you embark on the PGCE course?

extremely positive	very positive	positive	neither	negative	very negative	extremely negative

Please explain this briefly _____

Appendix 19: Pilot study results

Pilot Study to investigate the use of concept maps as a means of eliciting conceptions of geography

How were the concept maps administered?

During 1998-1999 the use of concept maps as a means of eliciting students' conceptions of geography and geographical education were trialled with two of the four groups in the PGCE primary cohort. One group was focusing on learning to teach children aged 7-11 (Later Years/LY, n=15) and the other on learning to teach children aged 3-8 (Early Years/EY, n=20). Both groups were asked to make a concept map in their first primary geography session. They were taken through the same process:

1. Tutor provided definitions of concept map, nodes and links (Ghaye & Robinson, 1989)
2. Emphasis was placed on the purpose of maps as a representation of their view *at that moment in time*. Therefore no 'right' answer was expected.
3. A group concept map was constructed for 'baking a cake' to ensure understanding (following advice by Jones & Vesilind, 1995, and Caelli, 1998).
4. Students constructed their own maps. Here there was a variation between the two groups: EY were asked to construct a map for Primary Geography, LY for Geography.
5. Students were asked to write brief biographical details on the reverse - name, age, qualifications, relevant experiences, attitude towards geography.

What conceptions of geography were revealed?

The first analysis used the 'eye-ball' technique of looking at each map in turn to gain an overall impression of ways in which geography is conceptualised. This enabled some broad categories to be identified within and between groups.

EY conceptions seemed to fall into three categories:

- **factual, knowledge-based** (7 students) where nodes are all to do with knowledge and links show unproblematic, one-dimensional relationships between them
- **more process-based** (8 students) where nodes focus mainly on knowledge but the links between them reveal a view of geography being an active process of investigating / exploring the world about us. The links are also more tentative for some (questioning) and indicate a more complex relationship between nodes
- **more child-centred view** (5 students) where all maps mentioned children in a node apart from one which had a teaching technique (mind-mapping). Of these, four of the maps had links which showed children as active investigators while one map showed them as passive receptors of knowledge. Geographical issues are mentioned in either nodes or links.

LY conceptions also fell into three categories:

- **knowledge-based** (5 students) in which the map seems to be an attempt to show everything remembered rather than a conceptual / organisational framework. [*Cohen & Manion (1994) make a point about concepts - that they are limited in number as opposed to the infinite number of phenomena they are*

Appendix 19: Pilot study results

used to explain (p.17). A possible explanation for these maps may be that they have not yet developed overarching concepts for geography. On the other hand the task may not have been explained very well!]

- **knowledge-based with some focus on process** (6 students) in which nodes are predominantly to do with knowledge but processes are evident in rather one-dimensional links
- **process-based view** (4 students) with an emphasis on geographers, investigation and a complex relationship between links. Geographical issues are mentioned in either nodes or links

In terms of the variation between groups it appears that the LY group has a conception of geography which focuses on content whereas a greater proportion of the EY group have a conception which is more complex and equally balanced between knowledge and processes. This could be due to the variation in task (Primary Geography / Geography).

The second analysis made a tally of the terms used in the nodes. The most common are shown in the table below.

Node Term	EY	LY	Total	% of students using term (n=35)
Physical features (rivers)	12	18	30	86
Places (towns, countries)	13	14	27	77
People	16	11	27	77
Environment	16	10	26	74
Weather / Climate	13	10	23	66
Mapping	13	7	20	57
Local	15	3	18	51
Global	9	6	15	43
Locations	1	4	5	14

This presents a view of geography which encompasses the physical and human elements of environment, place at local and global scales and the spatial element. The table only serves as an indicator of the *knowledge* aspect of geography because, for most students, concepts, skills and values were shown along the links.

Appendix 20: Instructions for concept mapping exercise

USE OF CONCEPT MAPS TO ELICIT STUDENTS' CONCEPTIONS OF GEOGRAPHY AND TEACHING

Introduction

Group construction of a concept map for 'Baking a cake' in order to:

- explore the nature and purpose of concept maps;
- introduce the terms nodes, links and hierarchy;
- develop knowledge & understanding of how to construct a concept map - identify nodes, place in hierarchy, link with arrows, label links
- stress that a concept map represents ideas *at a given moment in time*, there is no 'right' answer. Each time a concept map is constructed for the same topic it might come out slightly different. The main thing is that it serves as a learning tool - to promote discussion (by comparing with peers' maps, conceptions of geographers) about meanings / understandings and possibly to aid development of a common language

Instructions for each group

1. I am going to ask you to do a concept map for geography. I have provided the first 9 nodes:

Geography - Environment - People - Places - Local - Global - Mapping - Climate - Physical Features

Cut these nodes up and start to arrange them in a hierarchical way on your sheet of A3 paper. DON'T stick any of them down at this point. Geography will go at the top, and then you can decide which concepts follow - you may add your own nodes using the remaining labels. It may be helpful to think of the hierarchy showing the most general concepts at the top leading to the most specific concepts at the bottom.

You do not have to use the nodes provided, or you may wish to use them but alter some of the concept names.

2. Once you have achieved an initial arrangement of the nodes, use a pencil to draw lines between the concepts that seem to be connected. Write on the line a short explanation of the link. Use arrows to show which way the link goes. Different links can go in both directions for any pair of terms and

Appendix 20: Instructions for concept mapping exercise

there can be more than one link in any direction. There does not have to be a link between terms.

3. Once you are happy with the position of your labels and the way you have linked them, you may stick them down and go over your explanations with black pen.
4. Now select three of the concepts shown in your nodes - you will probably find it helpful to choose ones that you know most about - and turn over your sheet.
5. Place your selection in the three boxes in the first column. These can be seen to be geographical concepts that might be taught in schools as part of the geography curriculum
6. Spend some time thinking *HOW* you might teach this aspect (column 2 - What methods would you use / How would you teach this?)
7. Now consider *WHY* it is an important topic for pupils to learn (column 3 - why use this method? and what would be the gains for the children?)
8. Finally, on a separate sheet of A4 paper do a concept map to show the relationship between the 3 concepts of Pupil, Teacher and Content.

i **Concept maps** are a means of revealing what is understood by the learner - the concepts and relationships between them. They do not 'test' what has been recalled or remembered, they indicate what meanings students have attributed to the content acquired (Ghaye & Robinson, 1989).

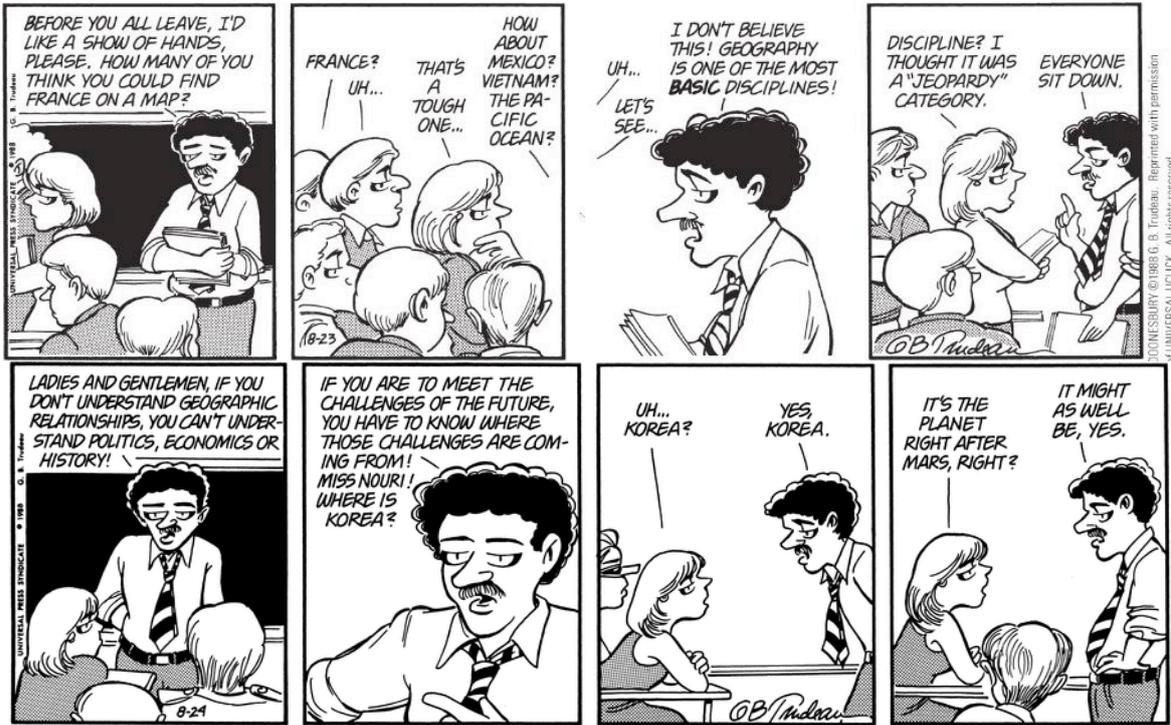
'A concept map is a way to represent the structure of knowledge' (Novak, 1995:79). Since the meaning attributed to the concepts are unique to the individual, concept maps also reveal the cultural / social context within which the knowledge structure was formed.

ii **Nodes** are a means of showing what concepts/ideas a person holds about a given topic, while **links** show the relationships between them (Ghaye & Robinson, 1989). Concepts shown on the nodes are **hierarchical** (Novak, (1995) and can therefore be ranked from the most general, inclusive concept to the most specific, least inclusive.

Appendix 21: Guardian Cartoon – The Place of Geography

THE PLACE OF GEOGRAPHY

Doonesbury by Garry Trudeau (The Guardian, August 1988)



The nature of geography

PGCE student: *Geography is what geographers do*

Geographers make sense of the world through undertaking geographical enquiries. Geographers enquire about the human and physical elements of places, how they interact and the effects they have on each other. Geographers look for patterns (e.g. how things are spatially organised on the surface of the earth) and processes (e.g. how environments change) and offer explanations for these. They examine connections between people and places and consider human motivations and their impact on the environment. Geography is therefore also about being critical of ways in which information is presented – challenging stereotypes, detecting bias and so on. Geographers recognise the dynamic nature of the world, they show an appreciation and concern for a variety of environments, people and places and they recognise individual as well as collective responsibility.

They use a range of tools to support these enquiries – mapping, fieldwork, and interpreting a variety of secondary sources including photos, satellite images, CDROMs and so on.

Appendix 23: Stimulated Recall Interview Schedule.

Questions about conceptions of geography	Notes
1. At the time, did you feel you were able to represent your conception of geography successfully? Explain / Justify PROMPT: Sitting where you are now, what do you think was going on in your head at that time - what thought processes were you going through?	This question comes after initial 'warm-up' chat and time given to look at concept map 1.
2. I notice that you have / have not included reference to ...[location, changes/geographical processes, interactions between the physical and human elements of geography] Can you explain this?	These questions were designed to check for (a) researcher's interpretation and (b) extent to which concept map reflects conception.
3. There is very little / no reference to geographical enquiry, investigating through fieldwork etc. Why is this?	
4. Looking at your map, is that how you see the subject? Justify. When you were thinking about how to organise your map, what choices / alternatives did you consider? (Hierarchical or not?) What reasons did you have for the choices you made?	Question(s) about concept map's structure
5. These are definitions of geographical persuasions (show student definitions on paper) - if someone was judging your concept map, which persuasion do you think they would say you are? [if different to my classification pursue] ... I have put your persuasion as x because.. would you like to comment?	Checking for student's perception of persuasion and validity of researcher interpretation
6. Did you have any particular feelings about doing the concept map?	Question to allow student to discuss whether affective factors were impeding cognitive ones while doing the map
7. In your second concept map, what have you changed and why? To what extent do you now feel you have been able to represent your conception of geography successfully? Can you say why your conception has changed in these ways? / Has anything fundamental changed [PROMPT: persuasion same/different ?]	Eliciting student's perception of what has changed and why.
8. You said that you felt x when doing the first map. How did you feel the second time?	Any change in attitude – towards subject / concept mapping as a technique?
Questions about conceptions of teaching, learning & nature of knowledge	
1. Can you say why you thought you would teach [x] in that way?	These questions enabled student to elaborate and researcher to validate interpretations.
2. Could you explain why you have represented teacher / pupil / content in this way?	
3. I notice in your concept map [for T&L] that you do not show that pupils are able to choose the content. Why is that?	
4. Here are definitions of 4 theories of teaching and learning. Which category would you put yourself in? Please justify your choice. [I have put you in ..x.. - discuss if different]	
5. If you were going to teach [x] now, would you still choose	Changes in conceptions/

Appendix 23: Stimulated Recall Interview Schedule.

<p>to do it in the same way? Please explain. Would that place you in a different category now?</p>	<p>underlying beliefs?</p>
<p>6. What is your favourite subject to teach? Can you give an example of how you would teach something from that subject? i OR choose something that you did during SE1 that you felt was successful. Describe how you taught it and why you thought it was successful. What were the gains for the children?</p>	<p>This question enabled exploration of whether a student's apparent conception teaching was subject specific.</p>
<p>7. Here are 3 statements that offer different ideas about the nature of knowledge. Which of these most reflects your conceptions of knowledge? What do you understand by the term 'knowledge'?</p>	<p>Exploration of fundamental beliefs about knowledge and therefore what is valued and ideology reflected.</p>

Appendix 24: Pilot of classroom observation schedule.

Student:

School: small village school on Welsh borders

Date: 9/2/00

Time: 2.30 pm

Number of pupils: 32 [6 in smaller group]

Year group: Y2/3

Focus of lesson: Recycling / decomposing; litter solutions

Observation notes on consecutive pages

Appendix 24: Pilot of classroom observation schedule.

Notes made during observation.

[*Words in italics*] = description of what is happening

Time	T = teacher P = pupil	Interpretations / questions
2.30	<p>Introduction <i>[Children note bonfire outside and how it pollutes.</i> <i>Focus on vocabulary – word beginning with ‘p’ for damaging our environment Reinforcement of pollution types]</i> T: gas which leaks out from rubbish P: toxic P: Nuclear Power T: methane – very dangerous gas from land-fill sites. <i>[other pollution?]</i> P: Farm chemicals T: Farmer sprays vegetables with pesticides ... what happens? <i>Pause.</i> If it rains? P: Pesticides go into the ground then the river the sea, up into the clouds, it rains and goes into the rivers again and we drink it. T: You were talking about the water cycle weren’t you? T: How have we polluted our environment this lunchtime? P: Crisps ... packet <i>[T looks at examples from the bin]</i> T: If it’s in the bin you’re not polluting are you? P: Oh yes you are! It gets tipped at the rubbish dump. T: So we’ve done our bit but then it just gets tipped in a bigger bin. <i>[discussion of this process]</i> T: What happens to wrappers at the rubbish tip? P: It’s buried. It rots. T: Would they rot away? P: No, makes acid P: Gas comes out T: They don’t rot, they stay there for a very long time. What about apples?</p>	<p>Relating the topic to concrete experience</p> <p>Clear focus on subject specific language which continues throughout the whole session</p> <p>Questions move from those that demand factual recall to those that require explanations (i.e. higher order questioning)</p> <p>Could have used this as a hypothesis – x says s/he thinks it will rot. Who thinks the same? How can we test it to see if you are right?</p>

Appendix 24: Pilot of classroom observation schedule.

<p>2.45</p>	<p>P: That would rot away. T: Decompose</p> <p>Instructions for activity T: We're going to do these worksheets on Our Lunch Litter. What did you have for lunch and what's left over from today? <i>[List on board – 2 columns with no headings but representing bio- and non-biodegradable]</i> T: What could we do with some of this rubbish? P: Recycle it T: Yes, recycle. If we wanted to do this what could we do? <i>[Recycling bins. Discussion of whether we can recycle things other than wrappers etc – i.e. apple cores etc. Pupils make several guesses, not along right lines]</i> T: Some of you might have one in your garden. P: Compost heap T: Victoria said compost heap & that's where you can put these things and they'll rot down.</p>	<p>1/4 hour spent on intro before instructions – about the right amount of time if pace is going to be kept up.</p> <p>Could you have provided / asked them to suggest suitable headings?</p> <p>From this point the pace began to wane. Perhaps some direct teaching would have been appropriate? In other words, tell them that the worksheet is a way of them recording how they would sort their lunchtime rubbish (linked to their predictions/hypotheses above).</p>
<p>2.58</p>	<p>Special assembly – all children except one group go</p>	
<p>3.00</p>	<p>T: I've got a big bag full of rubbish – crisp packets and so on to take to the recycling centre <i>[shows pupils]</i> T: I've got another bag full of <i>[produces bag with examples of food waste – shows to children and then gets ready made compost in large tray/plastic box. Much talking by children]</i> T: Look at other things in here <i>[compost]</i> leaves, grass, twigs. Look at how this has nearly decomposed – just the veins are left. These bugs are doing ever such a hard job</p>	<p>Given that, in your interview, you prefer active learning methods why did you choose to do this as a demonstration? <i>[This is not a criticism! I am just interested].</i></p>

Appendix 24: Pilot of classroom observation schedule.

<p>3.15</p>	<p><i>[Children gather round table looking in and discussing, making observations about what they see. Then all go out to look at the rotting pumpkin outside another classroom]</i></p> <p>P: It's rotting P: Melting P: These are from Halloween T: Look at the difference between the seeds and the flesh – it's decomposing. Back in class to collect compost tray and food waste and take outside. Rest of class join group and watch T put food waste and some wrappers in the compost. T: I'm going to put some more leaves on top.</p> <p><i>[Back in the classroom, recap on what was done with the whole class]</i></p> <p>T: Somebody from this table tell the others what helps these things to decompose, break down. P: The bugs T: Micro-organisms. Micro meaning tiny and organisms, living things. T: We'll have a look at this tomorrow, after the weekend and so on and see what's happened.</p> <p><i>[Finish]</i></p>	<p>They are very interested and your open-ended questioning encourages them to make detailed observations.</p> <p>Why did you take them outside at this point?</p> <p>When the rest of the class joined it made it rather difficult to manage! In an ideal world, what would you have done / how else would you have conducted this activity?</p> <p>Good strategy to get them to do the talking.</p> <p>Further use of subject specific language. Could have asked for predictions here – when will it start to rot? What will rot first? Etc.</p>
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Appendix 25: Letter to students inviting to take part in school-based phase of research

MEMORANDUM

TO:

FROM: FRAN MARTIN

SUBJECT: REQUEST FOR YOU TO TAKE PART IN NEXT STAGE OF RESEARCH

DATE: APRIL 7TH 2000

Dear all

Yes! It's that time again. Now that my mega-busy teaching time has come to an end, and your next block school experience is not far away, it is time for me to start thinking about the next stage in my research project.

Having done a brief trial during SE2 (■■■■ will tell you all about that!) and discussed things with my supervisor, the tentative plan at the moment is as follows:

1. Observe those of you who have the opportunity to teach geography 3 times over the block
2. Discuss your planning and teaching for about 1/4 hr before each observation and about 1/2 hour after each observation (possibly tape-record the post observation discussion)
3. Collect other forms of data such as medium and short term plans
4. After the block experience has ended, do a final, tape-recorded, interview where we discuss how you feel you have developed as a teacher of primary geography, what the key factors that have enabled / impeded your development have been etc.....

Clearly this involves commitment on both our parts. As mentioned before, I will be committed to conducting the research in a way that is as supportive and unintrusive as possible and will, when writing up, ensure confidentiality etc. You will need to commit more time to being observed and discussing your teaching than might have otherwise been the case, but this should be beneficial rather than not!! In the post observation discussion, once we have explored how and why you did things I will offer any thoughts / advice I can for enhancing what you are doing.

In terms of the practical aspects could I ask you to do the following?

1. Let me know as soon as possible if you would like (or can – given that geog might not be on the timetable!) to continue to take part. I am in college Mon – Thurs next week and have a timetable on my door if you want to come and find me to chat about this.
2. If so, I would like to seek formal agreement from your school and so will need the names of the head teacher and your class teacher – I would like to be able to write to them before the end of this term.

Appendix 25: Letter to students inviting to take part in school-based phase of research

3. At the beginning of next term, have a look at your timetable and start thinking about when it would be appropriate for me to make my visits – I realise that I will have to be flexible here!! It would be helpful for me to have a rough timetable, though, so I can fit in with other college commitments.

I think that's all for now, other than to say thank you for the support you have already given me. I must admit that I have let things fall by the wayside a little bit this term – mostly because of heavy teaching timetable – but I have done an initial analysis and write up that has been presented at a research seminar which I have enclosed for your interest. It was favourably received, so I think we are going along the right lines!

The interview data has been transcribed but not properly analysed – I am having training this week to use a computer analysis package called NUDIST (!) which should help. This will probably feed in to aspects that we focus on during SE.

Thanks again and, if I don't see you before, have a good Easter.

So the first question is that when you look at that, and as much as you can remember from doing it at the time, which I realise is quite a long time ago now, did you feel that you were able to represent your conception of Geography to your satisfaction?

5 Not in the sort of simple diagram that I thought you wanted, I was trying to get three elements, these three elements, Environment, Place, People, and to show how they totally relate to each other, but introduce all the other aspects of scale, processes and things. I just couldn't do it simply, so I kind of used a model that I'd seen before, this kind of circular thing, I was originally going to overlap them but I couldn't get enough links between them.
10 I couldn't be specific enough about some of the things, which is why I spread it out, does that make sense?

Yes it does. Lets go to this, is that where you started then, looking at this relationship here?

15 It's not where I started drawing but that's where my thoughts started, I think.

Where did you start drawing?

20 Here. This is where my thoughts started.

OK, lets go with that one then, why did your thoughts start there, what was going through your head?

25 Well I was drawing on previous things I'd learnt, specifically a module that I'd done, .[unintelligible] Society, and to me that kind of captured what Geography was about, because I say that whether you were a human geographer or a physical geographer that could answer everything. I thought that was Geography in a nutshell, but it wasn't detailed enough.
30

Is that why you've got these arrows going in both ways, throughout that circle as well?

35 Yes, because when you wanted me to amend it, there were issues to do with power, that I was talking to somebody about, and I didn't know how to make it clear, for example people with more power might live in a place less affected by the environment, i.e. not on a floodplain or something like that, they would like somewhere a bit more secure. I can't answer why they might live on a fault line, like in California, but there's all sorts of, do you know what I mean, there's all sorts....

40 *That might be because of social and cultural issues might be more overriding than the environmental ones, in their minds.*

45 Yes, but in one way or another all sorts of people interact with a place or even modify the place, which might even modify the environment, which in turn might effect the people that live there and so it goes on.

So then having established this sort of thought in your mind, how did that then move out to relate to these two here?

50 This was to try and make it a bit more specific, to sort of split this up into physical and
social. I was just trying to be a bit more specific about these things. I didn't put power on
here but I suppose I should have done. Both of these had their own processes, physical
processes and social processes which occurred at different scales, which in turn had
55 different effects on these, so you could either look at that on a micro scale or a macro
scale.

*From somebody, like myself, coming to it, and not having insight into those things, when I
looked at this it seemed as though you were saying that processes were central to anything
60 that was studied in Geography, that you might see that as being a central concept, if you
like, would I be, would that interpretation be correct, or.....?*

I don't know, yea, I didn't really want to make processes, you know like these models that
people come up with, because I didn't see, I don't agree that you can have a model that
represents everything, it's bound to miss something, but I, no I don't think it's central. I
65 think what I was just trying to say was that somehow these make a process or pattern, even
if it's short-lived, or even if it's not a global pattern a pattern occurs that effects all three of
them. They're all part of a process, or several processes at the same time, I don't know, it
was very difficult to do, I thought, this task.

70 *I'll come to that, well no let's move on to that, in fact. One of the questions I've got is that
as you were going through this process, how were you feeling?*

Well originally I thought it would be all right, and when I remembered this model that I'd
seen I thought 'this will be easy' and then the more I looked at the harder it got because I
75 found it more difficult to make it clear exactly what I was thinking. Or even how to place
them in some sort of order of importance, which I obviously didn't do if you thought that
was more important. I was trying to get the cyclical effect, that everything relates to
everything else and effects everything else. And that's why it got more difficult.

80 *I guess I just thought about that one, not that I had any [unintelligible]. but because that
was the only one that linked with the overall term so my perception was that Geography is
through that, and then sort of goes out to all of these others, but that was the sort of thing
that it was enacted through, if you like.*

85 I suppose what I was trying to say was that these make up the processes.

*Because if I asked everybody to represent their perception of Geography in this particular
way, if you were able to choose a different way, would you?*

90 I don't know now, if you had asked me before having done these I might have thought of
something, but since then I've thought perhaps this is quite a good way of doing it, even
though I found it difficult, so I don't know, my judgments clouded now.

It was the sort of inter-relatedness that was ...?

95

Yes. I thought at one point that perhaps I knew too much.

That is a danger.

100 It would have been easier had I not.

Try to stick it all down, represent it in one way or another. I felt that when I tried to do it, I end up with this big mess of paper. What about the structure, the way it's represented rather than what is represented there. I think that when I was giving the instructions right at the beginning I suggested that people could, if they wished to, put it in a hierarchical thing but you've chosen something quite different to that. Would you like to talk me through, we've sort of touched on it, with what you said, but talk me through why you chose to represent it in a different way?

110 Well I was going to try and do it in that hierarchical kind of way, but then I decided, that's when I came to my first dilemma, I couldn't place it in any kind of order, because of each of these; elements, environment, places and people I couldn't put one above the other.

And you wouldn't have wanted to put them on a level?

115 No I didn't want to put them on the level because I wanted to show this effect and that's why I decided that perhaps the whole thing should go in a circle, well it's not really a circle but that was the idea.

120 *Looking at it now, do you think that's a representation, it might not be 'the' representation of your view but you would be happy with it as one way of representing your view?*

Yes, I think so. When you asked us to amend it I couldn't, I couldn't really add to it a lot, although it took me a while to try and remember what I meant, I think I did add something, no I think it's valid for me.

You haven't represented on here, the sort of the spatial aspect of Geography, and I wondered why that was? Because for some Geographers, some, it would be about noticing patterns in the way things are spatially distributed and whether there was equality and so on and so forth?

Well I was trying to, this was supposed to try and do that. Because this could be a particular place or a region, it could be as big or as small as you like, which, I think I was trying to do that.

135 *But there's a distinction to be made between scale or study and looking at things in spatial patterns.*

140 I was trying to get, maybe that's, perhaps I meant it more patterns, I did steer clear of patterns because I thought patterns were a bit, patterns are a bit transient, fickle things. But yes, I hadn't excluded, I think between these two I was still trying to cover everything.

Between processes and scale.

145 Trying to say that these could make a pattern or a process, perhaps I should have put pattern, I know that could be seen.

150 *And perhaps it would be difficult to represent something that is constantly changing? I have the same question about the active, investigative, all through fieldwork type of view of Geography as well. That in my interpretation didn't appear to be represented here?*

No you're right, I neglected that. I didn't think of that at the time. What about how we investigate these things?

155 *Yea.*

I didn't think of that.

160 *Don't worry about that, it might be a product of how I asked the question.*

It might be a development from that, say these are your thoughts so how would you go about finding out.....

165 *Or how would you go about teaching it as well? You may or may not have seen this before, I don't know, but another thing that I did, having looked at everybody's maps and thought about the four broad categories, I then looked at somebody else's definition of different geographical persuasions, and I wondered if somebody came along and looked at your map where would you think they might place you, along here?*

170 Probably, looking at it they might say people and environment, the environmental persuasion, but I think I was probably going for more of a, I hope they would see more of this persuasion, only because those are my, I'm more bent towards that, so I would assume that anything that came out would, but maybe it wouldn't, on second thoughts, looking at it people might say it was more towards that.

175 *Well I looked at it and said that it was those two. I didn't put it down as, because although it's mentioned there I actually picked up, when these links all through here, so I picked up more or a humanistic welfare position, but I also had that one down because, and again this was just my interpretation, I was picking up on the processes aspect and the scientific approach to, this is something that can be measured and we can look at the change, and then we can have some thoughts about it, that was my interpretation as well. Although clearly it wasn't shown as a hierarchical, but there was an element of physical and human aspects being separate there as well.*

185 That's why I chose this one, because of environment interactions.

Well I have to say I had that one as well.

Plump for the middle one then.

190 *Yes, because that's where you personally would stand?*

I think so yes, that's where, my values are more in there.

195 *So if we compare that with the second time around, would you like to talk me through what went on when you were given the opportunity to have a look at this and think about whether you wanted to change it in any way?*

200 Oh yes I added .[unintelligible] didn't I, I was trying to be a bit more specific I suppose, following my chat with somebody, well I was trying to explain my thing, they were asking me about it and I was just trying to say that these were factors that would effect the value that people would place on a particular place, or power that people would have, and that would effect their interaction with the environment, or..... So I was just throwing the issue of power in there as well.

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And illustrating along those lines, a bit more what sort of relationship you were talking about?

210 And here also I was thinking of, still I suppose I didn't say anything about power, if a particular place was particularly powerful or dominant, say for example that Birmingham and the car industry was once powerful and affected it's own links on a global scale and also nationally links on a global scale, but since other places have become more powerful and so Birmingham has lost it's position, or become unsuccessful or whatever, and so that changes but it affects that and also what's happening at this scale also affects different localities. Not always to do with power, it could be economics and stuff like that. I was trying to show that as well.

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So if you had to sum up what was happening to your conception between that point and that point, what would you say?

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I suppose I was trying to make it a bit more, just clarifying.

So your position hadn't changed?

225 No I don't think so, it's just that when you gave it back to me I thought 'ooh I don't know if I could understand, or remember' so I thought that must be tricky for anyone reading it, who didn't even know what was going on in my mind, so I was trying to be a bit more specific.

230 *If you were to look at the ten weeks, split with three weeks in school, what would you say would be the aspect of what we did together that created the greatest learning for you, because you already had a position in Geography? Always assuming there was some learning going on of course!*

235 Say that again?

Over the ten weeks that we had together, what was the, was there a learning curve for you, and if that was the case what was it to do with?

240 There was definite learning, I think on how to share, no perhaps not share, I don't know if it's right to share your learning with pupils, maybe how to teach them, teach pupils to investigate their own values through the village task thing, I thought that was really good, because you could build on that, to think about the village location, and also the think that a wider scale would impact on it. And if you liked I suppose you develop that into looking at specific things, so I thought was a really good way of developing geographical knowledge, if you like, which I hadn't really thought about. I'd thought that teaching Geography would be, I suppose this is how we were taught it, I think I learnt what was

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250 called regional Geography, we did the whole of Africa, country by country, average rainfalls, crops, imports and exports, that sort of thing, I didn't learn anything about how they affected each other. And although I still think, well I thought that perhaps that still happened to a certain extent, but perhaps more with an environmental bias, just because that's societies answer to change, but I still thought the approach would be more like that, rather than going for value....

255 *Thank you. If we have a look at these, just choose one of those and I'm going to ask you to talk about it in a little bit more depth.*

I won't choose that one, because that was almost an afterthought.

260 *So reminding yourself of what you wrote could you say why you chose these teaching methods, why you thought they might be appropriate and so on?*

I cheated a bit because I saw something in one of my first experiences in a school, before I started the course, I saw something along these lines.

265 *So this was observing somebody else teaching a Geography lesson?*

Yea.

270 *At what level?*

Must have been Keystage 2, top of Keystage 2.

275 *And did you, while you were observing it, did you feel that it was an effective lesson?*

Difficult to say because I was shadowing this pupil who had slight behaviour problems and the school had just used me as a resource to help him along, so I didn't really, I wasn't really involved in the tasks as such, I was just keeping him on task. But I saw that they were doing that and I thought....

280 *I asked that because I wonder whether choosing it was a matter of selecting something you had seen before or selecting something from a range of something's and that one because it was more effective than the others?*

285 Yea, no, it was always because I had seen it before, I suppose, I don't even know if it's a particularly useful thing to learn, no it is.

290 *If you were to be a bit more specific, there might be many ways in which children could investigate changes over time in a particular place, what exactly might you ask them to do?*

Well I would have got them to collect their own statistics, through field evidence, or even secondary data, current secondary data, and draw on that, or look at a current map and compare that with older maps and older statistics. Obviously they could do that, and through photos and things, just to get a feel of it. I suppose what I haven't said, which would have been quite good is to look at personal accounts, perhaps how ways of life in that place had changed.

And possibly link that to shifts in population and movement, that sort of thing as well.

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I think that's where I'm going when I say developing awareness, because I was thinking of my own town, I did a small study when I first started my degree and it just got me to think, it was a very small place and it was built up around the salt industry, that has since died away and it's basically a commuter village, with lots of people that don't know anybody, me being one of them. But just while I was trying to find stuff on it useful things were personal accounts, and even just chatting to a few shop owners who'd run their businesses pretty much since the High Street development. They had lots of knowledge about why things had changed and the changes that had taken place, that was quite good.

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That helps to illustrate the more dry, quantitative information.

Yea, gives some sort of meaning behind, there's more people, more roads and why and what does that mean to people. I think that's why I started saying is that a useful thing to learn and then I said it is a useful thing to learn, because then I think it leads in to people having appreciation of, if they are in a position of power and they made some sort of decision that affected a place, and I think that to me is more important, that people realise that their actions will have a reaction, and it will affect people's way of life. So that's more important than just looking at these kind of things, as you say it's just dry otherwise.

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That's reflecting your persuasion really isn't it? Not value laden, but focusing on the values element, that's value laden as well....

That is value laden and that's why I was saying I'm not sure whether I should share my values in that way, because I'm biasing, it's a difficult one to know what to do, because obviously I've got my own values and that might affect how I teach, I might be that I focus more on these things, than on these things and so my pupils may never get this, or even this kind of persuasion about Geography.

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Unless being aware of that you made a conscious decision to provide a balance and provide an alternative.

Which I think would be difficult over time, I may start off with the best intentions, but over time, or I may be forced through legislation to knock that on the head and the curriculum might be saying do that.

335

Having a look at the contact .[unintelligible] teacher, just remind yourself of what you put, and perhaps just talk me through why you chose to represent the relationship between those three elements in that way?

340

I'd seen something similar as well.

Had you.

Yea, not to do with this but the monitoring and assessment sort of thing, how it feeds back into your teaching. I just think these kind of things are useful to show that nothings dominant .[unintelligible], OK so the pupil demonstrates through his or her work, their knowledge and understanding of a particular subject, which the teachers understood and

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350 delivered. There ought to be some stages here, maybe I should have numbered these. Yes, so the teacher initially understands and delivers something, which the pupil receives or knows already and by knowing it, or having learnt it they demonstrate their knowledge and understanding of that. Teacher reflects on that [unintelligible] what they have monitored and assessed that will in turn affect the future content.[unintelligible] Does that make sense.

355 *Yes it does. You mentioned about choosing a cycle, rather than another way of showing it, but you liked that, if I interpreted you correctly, you liked it because it showed no one aspect was more important than the other, is that*

360 In this case perhaps not necessarily importance, but more the fact that, lets say the teacher starts off knowing the content but not knowing the pupil, initially, but then gradually as this feeds into the pupils then the teacher gets a better understanding of them, so that affects. I'm just trying to show that none of them are static, and so whatever the feedback from the pupil is it affects the content that's delivered, or even affects how the teacher delivers things, and the relationship between the pupil. I'm just trying to show that any
365 change in the three categories will affect the others.

So if I was to ask you where does the control lie in that relationship, in terms of the learning that you hope is going on in the classroom, what would your response to that be?

370 The control ultimately lies with the teacher, rightly or wrongly, but it probably does.

Why do you say rightly or wrongly?

375 Well because perhaps, I haven't really looked into this very much but I'm sure there's an argument somewhere that pupils are thought to be in control. If you like I'm an example of this because at the moment, as a pupil here, I'm supposed to be, to some extent, in control of my own learning, through this profiling. And I notice that, I've just learnt, yesterday, that profiling is going to become a bit more prevalent throughout the whole UMS scheme, and if that happens, who knows if could filter down to secondary school. I suppose I'm not
380 just talking about primary pupils here, and I don't know how useful it would be for them to be left in charge of their own, that was another thing, my mentor was telling me about, in days gone by, in the 70's, that there was a situation when they set targets for the week and pupils just had to meet those at the end of the week but they could it however they wanted, in any order. I forget the name he gave this system, but it was that kind of thing where the
385 pupil was in charge of their learning, if you like, and that I suppose is the one end of the continuum to the other where the teachers take control.

Being in control isn't necessarily the same as being in charge though, or controlling isn't necessarily the same as being in charge.

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No, I suppose so. I think the teacher does, to be honest I haven't given it much thought but that's why I say rightly or wrongly, I think the teacher at the moment, in primary education is more in control of the pupils than I think the pupil is. I don't know whether the pupil should have more control or not, I haven't really given it much thought until now.

395

I did a similar thing with these as I have with the geographical persuasions, so can I ask you now to look at those theories of teaching and learning and say where you would place yourself?

400 These are new to me.

They're not mine, I've taken them from somebody else.

Sorry what do you want me to say on them now, you want me to

405

Would you place yourself in any of those, do you feel like any of those is representative of what you think teaching and learning is about?

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I certainly don't think it's about transfer theory, there are aspects of all of them though, to some extent. I think there are some aspects of modeling but I wouldn't go as far as to say that with teachers there is always the model I'm thinking of informal and formal teaching and learning, if you like and when I say informal I'm thinking of this knowledge of .[unintelligible] constructed, and that you don't just learn in the classroom, and perhaps we're going more with the growing theory, but I like some of the bits of shaping and traveling, but there are aspects of modeling. I'm not sure if I've got this one right but sort of a little bit like transfer, but it's more you're traveling along and picking things up as you go along.

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Yes, and my interpretation of this one is that the knowledge is still out there and given, but the pupil is able to explore it and say 'I want to nip off down that road, that looks interesting' or 'can we go back to where we've just come from because I really like that and I want to stay there a bit longer' sort of notion, but the transfer theory wouldn't allow for that.

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Perhaps this thing here, developing personally, could incorporate those aspects of this one, the teacher as a resource provider could be the modeller and developing personally could be the traveling, if you like.

430

How would 'teacher as resource provider' be the same as modeller?

Well I suppose the modeller is the resource.

435

Cos here, the pupil is the thing that the teacher is modeling, so the teacher has a view of where she or he wants the pupil to be, what sort of knowledge and understanding and values, whereas this one allows for the pupil to develop that according to their own perceptions.

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I think I'm going to go with this one, but I'm not going to rule out these because, depending on your personality, you will be modeled by those that you respect. I think subconsciously you will model yourself to things that you think are right, or good, or you think are effective and efficient, you'll think OK I'm going to take that on board and so to some extent you've been modeled, by whoever that person is. And whether that's been done explicitly or you've just picked it up, absorbed it if you like. I wouldn't like to go for something that says no we mustn't model, in that kind of active sense, so I think I'll go for growing.

445

450 *When I did you I had you in these two here, and what stopped me from, because I thought there was a little hint of growing theory as well, but what stopped me from adding that, because I haven't, I think it's quite possible to be in more than one, depending on the purpose for whatever it is you're teaching, was here I was concerned about the pupil receiving content, because that to me didn't have anything to do with growing and so it seemed as though there was something in the concept that was a little bit at odds with other stuff that you had said here, and that that, in the way that I interpreted it was a notion of 'here's a package of content' and passing it to you and you are going to receive*
455 *it.*

So I should then, no I can see why you've said that. Understands and delivers, or provides....., it 's how the pupil takes this on board.

460 *Yes, because had I written an explanation along there I might have put interprets.*

Because that implies that they will receive all of that.

465 *Whereas presumably there's going to be some sort of active bit of what's the pupil's present level of knowledge and understanding and therefore, is that going to affect the way that they take some of that on board or not, or reject some of it.*

No, you're right.

470 *That's the sort of thing, when you're put on the spot it's hard to come up with the right words, and here am I more than twenty years down the line and still finding it hard to come up with the right words.*

475 Well if you want me to justify that, I suppose these comments might be to do, well no, they all say, if the pupil hasn't received it then I'm assessing the things that they do receive it. Well I've changed my mind. I've never met these before, well I've met this one before, although not under that label.

480 *That's the classic chalk and taught course, transmission.*

I hadn't even thought about that when I did this actually. If you were going to ask me to do it again I would, perhaps, change it.

485 *More in that category there?*

Yes. But I can see why you thought

490 *Out of all the subjects that you may, or may not, have had options to teach so far, if I was to ask you to choose one that maybe you felt most at home with or something you've done that you thought was really successful, or what was the favourite subject, which would you choose?*

That's difficult, well I've had opportunity to teach English, Maths, Science, PE, and I don't know which category this falls into, it was in a geography lesson but I was doing it

495 more as an ICT .[unintelligible] I did more Science, I suppose I had more opportunity for
successes in Science than perhaps, but it's not necessarily a favourite subject. I enjoy it.

What's your favourite subject?

500 I kind of like all of them.

*The reason I ask is, and I'm probably going to go down the road of leading questions now,
I'm interested in exploring whether views of teaching and learning that people hold
change according to the subject, the context that they're thinking of it in. So what I was
505 going to ask, if you could think of any of the subjects and perhaps you'd had successful
teaching experience in it, whether you would like to describe what you did and why you
thought it was successful?*

510 Lets take the Science first. We were doing light, and I suppose the effective lesson was the
one where we were investigating reflections and set up an investigation, an activity, where
the pupils could measure the angles and the light reflected and also look at how many
reflections they could get if they changed the angles, how many reflections of an image,
like a kaleidoscope, and they really enjoyed that and I think that they perhaps got more out
515 of that than some of the other ones, but that was my last lesson in it, and so I was probably
well versed in all the things I needed to get across, the main concepts. The other one on
shadows wasn't too bad, but because I hadn't been explicit in some of the things I'd asked
them to do, in recording specifically, when they came to write up what they'd learned, it
looked like they were confused, but I think they perhaps weren't because of the nature of
520 the destination. So that one wasn't so successful, although I think they did learn
something. But the second one, because I'd learnt about being more explicit in my
instructions and things, it looks like they got a better grasp of it, so I got a kick out of that.
So that's why I'm saying that was good, but if I was, this is why I was saying I'm not sure
about saying what is my favourite subject, that was teaching light, which wasn't too bad, I
525 liked it and enjoyed it. But if I was still teaching Science, but on a different topic say,
molecular structure or something, I wouldn't have enjoyed that as much so if you had
asked me on that bit, my views on Science, they wouldn't have been as good as teaching
forces of light. I could probably say the same about any subject, if it was Geography and I
was teaching about mountain formation or something I might not enjoy that as much as
530 teaching about culture. The same with History, I might enjoy Vikings more than the
Romans.

*But that seems to me now, that you're saying, I know I asked the question about enjoyment
and favourite and so on, is enjoying something that you teach going to affect the view or
the teaching and learning process? Or would you still hold some fundamental views on
535 what good teaching and learning is all about, and you would apply that to whatever
subject?*

540 Yes, I think I would, and I think that's your professional responsibility, to be honest. I
don't think we could let our, that's why I was saying about sharing my values, I don't
think we can let that come in the way of their learning, the pupils have the right to have
full access to the curriculum. Which I suppose is why it's designed in the way that it is. If I
just came along and say I only like Science so you're not learning Maths, English,
Geography and History, there'd be something wrong.

545 *Which is how it is when I first started teaching.*

So, yes, I think that's the responsibility there, that I would have ethically, if not professionally. I'd still try and deliver it as well, and provide the same resources.

550 *And that would fit somewhere between traveling, growing and some kind of shaping.*

My own un-enjoyment of it would be in researching and doing the background work, it might not stimulate me as much, but I would still do it.

555 *To finish off with I've got the final list of - this is homing in on an aspect that I think crosses between the persuasion bit and the views of teaching and learning bit. Again not my words, chosen from somebody else's definitions. Have a look at those three and say where you would put yourself?*

560 This one, the liberal and progressivism exists in their head, if it just existed in their head you wouldn't be able to grow in knowledge, knowledge sharing. I think I'm going to go for socially critical.

Right, is the nature of knowledge something that you've thought about before?

565

Yea, not kind of, I didn't initiate the thought but it was through my learning I suppose. Social theories brought it on, through the examples given when I was [unintelligible] I accept the notion that it's socially constructed.

570 *Something that you said, almost at the beginning of our conversation when you were talking about this, there were certain aspects that you didn't put down because you felt it would be difficult to represent the [unintelligible] the sort of shifting nature of that knowledge because it's transient, fickle, I think, is the word that you used. Does that, is that something that you are aware of when you are thinking about, or does it have any effect on you as a teacher, in the role of teacher?*

575

I hadn't thought about it.

580 *For example would you, in your teaching, be prepared to accept that pupils might have alternative conceptions to you, and that there might not be 'it's like that or like that', and so the way in which you would construct learning situations would allow for that to happen?*

585 I'd thought about it yea, they will have different, they certainly will have different conceptions to me, but how I would go about not altering them but still teaching them, I don't know how I would do that, that's a tricky one. I'm thinking in terms of things like moral issues, that I'm going to have certain beliefs, quite strong beliefs, and they're not necessarily accepted by the rest of society. Well, perhaps not going to accept them because of their parenting, or media, it's not really up to me to persuade them otherwise, even though I believe it. You know things like religion, for example, it would be very difficult for me, as a Christian, to teach them other faiths and the validity or the worth of other faiths, without me feeling like I was undermining what Christianity about. For example, if I believe that Jesus was the Son of God, but if I didn't share that with them, but then I had to teach them about Mohammed, I don't know, I haven't come across it, but I'm aware that

590

595 that situation might arise. Or even other things, like, all sorts of things that children might experience in their family lives, abortion, divorce and things like that, which I'm going to have views on and they will have views on and they might not be the same views. These aren't things that are covered in the curriculum but they are still there aren't they.

600 *Would you put forward lots of different points of view and just give them the skills to decide for themselves?*

I think that's what I would do, yea. But if they asked me I don't think I would deny it.

605 *But why should you deny it, as long as you didn't place more value on your own position than any others, in their eyes, then clearly it would have more value for yourself.*

Yes, I suppose if I made it explicit that that was my view, and what I believe was right, but there are others, in fact I probably have done that. It's just that I know how impressionable they are, that, well I was as a child, I agreed with, well I mean who I voted for was influenced by my parents and then I got to realise that I didn't agree with them. They are impressionable at that age, which is what makes me wonder about how much I should share this with them. But I suppose if I made it explicit that this was only my view on that topic.

615

It's a tricky one isn't it, I think I'm down here at growing theory end of things, ideologically, but when it comes to the pragmatic concerns and every day life in the classroom and other sorts of external influences, there comes a time when.....

620 That's right, because if you look at here.... you do all your teaching, well most of your teaching through books and developing skills, and finding information and dealing with information and interpreting it, offering your own, so there's such a bias here, but then I suppose that also comes under the distinction of formal and informal learning. This if you like covers everything, covers learning out of school.

625

These two positions wouldn't prevent you from believing that there is stuff that exists in books, it's just the way in which you make use of it, what you would do with those ... (tape ran out)

C

- Change
 - attitude to geography, 7
 - attitude towards geography, 1
 - conception of geography, 2, 5, 6
 - conception of school geography, 6
 - conception of T&L, 5, 6
 - conception of geography, 5
 - fundamental, 6
- Component
 - physical, 1
- Components
 - all inter-linked, 3
 - environmental, 1
 - human, 1, 5, 7
 - linkages
 - all inter-linked, 3
 - physical-human, 1, 8
 - physical, 1
- Conception
 - haven't got a view of geography, 3
- Confidence in geography
 - low, 1
- Confidence in teaching
 - high, 10
- Control
 - teacher, 8

E

- Elements
 - concepts
 - cause & effect, 3, 5
 - classification, 2, 4
 - location, 5
 - skills
 - enquiry, 5, 6, 8
 - fieldwork, 5
 - mapping, 5
- Epistemology
 - Empiricism, 6, 8, 12
 - Empiricism / Pragmatism?, 9
 - pragmatism, 13
 - Rationalism, 5

F

- Factors
 - learning from prior experiences, 10
 - learning from prior experiences-life, 1
 - learning from pupils, 8
 - learning from tutor, 6, 7
 - learning from university, 2, 12
 - prior experience - classroom assistant, 12

I

- Ideology
 - liberal-progressive, 6, 7, 9
 - liberal-progressive, 5
 - mixed, 13
 - socially critical, 12
- Impact of values
 - recognition, 13

M

- Meta-language
 - the word geography, 5

P

- Paradigm
 - environmental, 4, 5
 - humanistic/welfare, 4, 7
 - mixed, 6
 - scientific, 4
- Personal theory
 - readiness, 8, 10
 - thinking, 11
 - thinking / participation, 12
 - transforming, 6, 7, 10, 12
- Preference
 - human-environmental, 1
- Prior experiences
 - negative, 2
 - strong, 1, 5, 10
- Purpose
 - meaningful, 8
 - relevance, 7

R

- Represents conception
 - no, 1, 4, 5
 - partial, 1
 - partial-fault of task, 3

S

- Strategies
 - lack of, 10
- Structure
 - all inter-linked, 2, 3, 4
 - hierarchical, 2

T

- Theories
 - growing, 6, 10, 11, 12
 - transfer, 11
 - travelling, 10
- Theory
 - growing, 8, 9
 - travelling, 8

Appendix 27: Index for Becky's stimulated recall interview 7.12.99

Appendix 28: Coding system developed using NUD*IST

Codes:

1. Conception of Geography

- 1.1 Paradigms: 111 Scientific
(Persuasion) 112 Humanistic / welfare
113 Environmental
114 Mixture

- 1.2 Components: 121 Physical
122 Human
123 Environmental
124 Linkages –
 - a) physical-human;
 - b) physical-environmental;
 - c) human-human;
 - d) human-environmental

- 1.3 Structure: 131 Hierarchical
132 Cyclical
133 All inter-linked
134 No discernable structure

- 1.4 Purpose: 141 Know about the world – people, places, climate etc.
142 Life skills – (e.g. find way around, plan holidays)
143 Relevance (e.g. Help understand the world they live in, make sense of the world; i.e. making it meaningful personally relevant)
144 Promote positive views (about other people and places)
145 Help pupils take positive action in and for people and environments
146 Other

2. Conception of Teaching & Learning

- 2.1 Elements expressed in geography
 - 211 Knowledge (ref. Components 1.2)
 - 212 Concepts – a) location;
b) patterns / processes;
c) changes;
d) causes & effects
e) scale
f) classification (ref. Patterns?)
 - 213 Skills – a) mapping;
b) fieldwork;
c) enquiry/investigation;
 - 214 Values, attitudes, beliefs –
 - a. quality of, managing and sustaining environments;
 - b. issues (pollution, traffic congestion; quality of life);

Appendix 28: Coding system developed using NUD*IST

- c. perspectives (awareness of variety of viewpoints);
 - d. equality – power – inequality; e) interdependence
- 2.2 Theories
 - 221 Transfer
 - 222 Shaping
 - 223 Travelling
 - 224 Growing
 - 225 confused
- 2.3 Personal theory
 - 231 Fun, enjoyment
 - 232 Transforming (putting knowledge into a form that helps children to learn it, e.g. into a song, play, game etc)
 - 233 Thinking (emphasis on)
 - 234 Readiness (children's stage of development)
- 2.4 Strategies
 - 240 lack of / developing
 - 241 Control – teacher / pupil
 - 242 learning objectives – clear / not clear / lack of focus
- 3. Nature of education
 - 3.1 Ideology
 - 311 Vocational
 - 312 Liberal-progressive
 - 313 Socially Critical
 - 314 Mixture
 - 3.2 Epistemology
 - 321 Rationalism
 - 322 Empiricism
 - 323 Pragmatism
 - 324 Mixture
- 4. Development
 - 4.1 Change
 - 410 Attitude to geography - +ve or -ve
 - 411 conception of geography
 - 412 conception of school geography
 - 413 conception of T & L (how to teach)
 - 414 Some change but difficulty in expressing / articulating it
 - 4.2 No change
 - 421 conception of geography
 - 422 conception of school geography
 - 423 conception of T & L
 - 4.3 Factors
 - 431 Learning from university tutor
 - 432 Learning from own study
 - 433 Learning from university activities
 - 433 Learning from observing others teach
 - 434 Learning from own teaching

Appendix 28: Coding system developed using NUD*IST

435 Learning from pupils

436 Learning from prior experiences (life, own schooling)

5. Free categories

5.1 Represents conception – a) Yes, b) No, c) partial

5.2 Meta-language – developing a language to express what you mean, same words mean different things in different contexts

5.3 Prior experiences – a) strong b) weak c)+ve d)-ve

5.4 Confidence in geography – a) high or b) low

5.5 Confidence in teaching – a) high or b) low

5.6 Preference a) Physical geography, b) human geography, c) environmental geography, d) other

5.7 Misunderstanding (does not appear to understand terms or what interviewer is saying)

Appendix 29: David's lesson plan 29/06/00

Subject/Activity: Geography / Improving the environment
Year/Group: 6H
ICT Opps: Possible use of ICT to present ideas

Date: 29/06/00
Time: 1.20 – 3.00

PoS: 1c – analyse evidence and draw conclusions, 5a – recognise how people can improve the environment

Learning outcomes – pupils to recognise how people can improve the environment (and begin to develop responsible attitudes towards the environment)	Previous experience – pupils have been on a walk around the local environment to collect evidence on human impact on the environment and have presented their findings to others
Organisation whole class mixed ability groups ability groups pairs individuals teacher led	

Structure and timing	Introduction 1.20 – 1.40	Development 1.40 – 2.35/40	Conclusion 2.35/40 – 2.55
Learning activities	<p>Discussion</p> <ul style="list-style-type: none"> • What are features of a good environment? • What things do you think improve/ enhance an environment? <p>Q: is it good enough just to put a notice to fine people in order to stop dog-fouling pavements? Q: what do you need to do to be more effective?</p> <p>Proactive, not reactive Pupils write a list of features of good environment</p>	<p>Look at presentation posters as a reminder of findings from local area walk</p> <p>From poster identify two worst or most important things that need improving</p> <p>Identify ways of improving the problems</p>	<p>Share work produced and discuss any issues arising, answer pupil questions etc</p>
Differentiation	<p>Through direct/open questions as appropriate to pupils' responses. e.g. – why do you think that? (to encourage pupils to appreciate differences in each other's perceptions of a 'good environment'. Pupils supported through opportunity to draw on their own experiences – ie work at own level. Less able supported through responses of more able in discussion activity.</p>	<p>By outcome and level of adult support – pupils to work individually, in pairs or small groups (as they choose) Choice of activity:</p> <ul style="list-style-type: none"> • Taped interview – role play of local councillor at press conference • Newspaper reporter – journalist reporting on findings and making suggestions for improvement • Letter – to residents, local council, headteacher etc • Advertisement – to residents, parents etc 	<p>By outcome</p>
Preparation and resources	<p>Pupils' presentation posters Notebooks Photos of local walk</p>	<ul style="list-style-type: none"> • Sugar paper and crayons • Tapes and tape recorder • Wipe boards • Laptop / computers 	<p>Monitor work to ensure sufficient time to share all pupils' contributions</p>
Assessment (what & how)	<p>Outcome of responses – can pupils identify features, areas or problems that can be realistically improved?</p>	<p>Observation / monitoring – are pupils working cooperatively, remaining on task etc?</p>	<p>By outcome – can pupils recognise ways of improving the environment. Are pupils developing responsible attitudes towards environment?</p>

Appendix 30: Coded transcript of post observation interview with David, 29/6/00
YEAR 6 CLASS – 21 pupils TOPIC: Environmental Change & Sustainability

To begin with what I'd like to ask you to do is, having a look at the revised version of your original concept map, would you be able to place what you've been doing this afternoon somewhere along that map?

5 Between , well it's this relationship between environment and people, and looking at the impact. And about impact in a particular place so I suppose it's ...

all that cycle in the bottom there

10 Yea

Okay, and as I said what I was doing was trying to record as factually as I could, sometimes what you were saying, what pupils were saying and sometimes I just wanted to describe what was going on And the first question I'd like to ask is, you've chosen to introduce the session through a question and answer discussion method and I wonder if you could give me your reasons for choosing that particular method and whether you considered alternative ways of introducing..

20 Yes I had, I'd considered getting them to write down a list from memory. Basically the idea was to remind themselves of what they had seen because it's been a couple of weeks since we actually did the field trip so in a sense that was a refresher. And the reason for writing all their initial contributions on the board was so they could be shared rather than ... because I was aware of time running away, and getting them to write it in their books and then share would have doubled the time, probably.

25

Yes, would they have needed to share it?

30 No, but I don't know if everyone would have made the distinction between .. I was trying to get out the distinction between different peoples' perceptions of what a good environment is and hopefully, and we did get some examples of what – we had good environments in urban areas and good environments in the countryside and I was trying to look at those two so that people appreciated that other people had different ideas but weren't necessarily wrong. I was just trying to develop that a bit, and also ...

35 *Yes. How successfully do you think that point came across?*

40 Difficult to say because I haven't, um, assessed if you like, I haven't had any feedback from that so I won't know whether they'll have taken it in. It's the sort of thing that might come out later.

40

For example, if we look at the presentations that they all did, were any of them in a non-urban context?

45 No. They were all in an urban context.

45

Mmm.

Talking about litter and things, so nobody ...

50 *But on the other hand that's possibly because what you asked them to do was to think about ways of improving their own area and their area is an urban area*

The area they'd seen, yes. You see, on my lesson plan, I have in brackets as a second (not as a main) objective

55 *.. to develop responsible attitudes*

Yes so in a sense and also in the plenary trying to just, that wasn't the main thrust, to feed in a few ideas for it to sink in. And so the initial part is in a sense to set that up just so that people can be aware, you know. I mean they may well like both environments and there's nothing to say that one is better than the other.

60 *Yes. And just to go back you said that you had considered getting them to write down lists but then you were worried about the time element of sharing those lists, um, what advantage might that have had over the way we did it?*

The advantage I suppose is that it might have focused their attention better, there would have been less management, probably. I think that's it.

70 *Okay, thank you. Oh, this was interesting. When we started to get examples of things that children were saying, and some just said things like plants, animals, bench to sit on etc. whereas others seemed to have a much more global view of things that would create a good environment such as the good sewerage system, and something about water supply. Is that, because you didn't particularly pick up on either of those when they were mentioned and I just wondered why you let those go by*

75 *Because [laughs] I didn't know how to develop them I suppose.*

Right. Because another thing I wondered, apart from recording on there [the board] so that they had something to look at, did you have any other purpose in mind?

80 *Just so they could see the range of different things.*

You weren't trying to classify it for them?

85 *No, I purposely didn't put anything in next to, I didn't try and group anything.*

No, and why was that?

90 *I don't know really. I just, I didn't really ... I suppose it might have been another way of doing it ... I just wanted them to see the range but in a way I suppose, thinking back that might have been a better way to see the range. Had it been in categories they could have seen it clearer.*

95 *Because part of what geographers do, isn't it, is to categorise things that they look at in the environment, so some of them might be to do with water [interruption, tape stopped then started again] so for example pollution seemed to be the category that all of them were drawing on and none of them used categories such as water supply or, I don't know.*

100 Um... that would have been a good idea. If I do that again I'll do that.

And then ...

105 There was actually one response, I don't know if you got it down, one response that I was going to pick up and that was the – was it something to do with safety? I was going to go on and look not the physical environment but the sort of the social thing where there's

Oh, teenagers.

110 That was it, yes. Teenagers.

And in fact it was quite interesting because the pupils said not many teenagers but you heard no teenagers and wrote up on the board no teenagers.

115 Oh, right.

And then you said I'm glad you said that because it raises all sorts of issues

120 Which I didn't actually go into ... but that was one thing that I was hoping to develop because some of them had actually written something about improvements for me but not the whole class, and that was one of the things that came up was about feeling safe. I thought that would be a good thing to do – it's not just the physical environment it's also your attitudes and all the rest of it towards it. If you don't feel safe then for you it's not a good environment no matter how pretty it is. So I was hoping to develop that and then I never did.

And at which point were you thinking ooh that thing to do with issues of safety?

130 I'd thought of it last Friday

But you didn't deliberately plan it into your lesson.

135 No, I was hoping that it would come out because I'd seen some of the work that was there. But I didn't want to contrive it to get to that point

Why not?

140 Because I wanted to see what they would come up with. I didn't want to influence what they thought.

So it was important to you that whatever they did during the activity or development phase of the lesson emerged directly from them? Rather than you imposing anything?

145 Yes, I mean I did impose a couple of things. For example the activity, I imposed suggestions but in a sense I directed them towards some of those. And also through my question about would a sign be enough to prevent the problem from happening again .. I was directing them to thinking about they would have to have more than one strategy for improving it. I was also trying to get them to think that prevention would be better than cure which is in a sense what linked up with my last few comments – well they actually

150 brought it up themselves – that a reward would be better than just telling people not to do
it because just telling people not to do it doesn't always work and they know that, from
what they've seen they know that a sign saying don't drop litter doesn't work. I was
hoping that they would start, and that was the second part of the objective, moving towards
responsibility. So they would start thinking well rather than just telling people what to do
155 you've actually got to practice it, it's got to be kind of an effort or whatever

So education might be the route to take

160 Yes, so in a sense I was contriving it to get towards that. But those are the only two areas
that I think I did.

*Does it, what I'm picking up from what you're saying is that you have a preference for a
lot of their learning emerging from them rather than you imposing a structure, an idea of
'well I know I want them to learn about such and such'*

165 Yes, for this session yes. Because I was also trying to develop the thinking that I was
telling you about, for the science, and making that link that with science we looked at the
results and then we considered the evidence and so in geography we could just as well do
the same, we've got the evidence from the fieldtrip

170 *The enquiry route is all about that*

and now we need to consider it.

175 *For all that being that some of the evidence wasn't available [photos gone missing]*

But they had all had the experience and they had all written notes in their notebooks so
they did have some evidence – they should have had some evidence.

180 *But they didn't use it in the session itself?*

No, but they had the opportunity to. I gave them the opportunity to refer back to it or just
to draw on their own experiences

185 *Because their notebooks were in the classroom .. oh, they had them in front of them, I
missed that, sorry*

190 Yes, although they weren't all open, and some of them were being coloured in, ... but it
was there for them to refer to, and in any case from their memory they were fine. There
were also the photos, but I introduced those too late. I hadn't seen Vanya's photos so I
didn't really know what they were like and that's why I was reluctant to bring them in as a
thing straight off, which is why I introduced them later as a sort of, it was more of an
interest thing, so there was that evidence as well if I wanted it.

195 *Okay, thank you. And then, in the second part of the introduction, you moved on to ... so
when you asked the original question 'what sort of picture did you have in your head?'
and I wondered what you were thinking of then, and a whole sort of discussion followed on
from it.*

200 Oh that's just something that came into my head

And what you were driving at there

205 And I suddenly felt, well, they would have had, well it just occurred to me that if I was to think of that I would think of a place, or I would have an image in my head and then I would relate it then. That's when I was thinking we had all these things and because they didn't necessarily marry up, well I suppose you could have categorised it urban and rural, or we could have categorised it thematically couldn't we? And then it just occurred to me that some of them would have been thinking about a specific place and I thought that
210 might be one of the ways of drawing out that people have got different opinions about what a good place is. For example the Cheddar Gorge one

Yes.

215 Umm, the way he didn't, you know, he said what makes it good was and he described it, and then he also said they do nice cream teas. So I thought that was quite a legitimate thing for saying well that's a good environment because if you are going there to relax then that's one of the things you want.

220 *Yes*

So I thought that was quite a good distinction.

So that occurred to you as you went along?

225

Yes. I hadn't really planned to go that way.

But on the other hand it did ... did we have in here about ... no, sorry, I'm just having a look back at your lesson plan to remind myself about whether we had a target of being aware that not everybody's views would be the same or not.

230

No.

No, so that was sort of an aside?

235

Yes. I suppose it comes under just developing your own responsibility, you know, if you like old buildings then hopefully you'd be sympathetic to maintaining them. Or if you like open spaces then you would develop a responsibility towards that. Like, most people, they care about whatever's closest to them, so ... but they could still appreciate that other
240 people would have other views.

Other interests and concerns, yes.

I suppose that was like an undercurrent.

245

Okay. And then here, that's right, oh yes, and I've put just as a reminder, presumably your ideas, as well as the notebooks, was that they would have their posters so that you could link in with analysing the evidence... Again, here, and we've partly discussed this now, but I was at the time that I wrote that, wondering about the way in which you introduced what

250 *they would then do in the development phase of the lesson. You gave a list of possible things but basically there was free choice involved, and your thinking about that. We've covered that really haven't we?*

Yes.

255 *Oh and this was interesting as well. What can be improved? And they gave some examples of things – more how we can improve them rather than what we can improve. And then 'let animals be where they are and do their own thing', 'so you mean ban pets?' and there was a little discussion between you and whoever this child was and I think you misunderstood*
260 *him because you were fixed into the urban-local environment and I think in his head, because when he came to do his plan of what his ideal environment would be like it was a rural one, and I think he was thinking of a rural environment.*

No, I thought that as well

265 *And animals*

Being natural

270 *Yes, in their natural habitat and being, doing their own thing and so people should have a responsible attitude towards the environment*

Yes, I did think that. Why I said ban pets was because, because by suggesting that you need to keep the animals in their own natural environment and get on with their own thing
275 means that you can't have pets because you're keeping them

In an un-natural environment, right.

280 Yes, that's why I said that. I hadn't really misunderstood his meaning, but my response to it; I can see where you're coming from.

Right, okay, yes I see.

285 But my response to it was a bit off, I went off on a tangent in my own head thinking, my response was as a consequence of that, so I jumped about three steps ahead.

Yes, and then we went off on the video path ... [laughs]

290 They keep mentioning video, in everything; they think a video is the answer to everything which is why I tried to say 'let's not go down there'.

By the time we reached the point, and you gave them a time limit as to how much time they had to do their activities, and according to your lesson plan we were running about twenty minutes behind schedule. Have you got any thoughts about that?

295 Well, in the end it was enough time, so that was fine, but

So you were happy with the length of time that you took in the introduction?

300 In the end, my reasons for trying to get it done earlier there is because previously I haven't managed to get them to complete work sufficiently in the lesson. So I was really trying to make sure that I had enough time for them all to do that. As it happens it worked out alright because they all finished the task. Perhaps they could have done with another few minutes, but most of the groups would have started getting restless.

305

But there was a rushed amount of time for the plenary, for the presentations.

Yes, there was. So in that sense it wasn't very good.

310

Yes, that's just the way it goes sometimes.

Yes, and I was very conscious about me not talking for so long, and I wondered if I suddenly went into, okay let's do the activity now, when ... for me that felt abrupt but I don't know maybe it wasn't, maybe they were ready for it.

315

I think they probably were.

I'm just a talker.

320

Because it felt, well, to be honest it felt, um, once it got to the point where we went down the video, but before that even, I did wonder whether the side issue of 'what picture did you have in your head?' given that I wasn't sure that they made a direct connection between the point you were trying to make there and the activities that then followed. Was it just a nice little side route that added time?...

325

What was the time there, that's interesting, 1.45

1.45 and then it was 2 o'clock.

330

So if I had have stopped there I would have been just 5 minutes over. Mmm. That was just me being curious ..

But then it's never easy ...

335

That, in a sense, that was me being curious. I just wanted to know, that was something I ...

340

Because it suddenly occurred to you. Yes. Okay, and then we moved on to the activity phase and I stopped writing down by and large what you or they were saying, because it was easier just to make notes of descriptions of what they were doing. I made a note that at the beginning you were monitoring, and then you wrote the target on the board, and then you went round to ask them some questions about what they were doing and so on. I thought I'd ask you about that overall phase of the lesson, generally what do you see your role as being? It's purpose and is it the same for all lessons?

345

No, it's not the same for all, um, I'd said that I would offer support as and when it was required, um, and so basically I was just on hand if they wanted anything, different resources than the ones I'd planned. But mainly I wanted to ensure that they were all not messing about, that they were cooperating, because in these sorts of activities a couple of them can be a bit disruptive, whichever group they're in. In fact M was not in a group, he

350 was left on his own which can be just as divisive sometimes if he's wandering around like a loose cannon.

Yes, niggling people.

355 I knew that he would upset that group, and I got a distinct feedback form this group that they didn't want him joining. The girls were happy doing that, so I put him in that group which wasn't too bad. He was probably about normal for him, disruptive wise. But they were actually working on two things because they did, and R & M were particularly proud of themselves and the rap they made up, so I knew I had to do some control there, so I
360 wanted to free myself up for that.

You say that's not the same for all lessons. Could you give me a brief example of other roles that you adopt during the development phase that are different from what I saw this afternoon?

365 Well, in English for example I would have tended to be with a group and the others would be working independently.

370 *Right, and what would you be doing with that group? Would you be monitoring or would you be teaching?*

Mainly teaching I suppose, but not direct teaching, just sort of question and answer, discussion, reading things, discussing issues that arise out of whatever it is we're looking at.

375 *But the discussion would be more to do with the teaching and learning aspect rather than the control aspect?*

380 Yes, I wouldn't be sitting there just watching them get on with it. No, I'd be involved in it with them. Maths I suppose I'm fairly similar in the sense that I have an assistant who supports the less able and then I can ... I can't, well I suppose I could, but I haven't so far I haven't planned it that the other groups worked so independently that I can just be with one group. Because they're set for maths and the whole group is the bottom set. They're not at the stage really where you can leave them independent stuff. There's such a mixed
385 range I think they're about fifteen special needs within the class so they're not really at the stage I don't think where you could leave them to work that independently without being disturbed every five minutes. So that's usually a role where I wander around and give help when it's needed. History and RE I've tended sometimes to hold the whole session just as a discussion. I'll read them something and I'll talk about things and then just ask
390 questions, so it's a question and answer session. Sometimes it's much more teacher-led, music is very directed so it's less free as to what they can do.

So, I'm interpreting that as meaning that you adopt different roles according to the subject because for some subjects you see it as being more appropriate.

395 I suppose so yes, I hadn't really looked at it in that way. It might be because of the subject but also I suppose it's mainly because ... it's mainly the activity. If I was doing this sort of activity where people were freer to work in groups than they were in maths or English or whatever then I would do the same so I think it depends on the activity rather than the

400 subject. But, as it happens, those kind of activities I've tended to have for those kind of
subjects. So the non-core subjects of you like have been a bit more liberal. I think that's
kind of, I don't know whether that's something that I've sat down and thought this is how I
want to do it, I think it's just kind of me following the system in the school set-up anyway
and I get the feeling it's part of the national ethos anyway. That that's how things go.
405 Morning subjects are much stricter and the afternoons are [freer with space].

*Yes, I think you're probably right! I'm not sure that I would myself agree with that ethos,
but ...*

410 Yes, but this is kind of, the victim of circumstances that you find yourself in and
sometimes it's easier just to go along with it.

*One question I had here about what they had chosen to do and when I questioned them
they were quite clear about what they were going to do and several of them related it to
415 the target that had been written down on the board, and I'm assuming that's something
that you often do with them, because you didn't say anything about it but they looked and
saw it.*

No, I had meant, to be honest I had meant to put that up earlier but ...

420 *Is that something that you often do though?*

Yes, it's the school policy

425 ... *Say, this is what the target for today is, so you're sharing it with the children?*

Yes. But I did refer to it at the end, and also because I hadn't put it up at the beginning
that's also one of the reasons I went to each group to ask them what the two things were
and what are they going to do to improve it. So I was reminding them, without directing
430 them to that, I was reminding them of what my expectations were.

*And interestingly, when I said to them about ... what do you think you've learnt from doing
this? They were much less clear about that. They were less able to say what have they
learnt that they know and understand now that they didn't already. And I wondered
435 whether that was first of all possibly one of the dangers of letting things come from the
children rather than providing some sort of structure where you've got a clear idea of 'this
is where they're at and this is what I'd like to move them on to'. The second one was
about, with the free choice whether they were focusing more on the outcome than the
actual process of getting them to the outcome.*

440 Yes, because I did prompt some to plan first and they didn't, they went straight in

They did, they went straight into the presentation.

445 So that, in a sense that is a thing for me to develop, to encourage them to plan it first.

And how might you do that, if you had a chance to do this sort of thing again?

450 I suppose you'd have, in a sense force the situation so you'd give them, say 'right, before we go on any further five minutes to plan it' so you're forcing them to spend the time doing that.

And then having done that bit and that bit how are you going to present it?

455 And there should have been plenty of time to do that.

And then you could get them to reflect afterwards on, so what did we do? Why did we do it in that order? Why did I make sure that you planned it before you did your poster? What was the purpose of that?

460

Yes.

That's actually the bit that helps develop thinking skills.

465 Yes [thoughtfully]

The metacognition bit.

470 See for me, my problem is that those are my grand ideas and I want to do that, I want to develop these things ... [tape cuts off – tutor and student have discussion about how thinking skills can be developed in a more planned and explicit way. Problem for student is not knowing HOW – lack of strategies?]

475 *Placing the lesson into categories for persuasion, theories of T&L, nature of knowledge.*

So you want me to talk about where I am now?

Where you feel what you did this afternoon fits into these categories, yes.

480 Right, I think this lesson is looking at environmental persuasions, the interaction between people and the environment, yes.

With issues such as pollution etc. Right.

485 And the whole unit would eventually, when, well before this session we looked at decision-making, those kind of things, and it's supposed to go to looking at sustainability. So the whole unit actually fits in there, rather than just the lesson. As far as theories of teaching and learning go, I would say that I was going more along the growing, either the travelling or the growing, I can't really decide between the two, but in the sense of setting
490 it up with some discussion, starting their thinking and then letting them develop that with the activity, so ...

If you could categorise the introduction separately from the development phase?

495 Oh, then I suppose the introduction might be the travelling theory, developing it with me as a [..?..] and then the rest would have been growing theory, leaving, having had that then they can develop it at their own pace, in their own direction.

Yes. Would that allow for the 'knowledge is socially constructed' element of ...?

500

Well it was already constructed I suppose in that their knowledge in a sense was set up and prompted so they weren't growing independently that's why I'm split between the two. But at the same time I was hoping that they would sort of – this is the whole thing about me trying to develop their thinking skills, this is sort of where I'd like, I suppose, in a sense, more to be. Or them more to be.

505

Mmm. And it's just a question of, with greater experience as you ... yes ... move on gradually, developing strategies for ...

510

and I suppose you need to develop the relationship with the children. I couldn't come in straight away, if they're not used to

Working in that way, no. When you've got your own class from the beginning of the year and you've got a goal that you want to work towards with them, it's much easier.

515

And I'm not saying that they can't because with the class teacher I've seen that through her questioning techniques they do, the thinking is prompted and so they do get there, she hasn't sort of given them the answers but through clever questioning they get there. And that's where I'd like to be, that's where I'm trying to be but I think I'm maybe jumping guns before I get there. But in a sense because I don't want to lose sight of, I don't want to go through that [points to transfer theory] to get there, I want to get there quicker. I don't want to get trapped in the transfer theory.

520

Just telling?

525

Mmm. Although I do a lot of that, discussing, that's why I get late in my lessons! But anyway! And here [looks at theories about the nature of knowledge] I suppose the socially critical. Knowledge isn't easily [specified], you know the whole dilemma of what's a good environment. You can't specify what it is, everyone's got a different opinion.

530

That, there was a subtext of that, but would you say that was the main focus of what they were doing?

It wasn't the main focus of the lesson, no, but that was my kind of subtext. I perhaps shouldn't have, I mean I put it in brackets on the [lesson plan] I sort of think, you know, I suppose in a sense I was thinking well that will be my extension. If they were really getting on with it then I would have liked to have moved on to developing the responsible attitude side of things and gone more into discussing that. So in a sense that was kind of my extension of the whole thing if things were going well but ... again me being too ambitious and moving on before they're ready for it, or I'm ready for it, and so I've got too many things going on in my head and I need to narrow the focus down more. I thought I had narrowed it down but just by putting in that little aside was distraction enough. Wasn't it? As it turns out?

540

545

As it turns out, yes!

I mean I hadn't thought of any of this before and had you not asked me I probably wouldn't have thought of it. But now we're reflecting on it in detail

550 *Because on the other hand it may not have been ... it would have been quite possible to have organised a session that focused on both of those learning outcomes, 'recognise how people ...' and 'develop a responsible attitude'*

A session each?

555 *No, in the same session, but just to have constructed the activities in the development phase slightly differently.*

Yes [thoughtfully]

560 *So that ...*

Perhaps got them to draw up an action plan or something.

565 *Yes.*

And then from that where do we go now? There's no use just having a plan ...

570 *Yes, because the idea you had of 'so what are the two worst problems that you're going to think of?' and just get them to do them first in pairs or as individuals or whatever and think of, now brainstorming your pairs a range of things that ... strategies for dealing with*

For improving

575 *For improving those things. And now let's look at your brainstorm list and can you categorise those into, these are the ones that we can do ourselves, and those are the ones that we'll have to have some adult help to do.*

Yes [tone of enlightenment!].

580 *Now, you've done all of those things, now you can go away and do your poster or your rap or whatever it is.*

585 Yes. And that's also something that sort of came out in the debate. That there are some things you can do that would be effectual and there are some things that it doesn't matter what you do it will be ineffectual because there are greater powers above it. The political thing. And I was very hard in that I wouldn't – there was a clear split in the class as to which route should be taken [referring to a by-pass planning exercise], there were no people in the middle as we had at college, nobody was thinking

590 *There shouldn't be a route*

595 No, they, that's... they said there shouldn't be a route. Nobody as we had in college, nobody was thinking about their own interests in the business or where they lived and so say, there ought to be a route but it needs to be not in my back yard over there. There wasn't that dilemma. It was either we need a route or we don't need a route. They were quite clear-cut. And even those where the route would have been advantageous to them

didn't want it because of other things. So in a sense they've demonstrated that responsibility already.

600

That's interesting.

But I was like, no you have to have a route because people have – I started to make things up – people have been killed and all the rest, it's not safe so we need it and so I imposed the issues and that really upset them. It wasn't fair, and this is when we were really getting into it and so that could have been developed in the sense of there are things you can do, there are also things you can do but nothing will happen about it. So I could have developed that.

605

610 *Unless you take the political route ...*

Yes, so I would have liked to ..

... that's something that they'd tackle perhaps at secondary level.

615

Yes. I would have liked to do that, I'll jot that down for next time.

And that might have, um, I know there was an element of the socially critical and they were working collaboratively, some of them, so it wasn't just the individual understanding because they had to negotiate with each other and explore each other's understandings to a certain degree. But it would be interesting to take it one step further and say, well these are all issues in our culture and in our society here. Would they be exactly the same that say a contrasting locality, the issues that they would pick up as being the most important for them there?

620

625

Would litter be a problem in Buckingham Palace (?)

For example, yes.

630

Appendix 30: Coded transcript of post observation interview with David, 29/6/00
YEAR 6 CLASS – 21 pupils TOPIC: Environmental Change & Sustainability

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