SUPPORTING STAFF DEVELOPMENT THROUGH

CHANGE IN LEARNING TECHNOLOGIES

IN HIGHER EDUCATION

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Abstract

The challenge to enhance staff development processes in a way that reflects a changing global learning environment and supports academic staff in their efforts to integrate the affordances of the rapidly changing learning technology opportunities into their learning environments is a common one for many of the institutions in higher education. This dissertation records a response to this challenge in the context of a higher education institution in Ireland.

In an attempt to understand how a selected cross-section of the academic staff of the institution were aware of the pedagogical underpinning required for the effective use of learning technologies, a grounded theory approach was used to interpret their individual and degree group responses to a guided interview process. Co-raters independently identified learning issues raised by the informants in the recorded data, and, reliability tests were performed on the results from the co-raters. Having identified the highest occurring learning issues from this phase of analysis these key issues were taken back to the informants for further discussion in focus groups aimed at clarifying their thinking regarding these issues.

Cluster Analysis was used at the next phase to inform how best to analyse the recordings of the focus groups. The application of grounded theory methods is set out in a way to provide transparency, seeking to respond to the, sometimes critical, comment made regarding the use of this methodology. The use of grounded theory methods enabled themes to be identified from the focus group data leading to a definition of theory that affirmed some existing theoretical positions and extended others by more specific identity of the role

that academic management need to play in understanding, and planning for the integration of, the use of learning technologies by the academic staff for whom they have management responsibility.

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If a measure of our learning today is what we know today less what we knew yesterday then it is important to make each day significant in building our knowledge.

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CHAPTER 1

INTRODUCTION TO THE RESEARCH

1.1   The Motivation for the Research

1.1.1   An Institutional Strategic Plan for Change

This research is focused within the context of a higher education (HE) institution in the Republic of Ireland. During their term of appointment, the governing body of the institution adopted a strategic plan. The strategic planning was placed in a 15-year timeframe, supported by 3-year operational plans, the preparation of which commenced immediately.

One key objective under the strategy referred to flexible leading-edge electronic capabilities, seeking to position the institution as a state-of-the-art university with the capacity to deliver programmes flexibly, effectively and to the highest standards. To be able to achieve such capacity would involve using the latest technology, on and off campus to an enhanced student base.

Some of the key goals, set out as bullet points, under this strategic objective, referred to hardware provision, and other goals, relating to academic programmes, included the following:

- To develop flexible web-based course delivery mechanisms, flexible means of entry, new knowledge domains, rapid response to changing needs; and

- To develop modularised e-learning programmes as a feature of a rapid, flexible and cost effective response capability.

The common objective, in all elements of the strategic plan, continues to be the achievement of excellence, through processes of continuous improvement of staff, programmes and facilities.

As a senior faculty manager in the institution, one of my responsibilities was to contribute to the implementation of the strategic plan, a

key focus of which was to move to a more student-centred learning environment, which broadly speaking means understanding pedagogic matters from the students' point of view (McLean 2006:84), and which will be developed in more detail (Trigwell et al. 2005:252,253) below when discussing changes in teaching and learning.

During reflection on the strategy the words and phrases that began to raise significant questions for me as a manager included the following: flexible leading-edge electronic capabilities, using the latest technology on and off campus, flexible web-based course delivery mechanisms, new knowledge domains, modularised e-learning programmes, and the achievement of excellence through processes of continuous improvement of staff.

With a personal academic discipline and management experience background in computer software applications the questions began to focus because I realised how much needed to be achieved in order to make the strategic plan become a reality and not just an aspiration. The institution had invested substantially in technology. Many of my staff colleagues aspire to achieve excellence in their daily contact with students, but to enable them to engage effectively with the latest technology, in the delivery of flexible web-based courses, would require considered reflection on what the processes of continuous improvement of staff might comprise.

How much the strategic decision affecting institutional policy was informed by related research is difficult to determine with accuracy because a new governing body has since been appointed and minutes of earlier proceedings do not contain such details. However the questions that were generated by reflection on the strategy led to a considered approach regarding

its implementation and eventually became focused into a specific research question that drove the research that is documented in this thesis. This introduction seeks to capture the elements of the process that led to a focussing of the research question and to outline the structure of the thesis.

In particular, questions regarding the meaning of, and the understanding that defined the use of, concepts and phrases, such as 'staff development' (Webb 1996:1), and 'Information and Communication Technologies' (ICTs) and 'e-learning' (Ravenscroft 2003a:4) began to demand more careful attention. These concepts and phrases will be addressed in further detail in the next chapter.

My participation in the research as an agent as well as a researcher is acknowledged. Clearly there are all kinds of questions of subjectivity, objectivity, distance and professional issues, which I recognise from the outset and is also a theme that I will return to later.

1.1.2   Resources to support the Challenge of Change

To support the implementation of the strategic plan the governing body made provision for two new significant resources, a Learning and Teaching Centre (LTC), staffed mainly by colleagues from an Education discipline, some of whom also had experience of ICTs, and, a Learning Technology Team (LTT), composed of staff with both an educational and a technological background. The influence of the existing Staff Development Office was also extended through the appointment of additional staff to facilitate more enhanced planning and additional training course offerings. While these resources made possible new opportunities for staff in the institution to

participate in their personal development, very few research findings were available to inform how best to focus the processes for staff development to support the provision of e-learning (McShane 2004:5). I will expand on this issue of the lack of available research in that area in the next chapter.

I attended some of these new course offerings by the LTC and formed an assumption that these new resources appeared to have attracted the attention of those who might be described as the early adopters, or those most keenly interested. Notwithstanding this keen interest it was noticeable, for example, that although there was a strong emphasis during the delivery of the courses on the need for a rigorous pedagogical (another word that I will return to in the next chapter) underpinning for the design and delivery of e-learning, participants were also looking for a sense of emotional identity (Salmon 2003:83), and someone to model the required skills. The question of how best these expensive resources should be used by, and for, staff still needed to be informed by research. During the course of this research that question, quite separately, began to be asked by the staff of the LTC themselves, in drawing up their own research agenda. That in itself was an encouragement to continue with this research as it suggested that the question had not been adequately addressed when allocating the resources.

The challenge facing this institution to find ways to support staff development in order to prepare academic staff to meet the demands of teaching and learning, when including the use of an online environment, was a common one (Newton 2003:436) that developed over the past few decades, and recognized across the sector internationally. One example, in the UK, put in place to support staff, was when the Department of Education and Science

funded, through the four HE funding bodies in England, Scotland, Wales and Northern Ireland, the Learning & Teaching Support Network (LTSN). Consisting of a network of 24 subject centres, based in higher education institutions throughout the UK, the LTSN offers subject-specific expertise and information on learning and teaching; with a Generic Centre offering expertise and information on learning and teaching issues that cross subject boundaries. The network is managed, and co-coordinated, by an Executive, located with the Institute for Learning and Teaching (ILT) in York. Part of the [Higher Education Academy](#) as of 1 May 2004, the LTSN continues to promote high quality learning and teaching through the development and transfer of good practices in all disciplines (LTSN 2004). The Academy also aims to shape the thinking of policy makers and provide the HE communities with a stronger voice in national debates and discussions.

In the wider context of this research I enquired if this support is effective. One of the centres carried out an evaluation for the LTSN Executive Annual Report in 2002. The evaluation, among other questions related to its profile, asked if the centre had any impact on learning and teaching and concluded (LTSN 2002) that the Centre's impact on learning and teaching was still probably relatively small. Most respondents felt it was too early for much of an impact to have been made. They also pointed out how hard it was to measure this. The intention of the support network was to enable academic staff to join a network of colleagues in a common discipline to offer relevant support as they were trying to exploit the use of ICTs to develop their existing programmes. However the evaluation also noted that the extent to which the

LTSN profile has been raised varies greatly from institution to institution (LTSN 2002).

Perhaps this suggests that some staff did not benefit from such support simply because they were unaware that it was available. Until more recently, for a variety of reasons, some staff may even have ignored the impact of technology in higher education. However the development of the technology, and the expectation of the current student generation to be involved in its use for learning (Oblinger & Oblinger 2005 : chapter 3), has meant that higher education staff have become more and more affected, either by using it or by lack of using it.

Partly to provide a sense of the emotional identity, earlier mentioned, but also to share the challenge we faced as a staff team in the school for which I had responsibility to introduce the use of technology into the learning environment, I, as the senior faculty manager responsible, decided to take ownership of the problem, using this research to address the challenges to implement the institutional strategy on courses for which we, as an academic staff team, had responsibility together. How we started to work together as a team is described below.

1.2   <u>The Initial Response to the Challenges</u>

1.2.1   The initial approach using Problem Based Learning.

When beginning to engage with the literature to support reflection on these challenges, having been given as a senior faculty manager the role of implementing effectively the strategic plan of the institution, problem based learning (PBL) (Barrows & Kelson 1999:2-8), seemed to me to be a possible

way forward for the selected staff team in the school. I will discuss the details of the selection and composition of the team below, after having considered the following concepts and principles related to PBL. Harland suggests that Vygotsky's zone of proximal development (Vygotsky 1978:84-91) might guide teaching and learning activities in PBL. Vygotsky's starting point for instruction is the learner's current knowledge and skills and this is also where PBL begins (Harland 2003a:266,270). Goodnough traces it back to the work of Dewey (Goodnough 2006:302), who emphasised the connections amongst doing, thinking and learning. Learning, according to Dewey, should give students something to do and the doing is of such a nature as to demand thinking and intentional connections (Dewey 2003:151).

A useful paper, (Gijselaers 1996:14,15), connecting problem based practices with educational theory focuses three principles that are relevant to addressing the "problem" of introducing ICTs into the learning environment. Within the staff team there were social and contextual factors that would influence our learning together about the use of ICTs. Secondly, along with other researchers, (Glaser 1991:132), (Barrows & Kelson 1999:2), in that field it is argued that PBL derives from the theory that learning is a process where learners actively construct knowledge and is not a receptive process, and thirdly, that cognitive processes called metacognition, (Bruer 1993:68), which I will also develop later, affect the use of knowledge.

Furthermore, by reflecting on the complexity of the environment that learners, (in this case, the selected academic staff team), should be able to function in after their learning, in PBL they are given ownership of the process to develop a solution, using the environment to support and challenge their

thinking (Savery & Duffy 1995:139). Another argument for PBL is that the self-directed learning model should prepare those involved to be effective participants in their community (Duffy & Cunningham 1997:190). These criteria seemed to suggest outcomes that would contribute to resolving the challenge we faced.

Using Constructivist principles, (Spiro 1991:27,28), when applying PBL, students learn to be interdependent learners motivated to solve a "problem", which is a real world example where possible. It was obvious that we had a "problem", and it was a real-world problem in PBL terminology (Kiley et al. 2002:2), which was no one's fault. It was an issue that arose out of the challenge for faculty managers to lead the implementation in order to achieve the clear objectives in the strategic plan of the institution.

Initially in PBL, students explore the problem using their prior knowledge and experience (Duffy & Cunningham 1997:191). They then analyse the problem and formulate hypotheses that might explain the problem. They use this information to determine the further information they require in order to understand and to solve the problem (Kiley 2000:1).

The strategic plan itself suggested that some of the stated specific objectives should be achieved through continuous staff development, but without defining what that might involve. This presented a challenge to us as a staff team. So I encouraged the selected staff team, the composition of which is described in the next section, to accept the challenge we faced together as an opportunity to apply some of these research findings regarding PBL, in order to address the "problem" of how, strategically (Savin-Baden 2000), to support

staff development in the move to online learning in the institution. I say some of the research findings because all the concepts associated with PBL were not applied rigorously. That may have contributed to the limitations experienced since it is argued (Murray & Savin-Baden 2000:107) that for problem-based learning to succeed, a sound programme of staff development is required.

1.2.2   Selection and activities of the initial staff team.

At the beginning of the research journey, a number of academic staff, who were teaching on two degree programmes, were selected and invited to resolve the "problem" of 'how to deliver their programmes effectively in an online mode within their academic community'. The selection was based on two criteria. Both programmes had the potential to be delivered among a student community that was dispersed across the nation by exploiting the affordances (Gibson 1979), another concept that I will develop later, of ICTs. Secondly, to overcome the practical reality of a suitable meeting time, the academic teaching staff involved on each degree needed to be able to attend working lunch hour sessions weekly to commence the process as soon as possible. In practice that narrowed the focus to full-time members of academic staff within the faculty who were on the premises, but excluded part-time colleagues whose day employment was elsewhere.

In this case the selected members of academic staff had opportunity to become a community of learners, interdependent on each other's specific expertise, based on the concept that meaning arises and evolves during interactions that are influenced by the social relations within a community of

practice (Vygotsky 1978). There are issues associated with communities of practice that need discussion, which again I will develop in the next chapter.

In this way, using PBL, the process of investigation was commenced with the intention to provide a solution to the "problem". I also hoped to build a sense of involvement for these staff with the possible solutions to the problems each might encounter in their ongoing course development when using ICTs.

For a number of reasons, which I will explain later when discussing data collection and analysis, this initial PBL phase of the research proved to be somewhat limiting in terms of the data available. Nevertheless I mention it here because the experience gained, together with a more thorough search of literature associated with improving staff development processes to facilitate the inclusion of the use of ICTs into teaching and learning, did inform how a more comprehensive approach might provide a richer source of data. An attempt was made during this PBL phase to establish some baseline data using a questionnaire (see Appendix 1). The data sources will be discussed when considering data collection but suffice it to say here that two video recordings were also made, a little later, of discussions by each of these two staff groups around the same questions that had been posed in the questionnaire to the individuals on the staff team. They will be discussed further in the chapter on data collection and analysis in relation to the contribution they made to the research.

However very quickly it became obvious that a more focused piece of research was required, with a wider cohort of programmes and a more representative group of staff in order to provide some breadth and depth of

data for analysis. It was also recognised that a more thorough understanding of the changing learning environment, which I will now discuss, was required.

1.3   The Impact of a changing Learning Environment

1.3.1   Institutional Change in an International Context

While undertaking the PBL studies together as a staff team, two other significant factors began to impact the changing learning environment. Based on European legislation, to which the Irish government had signed up, a new National Qualifications Authority of Ireland (NQAI) was established by law. This quickened the demand for a thorough review of all programmes offered by the institution. Urgent priority was to be given to ensure that all programmes had clear learning outcomes, which mapped on to a National Grid of Learning (NQAI 2007) to facilitate student transfer and progression across the national and European higher education spectrum. Then to increase the complexity of the environment in which the research was conducted the Academic Council of the institution approved a move to introduce Modularisation (DIT 2006; HEA 2006; UCD 2006) for all programmes, while at the same time conducting the work required for national compliance with the NQAI for learning progression and transfer. Again I am not sure how much research findings, see (McLean 2006:45) in connection with modularisation, were used to underpin these institutional, national and European decisions which are intended to have strategic implications for the enhancement of the learning environment of the institution. These changes began to focus the need for academic staff to engage with teaching, learning and assessment strategies, which together with the changes occurring with

technology suggested that this research should consider the understanding that academic staff had of, and the use they made of, related learning theories, which I will discuss in the next section, in their design, development and delivery of academic programmes.

In coming up with an eventual research question, to try to understand how to improve staff development processes in the context of this research I eventually considered it would be a useful and necessary starting point to investigate what understanding academic staff in the institution had of learning theories they were using, explicitly or implicitly, to underpin their existing course design, development and representation for delivery. I will discuss later how these elements of design, development and the representation used for delivery influenced the framework selected for the research. Should there be limitation in such understanding by the academic staff, to ask those staff to develop programmes for a learning environment that was extended to include the use of technology, might mean that any insecure foundations in understanding learning in a technology-reduced environment were likely to prove even more inadequate when trying to ensure a healthy student-centred learning environment in one that was more technology dependant. The investigation was considered important in order to understand how better to support the academic staff through improving staff development processes, as they would develop new course designs, which would use ICTs to assist in the presentation of the learning material.

In order to support the extent of change that the institution was embarking upon I was seconded at that time to a faculty-wide post with responsibilities for Learning Development in relation to the engagement with

the Quality Authority framework for learning, the conversion of programmes to a modular format, and to provide learning support for all academic staff in the faculty. This secondment was opportune as it provided better focus in my daily responsibilities in relation to this research compared to the broader and less focused responsibilities I had previously in managing a school.

1.3.2   Changes in Learning and Teaching

At the risk of appearing to take a somewhat simplistic approach to change in learning and teaching, while noting that other writing argues that educational change is complex, (Fullan 1993:37, 2001:xi), I want to, as it were, reflect, in this introduction to the research, and survey, some of the key trends promoted in the understanding of learning over roughly the last half century, though of course others, too many to list here, made earlier contributions to these specific trends in the field. I do so because I want to then consider in the following section some of the changes in technology that seem to have paralleled these fairly dominant emphases in learning theory, that have probably also affected the development of technology to support learning and teaching.

The principles of Behaviourist theory (Skinner 1954:86-97) emphasised that learning, in which activity is important, is helped when objectives are clear, and, that repetition and generalisation, motivated through reinforcement, encourage stereotyped responses. The approach has strengths when the desired, correct responses are building new learning, but it lacks the flexibility to deal with responses that are incorrect due to a lack of remedial strategies.

A more structured methodology of task analysis to enhance conceptual and procedural knowledge (Gagné & Medsker 1996:32,57,66) and based on cognitive information-processing models (Gagné & Medsker 1996:10) still tends to be based on the concept of pre-structured practice. Both these approaches, by Skinner and Gagné, tend not to give much initiative to students because the approach to learning is mainly pre-planned by the teacher.

There seems to be more emphasis given to student control over their learning in the Constructivist approach, both in the activity-oriented cognitive processes (Piaget 1978:65), and, where the learning activity is located in and supported by social interaction (Vygotsky 1978:84), between learners and teachers. Related to behaviour, but more aligned to the social interactions than to repetitive reinforcement is social cognitive learning (Bandura 1977), where the emphasis is on observation of others leading to the consequent modelling of behaviour by the observing learner.

That concept raises the issue of learning that is situated (Lave & Wegner 1991:32-34) in real life experiences. Sometimes the cognitive emphasis in learning can be regarded as somewhat abstract, whereas by locating the learning in a specific event, authentic learning can occur, through engagement within the learning environment, by remembering and understanding issues that are raised through the learning. Where this approach to learning is situated in group involvement as a community (Wenger 1998:45), an emphasis on analytical learning can result, although the community aspect does not necessarily imply that learning can only be experienced where there is agreement (Fullan 2005:46) across the community.

Finally in this brief, broad survey of different explanations that describe how learning can be experienced I conclude with activity theory (Engeström 2000:960-969) which builds on Vygotsky's work in the socio-cultural field by providing a framework to understand the potential gaps in the sub-systems that make up the learning and development environment.

In the context of this research, in the enhanced learning environment that included the use of technology to support learning and teaching, I began to ask if this rich, varied tapestry that is composed of a spectrum of learning theories, some of them interlinked, would still adequately explain learning, or would there need to be additional theorising developed to explain new aspects of learning related to the use of the technology.

The relationship between teaching and learning is sometimes referred to as pedagogy, although I recognise that to be a contested term (Cannon 2001:415), (Stierer 2004:277), and is an issue that I will develop in more detail in the next chapter. I raise the term here because the strategic plan of the institution seeks change through a move to a student-centred learning environment. Reference has been made in the literature to teacher-focused and student-focused emphases (Trigwell et al. 2005:252,253). The intention in the learning process can vary, from information transfer, through concept acquisition and conceptual development to eventually achieving conceptual change, as the activity changes from teacher activity to student activity across a continuum of five mixtures of experiences where the combination of teacher or student focus with teacher or student activity varies. At one end of a continuum, where the emphasis is teacher focused, the activities can vary from teacher activity, with the sole learning intention of transferring information to

students, to more emphasis on student activity, but still with the intention of transferring information to students. Moving along the continuum, in seeking to engage the students more in the activity of the learning process, while still maintaining a teacher focus, the student activity can have the learning intention of the student acquiring concepts in the particular discipline. Moving towards the other end of the continuum, to a student focus combined with the student activity, can have the learning intention of the students developing their own concepts, and at the student focused end of the continuum, the student activity can have the intention of the students changing their conceptions. This variety of learning experience, across the continuum, captures the context of some of the challenges we faced in moving to a student-centred learning environment.

In the strategic plan to move to a student-centred learning environment, it is likely that there will be a number of different ways in which teachers will experience change in their understanding of the subject matter they teach. Some of these may be related to the subject itself and some may be related to how the subject is delivered. I will discuss some of the findings from the literature related to this experience of change (Trigwell et al. 2005:255) and the experience of teaching and learning in the next chapter.

I mentioned earlier that some of the likely changes in seeking to move to a student-centred learning environment are linked to the changes occurring when using available technologies for learning and teaching. I will now introduce discussion on these changes in available technology, recognising the expectation, mentioned earlier, of the more recent generation of students of the use of technology in the learning environment.

1.3.3   Changes in Technology

The development of effective use of technologies for learning and teaching, as a desired outcome of the strategic plan, was in line with the aspiration of most educational institutions and the policy makers who fund them. However the achievement of the desired outcomes and their related potential in learning is still a challenge. There is little evidence of change of the radical kind, observable for example in the commercial world, despite an ambitious programme of investment in ICT resources, infrastructure and teacher training (Somekh 2001:168).

Various suggestions to try to explain why, include the impact of deep rooted, longstanding traditions and authority structures, rules of behaviour and the division of labour in schools (Somekh 2001:168), and the fact that e-learning is a relatively recent area of study, which is beginning to emerge as a distinctive research area (Conole et al. 2003:1), which in turn probably is reflected in many described instances of e-learning that claim to draw on theoretical positions, such as constructivism, without explaining how they embody the principles and values of that approach (Conole et al. 2004a:17).

Most of the models using technology to support teaching and learning tend to emphasise either a constructivist or a conversational approach (Daly 2006:92), (Laurillard 2002:102,103), (Salmon 2003:48,49) but they are not without a critical analysis and comment (Lisewski & Joyce 2003:56), pointing out the dangers of their becoming too dominant a discourse. This issue needs deeper discussion than can be given here in an introduction and will also be taken up in the next chapter.

In an attempt to enable academic staff to draw more easily on a wide range of the models and perspectives, with more effective pedagogical foundations associated with them, when they seek to introduce technology to support learning and teaching, a toolkit (Conole et al. 2004a:18) has been offered as a potential support. While this may be very helpful towards encouraging thoughtful engagement with pedagogy and design when using technology, there is still a danger. Often there is an emphasis on technology which is too structured and prescriptive in its instructional design, a constraint which tends to characterise products developed mainly by technologists, without much input from or reference to instructional designers. The result is that application of the technologies by instructional designers to learning environments is often limited by the constraint of the technology.

The rapid development of learning technologies has tended to locate the technology as the driver of change in learning, rather than in the ways that the technology is used (Goodyear 2001:19). Simply adapting the use of the technology itself is unlikely to deliver the desired benefits for learning, but merely to encourage assimilation of the superficial trappings of some new practice (Fullan 2001:37), such as for example using software like PowerPoint instead of an overhead projector for delivery of lectures, which only encourages people to think they have changed. The danger in this practice is that it could consolidate the view that good teaching is the transmission of information (Daly 2006:90), a view that I will comment on later in relation to some findings from this research.

This raises the issue of how to exploit more effectively what is increasingly referred to as the affordances of the technology. As I have stated

earlier, the discussion on affordances (Gibson 1979:127-146) will be developed later, suffice it to mention here a more simple definition of the term, (Salmon 2003:33), namely of what the technology enables or creates the opportunity for. To develop the discussion later I will examine some of the ways the technology might be able to facilitate interaction for learning both individually and as a community, and also across the continuum of activities mentioned above in relation to changes in teaching and learning in the endeavour to increase the sense of learner-centred activities.

The changes over the past two decades have been rapid, in both the range of software platforms available to support learning and teaching, for example high level Learning Management Systems such as WebCT (Joyes & Frize 2005:34), and the hardware on which they run, with the enhanced capacity in memory to support data storage, increased speed of the microchips to enable acceptable processing response times, and the necessary increased bandwidth to facilitate data transfer and speed of communication.

Some of these changes have impacted the public generally, e.g. the use of email, mobile technology and the world-wide-web, while others have had more specific relevance to academic learning and teaching institutions, e.g. the use of a variety of learning platforms to support course delivery, and a whole range of developments using audio and video technologies.

The potential advantages associated with these developments offer new opportunities for knowledge creation (Scardamalia 1996:149-163), (Bereiter 2002: ch 8), but their potential for learning is not yet fully understood (Salmon 2003):12, (Preece 2000:xii), (Kirkwood & Price 2005:265), and, there are

significant challenges posed for investigation by the various strands of research in the field (Conole 2005:171,172).

1.4   Focusing the key issues.

1.4.1   Change in the Learning Environment.

As has been introduced above, the complex environment (Fullan 2001:xi), within which this research is conducted has been undergoing, and continues to undergo change in various ways. There is change in the move to student-centred learning, change in understanding of the pedagogy related to such a move, change in technologies available to represent course design, change in the affordances of the technology, in turn affecting change in the social relationships among staff and students, and consequently impacting on the institutional culture, which includes how teachers come to question and change their beliefs and habits (Fullan 2001:34), and the staff development processes which need to be developed to support academic staff within this changing environment.

The discussion of pedagogy and staff development, including the practical skills development necessary to use the technologies, and the new learning to be undertaken to represent course design using those technologies, seemed to fit within the wider context of a socio-cultural framework, (Bruner 1996:x-xii), within which staff, as learners together, could construct new ideas or concepts based upon their current/past knowledge. Meanings have their origins and their significance in the culture in which they are created. It is this cultural situatedness of meanings that assures their negotiability, and ultimately their communicatability (Bruner 1996:3).

Apart from what is claimed theoretically regarding learning and teaching, quite a number of staff in higher education, except perhaps those with an Education discipline, or those having undertaken such studies as part of their continuing development, seem to have limited knowledge or experience of the pedagogy that underpins a good learning and teaching environment. This would appear to be the case in the present study, based on discussions with colleagues associated with the context in which the study is located. I will develop this further in the discussion of the findings of the research.

1.4.2   Guiding Concepts of Change

Some research findings in the area of 'Change' as it affects institutions distinguish between 're-structuring' and 're-culturing' an organisation (Fullan 1998:5, 2001:34 2005:69). The findings suggest that while re-structuring is relatively easy to plan, re-structuring by itself, makes little difference to improvement in teaching and learning. What does make a difference is re-culturing (Fullan 2001:34), that is how teachers come to question and change their beliefs and habits. That is a more difficult challenge. While both re-structuring and re-culturing involve people, the re-structuring can be imposed by those with authority or power to do so, whereas re-culturing requires the co-operation of all the people involved in the change, with their range of attitudes, traditional ways of working and mixed motivations towards change. Additional questions therefore arose, related to the implementation of the strategic plan. Would the implementation of the strategic plan contribute to re-culturing the organisation? If so, how would this best be achieved? Certainly

the desired outcomes of the strategic plan seemed to be an expectation of re-culture and in trying to unpack objectives of the Plan, the questions related to pedagogy, the enhanced use of technology, related staff development, and change of culture began to emerge as key strands for investigation.

The provision of the LTC and the LTT could be seen as a re-structuring change. Their provision brought into the context some related structural and institutional issues that presented some new challenges and tensions. From a management perspective their introduction provided a support for learners across the institution; however the use of the resources was left to individual choice. Colleagues, who value their own autonomy greatly (Brew 1995:7), (Blackmore & Blackwell 2006:374,375), (Newton 2003:432), viewed the resource from different perspectives. Some seemed to have welcomed the facilities warmly as an opportunity for personal development, others have regarded them as yet more demand on their jealously guarded personal time and space. A primary emphasis from the LTC and the LTT has been to prioritise in their course provision, that the theoretical underpinning necessary for course design, development and delivery is absolutely essential. This emphasis supported the development of the research by contributing a necessary element of the 'situatedness' (Lave & Wegner 1991:32-34) as many of the staff associated with the research interacted with the support centres during the process of data collection.

The governing body may have thought that theoretically by encouraging attention to be given to staff development, the re-culturing of the organisation would be more effective, both in achieving cultural change and in

social cohesion among the staff. The question is how best to facilitate staff development.

I will discuss some of what is known about staff development generally in the next chapter, and seek there to identify significant unknowns when considering what is needed to ensure an enhanced learning and teaching environment in which staff include ICTs as part of their design and delivery of academic programmes. The affordances, even using the simple definition given earlier, of the technology are not yet fully understood, in turn limiting how they may best be exploited.

1.4.3   Guiding and Emergent Questions

The broader question that this research sought to answer was 'What processes for continuous improvement of academic staff within the institution would best enable them, drawing on new knowledge domains, to develop modularised e-learning programmes, which would include the use of flexible web-based delivery mechanisms based on the latest technology to enhance the learning and teaching'?

Many academic staff members in the institution are regarded by their peers and students to be competent professionals in their field of discipline, committed to provide a quality learning environment. They have not however used the latest technology to support their delivery. This is particularly the case where these academic staff are themselves 'people-centred' and are involved with 'people-centred' courses, which have little involvement with technology in the delivery, since face to face contact contributes much to the existing learning process.

Another question on the periphery of the research was 'Are the existing learning theories adequate to explain the learning such staff members are processing, or has the technology introduced additional variables?'

Within this complex environment, where the objective was to provide a quality student-centred learning environment, initially it was difficult to focus the research because of so many related questions. Would the demands of the strategic plan to introduce at least some delivery, using the technology available, make demands on academic staff that could be detrimental to their creation of a supportive learning environment? How would the new forms of delivery affect their teaching and student learning? What demands would the new forms of delivery make on academic staff when they had little or no understanding of the pedagogy involved?

In seeking to conclude this introduction to the thesis these guiding and emergent questions helped to focus a number of issues.

There were:

- the challenges at the individual staff level related to the use of technology;

- the challenges through changes in pedagogy related to that technology;

- the significant shift in learning and teaching, afforded apparently by the technology, affecting the new and growing research discipline of e-learning;

- a major disturbance in relation to the previous position of lecturer autonomy, which is related to these first three points;

- structural implications fed by the need for the LTC and LTT to establish new relationships with faculty and academic management, and with academic staff;

- the expectation of a cultural shift from the previous ways of learning, teaching and knowing;

- the introduction of national and institutional criteria hastening the demand for change in learning outcomes;

- an organisation that superficially looks much the same to its customers five years on, but in a changed European and National context of Qualifications.

Influenced by such a complex environment, the rest of this introduction provides a brief statement of the areas that will be developed in more depth later in the thesis, namely the review of the literature, the overarching methodology, the framework for the research and the collection of the data, its analysis, and resulting conclusions and recommendations. I will then state clearly the formal research question as a concluding focus. To be clear on terminology I will use the term 'methods' as the practical approaches, the tools and techniques used to collect and analyse the data. 'Methodology' comprises the frameworks and concepts in which the methods are situated and which provide the rationale and justification for the methods that are selected and the ways in which they are used (Stierer & Antoniou 2004:278).

1.4.4 The Thesis Outline

The Literature Review, to be given in Chapter 2, was informed by this context of the research. A number of inter-related themes are framing, and

guiding this research. They include staff development, particularly related to the use of information and communications technologies for the design, development and delivery of learning and teaching, with the resulting changes of culture that accompany, and are encouraged by, the affordances of such technologies. These changes of culture, impinging on staff autonomy, are foundational for institutional reform that will encourage and be reflected by the establishment of a student-centred learning environment. The aim will be to review key aspects of these related fields, but to do so in such a way that integrates the information and provides a coherent background for the work that follows, rather than to attempt a compartmentalised series of mini-reviews for each theme.

A consideration of some literature on supporting change in higher education is also integrated to inform issues on institutional development and change since the research seeks to contribute to an effective delivery of the institution's strategic plan. These various sources suggested that a variety of approaches to, or blend of learning (Daly 2006:90,91) that included online learning, might better serve the objective of improved student learning (Garten 2000:369), (Mason 1999:7), (Westbrook 2006:479,480). The concept of a blended mode (Salmon 2005:203) refers to the gradual integration of online components into the more traditional face to face approaches. In chapter 2 definitions and meanings of some key terms such as staff development, pedagogy, affordances of the technology and constructivism are given. The rationale underpinning this study of staff development in higher education is also discussed.

As will be argued in Chapter 3 a theoretical framework, robust enough to guide the study but nevertheless held tentatively, was developed to serve in seeking an answer to the research question, through considering the learning issues that apply to the linkage between staff development and course design, development and representation when using ICTs in a blend of learning approaches, bearing in mind, based on the data from the PBL pilot, the apparent lack of pedagogical awareness for a number of staff in the faculty. The theoretical framework for the research evolved from the triangular model, (Houssaye 1994) used to describe the teaching and learning of knowledge by teacher and student. I will explain why this was extended to a tetrahedron in order to include the aspect of representation of the knowledge. Initial debate on this design with international colleagues is also elaborated.

The study of the literature progressed, in the attempt to try to understand what theories for learning and teaching were being used by staff, implicitly or explicitly, following a possible change in paradigm (Kuhn 1996:12), encouraged by the affordances of technology, which I discuss in the next chapter. Having explained the choice of methodology in chapter 2 it will then be argued in Chapter 4 that the use of a grounded theory approach (Glaser & Strauss 1967) would best facilitate the identity of emergent themes arising from the data collected through individual and group interviews held with the staff. Chapters 3 and 4 together contain the argument for the theoretical framework and the use of grounded theory.

The use of grounded theory was regarded as a suitable supportive method alongside the tentatively held research framework. It has been argued (Somekh 2001:169) , that, for the researcher to have a genuinely open mind, a

grounded theory approach to the collection and analysis of data is appropriate. I will develop the case for using grounded theory in this instance, and supply examples to explain the approach I have adopted. Acknowledging the subjective tendencies inherent in my involvement in the research and emphasised by the use of grounded theory to interpret the data collected from colleagues, considerable effort is made to counter-balance this. It includes a description of the process, trying to explain as transparently and as rigorously as possible, the approach used in practice to collect and mine the data, including a theoretical positioning and a critical analysis of the steps of the process. This is covered in Chapters 5, 6 and 7, which combine the entire data collection and analysis process. This approach is adopted because the data collection and analysis is at the core of the research activity. To help guide understanding of these chapters, I will present early in the chapter in Table 5.2, the three phases used in the process, giving some indication of the time frame involved. Additional Tables, 5.3.2.1a, 5.3.2.1b and 6.1 support this table. They express how the data analysis was built over the three phases, through six levels, from preparing to collect the data through to theorising the dominant phenomena that emerged. The chapters include an explanation of how three colleagues, from the Learning & Teaching Centre contributed, as independent co-raters of the data, to the level 1 stage of data analysis. They had no relationship to the staff or programmes selected as the data sources, and worked independently to identify learning issues arising from the data.

The analysis of the data at level 1 by these three colleagues independently revealed an unexpected consistency, which is commented on in more detail in Chapter 8. The identity of emergent learning categories arising

from the analysis at levels 1 and 2 were reflected back to the interviewees (Blackmore & Blackwell 2006:377), through focus group discussions at level 3. These focus groups were then used to try to provide further clarity on the themes and thus inform reflection and analysis at levels 4 and 5, from which conclusions were drawn at level 6. Critical comment on the findings is set out in Chapter 8, leading to the conclusions and suggestions for further research in Chapter 9.

1.4.5 The focused Research Question

The initial questions, set out earlier in this chapter, that catalysed the decision to start the journey, were significantly informed along the way by developing an understanding of the literature, which in turn enriched my knowledge of the data likely to be required, and eventually influenced the decision on the methodology and methods selected. The questions began to merge into one focussed on the best way to support personal development. The eventual refined research question can be traced from this somewhat individually focussed one that originally began to define this research work -:

'*What is the best way to support personal development to enable staff to use information and communications technology in a way that will enhance teaching and learning?*

The primary research goal went through some evolutionary phases. Within the first few weeks of beginning to formalise this as the research area, having formed this somewhat individually focussed question as my key question, on further reflection I decided that identifying the answer to the best

way for one person might not be the best way for another. The question was too personalised and individualistic.

However the one that eventually guided the research evolved from this individually focussed one to a question that, if addressed through the research and answered could make an impact at an institutional level -:

'*How can the institution improve staff development processes to enable staff to develop a blend of learning, including online, to enhance learning and teaching?*

The difference between two questions is really three fold:

(i)   in semantic terms the emphasis has shifted from the individual to the group staff development process and

(ii)   with regards to the learning focus, the emphasis has moved to a blend of learning, rather than just using ICTs, and

(iii)   since processes tend to go through evolutionary steps of improvement as our understanding of people, learning and technology increases with the affordances, what may appear to be the best at the current time is likely to be outdated rather quickly.

That may be helpful in terms of the generalisability of the study, and its applicability to others who are looking at the study at the institutional level to make some comparisons. In focusing the question my supervisor also encouraged me to look out in that way.

To try to be a little more comprehensive in giving a complete answer to why the question was changed it also has to be admitted that focusing on change at the level of the individual is complex because it can be quite intricate and delicate, and can also be very problematic, because of the

challenge to feel confident that you've identified the real issues related to an individual, because of the complexity of that person's individual context, and it is certainly very difficult to relate any changes that you think you have identified at the individual level to changes in subsequent delivery of teaching and student learning generally. So it is probably a more difficult area to research accurately and maybe one for that reason that would be less likely to produce results that would be portable.

It should be noted that deliberately I do not use the term 'blended learning', though I tried to define the term 'blended mode' above, because it is argued (Oliver & Trigwell 2005:17) that it is ill-defined and inconsistently used and I agree with much of the article. The term is loosely used and while I recognise that there is a growing research community with this focus of 'blended learning' (Dziuban et al. 2004:2), (Heinze 2004:3), until some agreement can be established regarding the meaning of the term each article needs to interpreted carefully in its own learning environment context. Draffan and Rainger use the definition from the wikipedia.org site (Draffan & Rainger 2006:55) and I am aware that they have developed a model of the challenges to blended learning but in their final paragraph they seem to be unaware of significant scholarship in higher education regarding Vygotsky, for example the use of activity theory (Engeström 1999:19-21, 2000:960-969), and this undermines my confidence in the argument.

To close off this introduction as a summary this study contributes new knowledge in research and practice in the following ways:

- by providing rigour and transparency in the application of grounded theory methods to identify theory during the analysis of qualitative data, including the use of cluster analysis and vector cosines (Everitt et al. 2001 : chapter 1), to guide the approach to the analysis;

- by extending the existing knowledge about the management of change at a systemic level through identifying specific ways in which that change can be enhanced; and

- by establishing that development and change in the understanding and experience of academic management through group learning regarding the use of ICTs would contribute significantly to growth and change of knowledge delivery in using ICTs among academic staff in developing their learning environments.

CHAPTER 2

THE CONTEXT OF THE RESEARCH:

STAFF DEVELOPMENT

IN A CHANGING TECHNOLOGY AND LEARNING ENVIRONMENT

2.1   Introduction

2.1.1   How the Research Question informed the Literature Review

The various elements of the research question, together with the need to define a framework and strategy suitable for the research, informed and guided the literature review.

As indicated in the previous chapter, words, such as staff development, learning and teaching in the context of student-centred learning, e-learning, online learning, and, the learning and teaching affordances related to technology, need discussion and definition. I will also expand on some of the theories associated with learning such as constructivism, introduced in the previous chapter, including some comment on the contested term of pedagogy, as I prepare a case for how the methodology used and the chosen framework of the research were arrived at. Both the framework and the methods used will then be discussed over the next two chapters.

The elements of the research question that shaped the context of the research were focused on the particular theme of improving staff development processes within a higher education institution, in order to enhance learning and teaching, at a time of international, national and institutional change, impacted by the technological change that in turn is still driving change in curriculum development.

The global developments that were influencing the change taking place within the institution concerned the introduction of the use of ICTs as part of the learning and teaching process, so part of the structured review considers how the introduction of ICTs impact staff development needs as the technology is made available.

I also considered it necessary to review the literature on supporting change in higher education because one of the goals of the research was to make practical recommendations to the institution on how better to support staff development as the academic staff members of the institution go through this change.

The literature review was ongoing. Later, in chapter 4, I will discuss in more detail how further critical appraisal of related literature contributed to the methods used, and, in chapter 5, the collection of data. As will be argued in those chapters I needed to find a set of guidelines to process the data collected for the research, and, given the tentative framework used for the research (which is also discussed later in chapter 3) I concluded that the literature on grounded theory should also be reviewed.

2.2   The Understanding and Meaning of Terms used

2.2.1   Staff Development

There is a need to have clear definition of what staff development means and there are other terms used, for example academic development and educational development, that are understood to be very closely related.

Working professionals within the field of academic, educational and teaching development, refer to the profession using different terminology for quite specific and often historical reasons (Fraser 2001:54). A very broad definition could be that staff development is a general term that can encompass a whole set of processes that could take place in any context, not just within a tertiary (HE) context, and could involve staff on any issue (Fraser

2001:56). Such a definition is obviously too loose to apply to a study of processes that are focused within an HE environment. Another definition, suggests that staff development is normally considered to include the institutional policies, programmes and procedures which facilitate and support staff so that they may fully serve their own and their institution's needs (Webb 1996:1). This latter definition is taken from within the context of higher education, but is still not concise enough for this study as the range of staff employed within an HE institution can be very broad. This work is focused more on academic staff as distinct from administrative, or technical, support staff.

The use of the word academic instead of staff, when referring to the development of people who work in the academic teaching sector of HE, seems to have arisen from the desire to encourage academic development to become more accountable (Brew 2002:5), the argument being that it is too easy to make assumptions about what will work in educational and academic development work. I will discuss in more detail below the idea of a relationship between being accountable and that for which one is to be held accountable. For example, has someone defined a standard, and if so who has; and why has what might be regarded by some as a gold standard, been set.

The term non-academic to describe some members of staff should be avoided (Blackwell & Blackmore 2003:xiii), since it seeks to describe a large group of people by what they are not. Administrative and technical support staff are playing a significant and increasing role in the learning and teaching environment as technologies develop, but in this research the focus is more directly on the academic teaching and management staff.

One way to elaborate the claim (Andresen 1996:38-49), although a contested one (Jenkins 1999:281-284), that academic development should have a more academic foundation, is a proposal (Harland & Staniforth 2003b:25), that many more research-active staff should contribute to its knowledge base. This ongoing (Andresen 2000:24,26), argument is timely in view of the changing role of academic development, as institutions become more conscious of the need to support organisational change and policy development. In particular it is very relevant to this piece of work because it highlights one of the unknowns about staff development, regarding the change in the role of the HE teacher, in light of the changing environment with the introduction of technology to support teaching and learning. One of the unknowns, in relation to the processes that might support staff development, relates to the impact that academic teaching staff being research-active might contribute to their development, in relation to teaching and learning using learning technology. There is a view, (Lamon et al. 1999:3), that instead of advancing our understanding of learning and teaching we are mired between didactic and child-centred theories of schooling (Bereiter 1999: ch 11,:4), because there are two cultures within the education profession. One is a radical craft culture and the other is a research culture. There is commerce between them, but this division, a division that does not exist in the more progressive professions, stultifies each. Although this view is focused from involvement with teachers and school reform perhaps it also has wider systemic implication when arguing why educational reform has not yet achieved what may be possible.

Earlier the emphasis on improvement was almost totally concerned with teaching and learning (Warren Piper 1994:1,2). Fraser, mentioned above, as far as Trigwell is aware (Eggins & Macdonald 2003:28) has conducted the only empirical study of academic developers conceptions of academic development. However, the author of the next chapter (Eggins & Macdonald, 2003:32-43), Land, writing two years earlier, in exploring the notions of change that seem to underpin the ways in which academic developers practise within specific organisational contexts and cultures (Land 2001:4), draws on a two year empirical study across UK institutions! This study links concepts of change to twelve different 'orientations' that developers consider appropriate to the organisational forms, academic cultures, and sub-cultures, within which they practise. For example, a managerial orientation would be concerned with developing staff towards achieving institutional goals and mission, whereas an internal consultant orientation would work with departments or teams in an advisory capacity and function within the department or course team.

Land provides an opportunity for colleagues to examine their own concepts of change, through a conceptual tool for auditing the extent to which approaches used in academic development units might appropriately address the cultures and needs of their organisations. The twelve orientations work at various levels, or focus, from individuals to departments, or across the institution, and to be effective, Land argues that each orientation needs to be congruent with the organisational culture, or cultures, within which the academic development is focused. He locates his argument within four main patterns of organisational behaviour, hierarchical, collegial, anarchical and political (Becher & Trowler 1989), but perhaps in work that is becoming

dated, and in another model (McNay 1995:106), McNay considers the cultures of universities ranging from collegial academy to corporate enterprise, and emphasising collegium, bureaucracy, corporation and enterprise, which it is argued co-exist in most universities, but with different balances between them. However the earlier work of Becher and Trowler has since been updated, based on reflections on a decade of profound changes in higher education across the world (Becher & Trowler 2001:xiii). Over the decade the complexities of universities, which have been echoed by others, (Fullan 1993:37, 2001:xi), (Middlehurst 1995:101), (Somekh 1998:12), and noted as cumbersome bureaucracies (Hargreaves 1994:8), have been further affected by major shifts in the topography of academic knowledge and more significantly in the landscape in which it lies (Becher & Trowler 2001:1), not only in higher education institutions and systems at the national and international level but also in the socio-economic contexts in which they operate.

Land constructs an integrate model (Land 2001:9), of academic development in which he attempts to align different orientations to academic development with particular stakeholder groups. The model appears quite complex, but that reflects the characteristics that define a range of stakeholder groups within the HE environment and their needs, when considering their academic development. The model is helpful as it supports reflection when considering challenges of providing relevant development for academic staff within the complexity of organisational culture. His plea for caution against reading too much prescription or closure into the model needs to be heeded because of the rapidity of change, but it is illuminative for reflection, although it does contain substantial content that requires significant reflection. The

impact it had in relation to this research was to affirm, because of the complexities and rapidity of change, the tentativeness I had regarding what orientation to academic development would be likely to serve the needs of the institution. I will develop that below.

Whatever the organisational characteristics of an organisation, or the orientation to academic development, there is a common identification across all of them with change. Still, there appears to be no universal model for delivering staff development in HE in the UK (Blackwell & Blackmore 2003:36), and that may be as a result of the complexities outlined above regarding the characteristics of each organisation and the challenge to align the orientation to academic development closely with those characteristics.

In the case of this research, the focus is on the processes that will enhance academic development, specifically to support the introduction of ICTs into the learning environment, and the staff referred to include both academic teaching staff and academic management staff, some with more exposure to using technology than others. While recognising the increasing involvement of academic administrative staff and technical support staff, in the overall system that enables learning and teaching to achieve the mission objectives of the institution, I recognise that there are differently focused development processes required for staff in these two areas, also important but outside the focus of this work. Members of staff in academic management are included in the staff group being considered because they do have a direct influence and involvement with the delivery of learning and teaching.

When considering the need to understand staff development, other more foundational questions come to the fore. For example, who is developing

whom? The notion of development can have associations with the idea of standards (Webb 1996:10), which could be used to identify improvements. Is there, as hinted at earlier, a gold standard that we are aiming to achieve? Another approach would be that there is mutual development going on through academic colleagues learning together. What is the purpose of development and what improvements are required? In whose judgement is any change considered an improvement? Reflection on some of these questions raises two more fundamental questions. What is the purpose of the education we are seeking to provide? Why are we trying to enhance learning and teaching? I attempt to address some of these fundamental questions in the next section because they impact on the methodology chosen and so that the research can be continued with a sense of integrity, but before doing so there are some other terms that need discussion and understanding in order to bring some clarity to how they are understood in this work.

2.2.2. Understanding the use of Pedagogy

Earlier I mentioned pedagogy to be a contested term. If a strict definition is maintained, the use of the word in higher education is considered to be quite unsuitable (Cannon 2001:415,416). The origin of the word is derived from the Greek paedagogus, a trainer and teacher of boys, and as someone who had oversight of their development there were overtones of dogmatism and severity. Some, (Hase & Kenyon 2007:1), (Ashton & Newman 2006:828), (Conner 2004:1), who do not favour using the term in higher education understand the pedagogic relationship between teacher and learner

to be one where the teacher decides what the learner needs to know, how the knowledge and skills should be taught, and when.

An alternative suggestion (Knowles 1984 : chapter 1), is made to use andragogy, defined as the art and science of helping adults learn through discovery learning (Knowles 1984:47,48), for which he later argues in considerable detail (Knowles 1990:57-65). Notwithstanding the origin of the word, the Oxford concise English dictionary does state the meaning of pedagogy as the profession, science or theory of teaching (Pearsall 1999:1051). That understanding is widely accepted and continues to be widely used even in higher education. One example is the use of the word pedagogy in the title of a recent book (McLean 2006), which grapples with the serious issues raised above concerning the purpose of higher education in general. In seeking to progress this research the underpinning purpose of staff development needs to be addressed in particular, and I will try to achieve that in the next section when arguing how, and why the thesis is concerned with staff development.

There is a suggestion (Hase & Kenyon 2007:2) that a third term, heutagogy, the study of self determined learning, may provide an optimal approach to learning for the twenty-first century. Others who have cited Hase and Kenyon (Coughlan 2004:3), (Ashton & Newman 2006:825), were seeking innovative approaches to learning beyond those normally associated with pedagogy or andragogy, with a particular emphasis that focused on the need to learn how to learn, and are learner rather than teacher centred. In both cases they were seeking graduates ready to take their place in the 21st century globalised knowledge economy.

While recognising that the use of the word pedagogy, in relation to its meaning in higher education, is a contested one, it is not the key focus of this thesis to argue for a particular position in that debate. Despite the attractiveness to use heutogogy, there are examples of learning theory where the teacher does play a critical role in facilitating learning and I am not convinced that sufficient empirical studies have been conducted to support the use of heutagogy at this stage. The examples tend to have been specific case studies.

Pedagogy and the related words, pedagogical and pedagogic have come to have accepted meanings even within higher education (Stierer 2004:275), (Joyes & Frize 2005:34), (Kirkwood & Price 2005:260), (McLean 2006), (Yorke 2003:104), so rather than introduce the alternatives, such as heutagogical and andragogic, when I continue to use pedagogy and its adjectives I mean an activity which is aimed at developing minds to think rationally (McLean 2006:22), as it is widely used and its meaning understood to denote the profession, science or theory of teaching.

Just to round off the discussion, none of the above positions have argued from a cultural aspect of learning and I am aware of the argument (Bangura 2005:13-54) that after almost three centuries of employing western approaches, the educational salvation for Africans hinges upon employing indigenous African educational paradigms which can be subsumed under the rubric of ubuntugogy, which is defined as the art and science of teaching and learning, under-girded by humanity towards others.

When considering the challenge of staff development, and in that context seeking to construct a pedagogy of teacher education, there are a

number of dilemmas that teacher educators face (Tillema & Kremer-Hayon 2005:213). This concept of dilemma may provide a framework to disclose how teachers realise their conceptions of teaching in actual teaching practice. For example it might be useful to listen to teachers discuss their teaching strategies to cope with the desired move to a student-centred learning environment, that includes the use of learning technologies, in dilemmas composed of theory and practice, reflection and action; supervising and mentoring, delivery and enquiry, within the context of their professional growth compared to remaining static in their own teaching and learning. This may provide further insight into the experience of change in their conceptual understanding of the subject matter they teach, which, as I outlined in the previous chapter, is claimed to impact on the change, from simply transferring knowledge to facilitating students to develop conceptual change in their understanding of the subject matter (Trigwell et al. 2005:251).

Finally, before closing the discussion related to pedagogy, there are a few brief points regarding models of teaching that are useful to note in that they will contribute later when the framework of the research is discussed.

A diagrammatic representation of didactics (Kansanen 1995:347-352), and pedagogy, is often presented in the form of a triangular model (Pepin 1999:57), as shown in Figure 2.2.2.
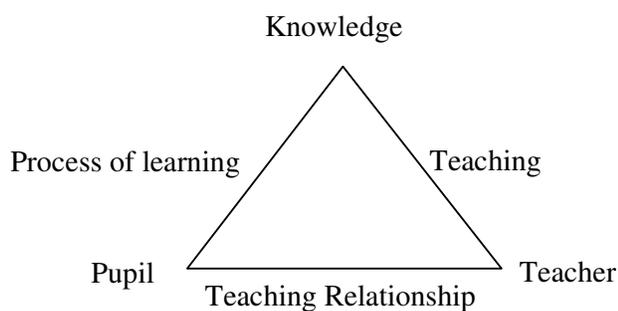
Figure 2.2.2 Triangular Model of Teaching and Learning

The terms Teacher, Pupil and Knowledge are generic. Knowledge for example means all available knowledge in a specific subject. The term Teacher carries with it all the components of the educational system that assigns this role to him/her. The three axes of the triangle which link, for example the teacher to the knowledge on the one hand and to the pupil on the other, and also the pupil to the knowledge, are represented by processes and conceptions as shown in Figure 2.2.2. How this relates to my framework is developed in chapter 3.

Another classification of teachers' knowledge, (Shulman 1987:8) , has proven to be very stimulating to research related to teaching because it identifies various components that contribute to a teachers' knowledge base overall. A more detailed discussion will be developed in the next chapter particularly as an additional component may now need to be added with the introduction of technology into teaching and learning. It is useful to note that Shulman asserted that where the teacher cognition programme has clearly fallen short is in the elucidation of teachers' cognitive understanding of the subject matter content and the relationships between such understanding and the instruction teachers provide for students. This seems relevant in this context regarding the effect of teachers' cognitive understanding, or lack of understanding, of the new technological affordances, which are discussed in the next section, on the instruction teachers might provide for students.

A different approach, (Brown & McIntyre 1993:70), uses a model that lays emphasis on representing an integrated knowledge as distinct from the individual components emphasised by Shulman. While their book is a very readable account of a research project that involved primary and secondary

school teachers the editor's introduction claims that as well as being of immense value to all those involved in pre-service and in-service education, it will also benefit those involved with curriculum innovation and appraisal. It is about how teachers themselves make sense of what they do and from that perspective it informed how I wanted to obtain initial data from staff, by asking them to reflect on their teaching, and how I would use such data for further analysis and development. Reflection-on-action refers to the process of making sense of an action after it has occurred and possibly learning something from the experience that extends one's knowledge-base (Moon 1999:45). In this current work I am not anticipating making use of reflection-in-action as the lecturers will not be involved in the action of teaching. It may be a useful development of the work later. The value of the research of Brown and McIntyre is in how it reveals the complexity within and between teachers' major concerns and it provides clear indications of the importance of promoting reflective practice and the articulation and sharing of knowledge by teachers about teaching (Brown & McIntyre 1993:4-6). For completeness the diagram of the model of Brown and McIntyre is available in Figure 2.2.2.ii (The Model of Brown and McIntyre) in Appendix 2.

2.2.3   What is meant by affordances in an e-learning context?

The term e-learning tends to be used loosely both in the literature, (Ravenscroft 2003a:3), and in discussion generally about learning using technology. Online learning, internet-based learning, web-based learning and e-learning are used interchangeably (Capper 2001:245), in this case deliberately. Some examples from the range of technology applications for

learning (Conole 2002:8,9), are simply the use of email to support communication and collaboration; searching the world wide web, accessed through specialised information gateways such as Intute, the new face of Resource Discovery Network to enable access to the resources of the learning environment; a variety of learning management systems (LMS) such as WebCT, which attempt to join up virtual learning environments (VLEs) with institutional administration systems (Britain & Liber 2004:4); specific computer based materials and media for interactive learning, networked learning (de Laat et al. 2006:101); (Hodgson & Reynolds 2005:12) (Jones 2004:88,89) applications using distance education; and increasingly the use of audio, video and mobile facilities. For some, e-learning means a fully online course; for others, it means the use of a learning management system and for others with a rather limited understanding of learning, it can even be access to the provision of lecture notes in the form of PowerPoint slides!

The European Union definition of e-learning is, 'using new multimedia technologies and the Internet to improve the quality of learning by facilitating access to facilities and services as well as remote exchanges and collaboration' (EC Publication 2003:3). The definition is quite broad, but it contains key concepts such as the quality of learning, facilitation, exchange and collaboration (Daly 2006:89). However, it does not contain any mention of related pedagogy or learning theory that would underpin the learning supported by technology. The role of technology should be to support rather than dictate an underlying pedagogic design (Joyes & Frize 2005:34). In order not to be restrictive, and to recognise the broad use of the term e-learning in both the literature and general discussion, and which is likely to be the

meaning that is understood by participants used for collection of data for this research, in this case I will use it to represent learning that is assisted, augmented or 'delivered' by technology (Ravenscroft 2003a:3).

A lot has been written about the technology and its potential, but not so much about what the teachers and learners actually do online (Salmon 2003:12). It is not the technologies, but the educational purposes and the pedagogy that must provide the lead (Kirkwood & Price 2005:257), with students not only understanding *how* to work with ICTs, but *why* it is of benefit for them to do so. However one reason for the lack of application of models and theories by e-learning practitioners may be that, as academics outside the specific field of education, they find the diverse array of theoretical perspectives overwhelming. Evidence suggests that they are unclear about how to use the technology appropriately, and its application is often based on common sense rather than being theoretically informed by pedagogical theory (Conole et al. 2004a:17,18).

It is time therefore to develop the discussion about affordances, beyond the simple definition (Salmon 2003:33), of what the technology enables or creates the opportunity for. It is difficult to exploit the properties of technology in specific learning and teaching contexts, if the 'affordances' are not understood.

The concept of affordances (Gibson 1979:127-146) has been developed as the perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possibly be used (Pea 1997:51-54). As a practical support a taxonomy of affordances (Conole & Dyke 2004b:116-120), is offered to help contribute to a better

understanding of the nature and properties of the use of ICT for learning and teaching. The taxonomy provides a description of the affordances listed, with both positive and negative connotations. I will refer only to some of them below as the discussion about, and further research on, the use of the taxonomy is ongoing (Conole & Dyke 2004b:122) and begins to diverge from the focus of this work. However I do have reservations about the extent to which the taxonomy can convey the breadth of what affordances encompass, for the reasons below. Conole & Dyke also recognise that the fundamental issue is the level of granularity at which the taxonomy might be appropriate (Conole & Dyke 2004b:122), and whether it is a useful philosophical critique of the inherent affordances of ICT at a general level or whether it can be used more explicitly in terms of mapping to particular ones. Further research and time will inform this. My current reservations are as follows.

Pea argues (Pea 1997:52), that research examining the concept of affordances is critical if we are to build a science of distributed intelligence and a more flexible design orientation to the practices of education. The issues are made more complex because the technical tool which is being used to assist the development of cognition by the person(s) using the tool also can contain some intelligence. So when the tool is used in an activity of learning, the idea of an affordance is not simply that which resides in the tool, but the culture and context of the learning environment in which the tool is being used also contribute to the achievement of increased understanding. Gibson's insights on affordances, which emphasised the affordance structure of the tool, underplay the cultural factors involved in learning to use humanly designed objects. Better design of the tool makes it easier to accomplish functions when

using it, but it is the tacit intelligence in the tool, designed into it by intelligent people in the first instance, combined with the constructivist learning that is experienced when using the tool that contributes to the affordances as a whole. Such is the range of tools and the opportunity to design and develop even more intelligence within them, and then to apply them in an increasingly diverse way that makes the research agenda open and challenging, and also suggests that the taxonomy of affordances may be limited in use, depending on how it is applied to develop better understanding of the affordances.

In the context of learning and teaching, one affordance is the potential ICT has in terms of access to resources, both to allow access to the technical resources and through them to access a range of online materials and knowledge bases. In turn that enables resources to be shared, providing useful storage facilities for students to record their work, but also sharing practice through the use of the learning resources. There are benefits and disadvantages associated with such access. Isolated learners can be linked up to learning communities, but how such communities are supported has implications for e-moderators (Salmon 2003 : chapter 3), in terms of provision of a strong social scaffold (Seely-Brown & Duguid 2002:87-89), which if inadequate may even be harmful. It is also claimed (Salmon 2003:80), that despite the potential offered by technological infrastructure and support, even when worthwhile learning applications are developed, without staff development nothing is likely to happen beyond pilot schemes. Given the substantial financial and technical support available in this institution, this research was started to investigate possible ways forward that will enhance the support of academic staff development to use the investments effectively.

Another potential affordance is to facilitate the development of concept acquisition, conceptual development and conceptual change (Trigwell et al. 2005:253), through enabling academic staff to apply learning technology support effectively. As mentioned in the previous chapter, because the learning technology enables access to electronic sources of knowledge, facilitates interaction among student groups, and allows academic staff to moderate learning within their learning environment, this is a valuable affordance. As the academic staff do so, and thus experience change in their understanding by addressing and re-interpreting problematic knowledge in the context of the group work, they are more likely to experience teaching as student-focused (Trigwell et al. 2005:262).

Over the past fifty years as the variety of pedagogical and learning theories have been developed and proposed; behaviourist (Skinner and Gagné), cognitivist (Pask, Piaget and Papert), situated (Lave, Wenger and Seely-Brown), social-constructivist (Vygotsky), socio-cultural (Engeström) and community-based (Wenger and Preece), a corresponding array of technology systems, languages and activities have become available (Ravenscroft 2003a:4). The affordance of the technology for each is limited in its application even within the theoretical base for which it was developed. A carefully constructed analysis and argument (Ravenscroft 2003a:10-11), recognises the valuable conceptual resource of socio-cultural features that have been provided by Lave and Wenger, and that this should be considered when designing, cultivating and developing communication in online communities, but Ravenscroft also argues that the central tenet of their approach is too simplistic. This is because of their belief that the learning

process takes place within a participation framework, not an individual mind (Lave & Wegner 1991:15). I tend to agree with the conclusion that learning is a process that takes place within a participation framework and also an individual mind (Ravenscroft 2003a:11). Consequently in this research the socio-cultural features and cognitive processes need to be combined through involving the academic staff, from whom the data is collected, in both group discussion to provide the socio-cultural aspects, and in individual reflection to facilitate cognitive involvement, in order to benefit from both components of learning.

When seeking to identify and benefit from the affordances of the learning technology associated with different theoretical perspectives of learning, limitations associated with these different perspectives have been identified (Ravenscroft 2003a:5-11). For example, the inflexibility of the early teaching machines, created to apply instructor-centred behaviourist approaches, to cope with deviant behaviour of students using them; or the relatively abstract and conceptual approach of the LOGO language (Papert 1980) to facilitate authentic learning in real situations. Specific developments while providing affordances specific to a particular theoretical underpinning, that were appreciated at the time of their development, have been found to have limitations in meeting other aspects of learning support, using different theoretical foundations, but for which they had not been designed in the first place.

That prompts consideration of the implications for e-learning research and development to increase the affordances of technology. Again, while the development of new technology to support learning is not the focus of this

research, there are related aspects that do contribute directly to this work. Given the development of social-constructivist ideas, and the increased emphasis on online learning communities, involving both social and cognitive aspects of learning, there has been increasing diversification in approaches, and an objective of this work is to focus on aspects that will improve staff development processes, which includes exploiting whatever affordances continue to be provided with increasingly sophisticated technology. It is held (Ravenscroft 2003a:13) that effective e-learning usually requires or involves high-quality discourse that leads to at least improved knowledge, and at best conceptual development and improved understanding. For this to be possible we need to adopt a more sophisticated approach to e-learning design that accounts for necessary relationships between cognitive changes, dialogue processes and the communities, or contexts for learning. I will develop how this research makes a contribution to this, when presenting the outcomes from the analysis of the data.

Finally, on affordances in an e-learning context, it is worth noting continuing work (Ravenscroft et al. 2003b), using a socio-cultural approach integrating social learning theory, with more focus on developing the affordances through using animateurs as catalysts to invited participants, in order to encourage interaction in online communities, with the objective of their continuing involvement, as the animateurs then fade out of the interaction allowing the community to grow in an organic way.

I will return to how the outcomes from this research can suggest ways forward for further research and development concerning relationships

between dialogue interactions and the cognitive exchanges that represent learning.

2.2.4   The Constructivist approach to learning

Since a motivation for this research comes from the strategic plan of the institution to move to a student-centred learning environment, a brief consideration of related learning theory, in particular within the constructivist paradigm, may help to clarify how both social constructivist (Vygotsky 1978:84-91) and cognitive constructivist (Piaget 1978:65) approaches can be used in a learning environment supported by technology. Earlier, I discussed how perceptions that staff have of teaching their subject can impact on whether they emphasise the transfer of knowledge, and thus tend to a teacher-centred approach, or if they emphasise conceptual development and therefore are inclined more to a student-centred approach. The emphasis on learner-centred cognitive processes associated with knowledge assimilation, knowledge creation and conceptual construction are typical features of the constructivist paradigm (Ravenscroft 2003a:7). Constructivism is based on the notion that learners construct their own meanings (Sharpe 2004:134), and so constructivist perspectives on learning exist across a wide spectrum (Levy 2006:226), embracing the more individualist-cognitivist, the social-constructivist, and social-constructionist epistemologies. Cognitive constructivism is about how the individual learner understands things in terms of developmental stages and learning styles. Learning activities developed to facilitate the cognitive approach are based on the theory of constructionism (Papert 1980:117), which holds that children learn best when they are in the

active role of the designer and constructor. Papert says that this happens especially felicitously when engaged in constructing in a public way, and when the creation and end product are shared with others, the full effects of constructionist learning take root. His emphasis, however, is on the construction. Social constructivism emphasises how meanings and understandings grow out of social encounters. Social constructionism, however, emphasises the designing or constructing something in public, as distinct from the learning that occurs just through social interaction.

Some examples related to the use of ICT might help in clarifying the definitions and meanings that I am using for each. Working with others to write or construct a computer programme to solve a business problem, I understand to be social constructionist. Collaborating in a discussion group where ideas and explanatory suggestions are benefiting the participants by clarifying thinking on a topic, I understand to be social constructivist. Developing a thesis as an individual to state a theory or a position, reasoning out the argument based on knowledge of the related facts, I understand to be individual cognitivist.

When applying professional knowledge in practice, it has been realised that learning knowledge and using knowledge are not separate processes but the same process (Eraut 1994:25). Eraut argues that the process of using knowledge transforms that knowledge. However there is also the view (Polanyi 1983:9,10), that it is not always possible to explain or discuss what is known. In the case of this research it needs to be borne in mind that if academic staff are going to be asked to talk about their knowledge of teaching, and in particular to talk about using ICTs, which may be tacit knowledge,

there may be limitations on the construction of new knowledge because they may find it difficult to articulate what they may in fact know intuitively. That sort of development, which enables them to construct explicit knowledge by interrogating their tacit knowledge, is a goal of the research.

2.2.5   A possible Paradigm Change?

Before discussing the rationale underpinning this study on staff development and then summarizing the conclusions of the review, I need to make clear an assumption that underpins the work, namely that I accept the broad position that there may be a significant change of paradigm, in the whole field of technology in relation to learning, and there are implications of that for how we then read and consider related issues.

A paradigm is essentially a worldwide view, a whole framework of beliefs, values and methods, within which for example researchers carry out work, in relation to what is to be observed, the kind of questions to be asked, and how the results should be interpreted. I have mentioned a few paradigms of learning above. Kuhn introduced the word when he adopted it to refer to a set of practices that define a scientific discipline during a particular period of time. Successive transition from one paradigm to another via revolution is the usual developmental pattern of mature science (Kuhn 1996:10,24). An example is the change from Newtonian theory of mechanics to Einstein's theory of Special Relativity, distinguished by what happens in relation to the speed of matter. Kuhn did not however consider the concept of a paradigm appropriate to the social sciences; in fact as he explains in his introduction, he used the concept of paradigm to distinguish the social from the natural

sciences. The idea of a social paradigm was introduced to address the concept of change (Handa 1986), and the process became popularly known as a paradigm shift.

The major focus of this dissertation is staff development in relation to teaching and learning with new technologies. In reviewing the literature, it is important to acknowledge at the outset that there is a significant challenge here in that it is arguable that the new technologies are themselves changing the ground rules and the possibilities of teaching and learning in a range of contexts in ways that are as yet only partly understood, only partly researched and therefore possibly may yet not be finally or well theorised. The implication of that is two fold. First of all there is tentativeness in my mind about which theories and which knowledge are going to be the most crucial and the most robust in doing the research, and secondly there is a corresponding tentativeness about the implications and the methods of the data collections and the frameworks for understanding the data and reporting the data. Since there is this corresponding tentativeness and uncertainty around those, to try and make the points of confidence clear, I want to try and anchor the work in various ways, but I am also aiming not to lose that sense of tentativeness as part of how I want to present the work.

The assumption of a change of paradigm is based on the following reasoning. Learning and teaching has been influenced by the availability of various sources of learning resources over the centuries. Many of these sources were oral until a 'technology' became available to record the resources for learning.

With the invention of moveable type, a change of paradigm occurred in learning and teaching after the 15th century that consequently allowed books, which contained much of the content for learning, to become accessible to many more people. The impact was particularly strong, initially in Europe, and later in America and other English speaking cultures.

My assumption that another paradigm change may have occurred with the technological inventions, developments and affordances now available to promote access to global learning, and teaching and learning resources, is epitomized in the following (rather lengthy) extract from an article on how this shift might shape institutional futures in the academic community:

> … Higher education's constancy is truly venerable, but does it stem from innate characteristics of the institution or from the constancy of its underlying technology? A look at history from the modern perspective suggests the latter. Since the Gutenberg Bible was printed in 1456 using moveable type, the technology of information storage, retrieval, and transmission – the university's basic technology- has remained essentially constant until the current era. Indeed, the use of written records to supplement oral teaching goes back to the 5th century BC. Since their inception, universities and colleges have relied upon lectures, discussions, and the written word because these were the only technologies available. Information technology has opened new and fundamentally different options for teaching and learning. History demonstrates that fundamental technological change ultimately begets significant structural change, regardless of whether the affected participants choose to join or resist the movement. The changes that universities have weathered over the centuries did not upend their basic technology. Information technology does (Massy 1997).

This is a really critical article on how technology might shape institutional futures. The relevance to this present study is two-fold. While higher education's constancy is truly venerable, the learning and teaching affordances of the developing technology, and the corresponding challenge to change existing learning and teaching practices through the use of that

technology, begin to have implications for how the academy delivers its core vision and values to increase knowledge and understanding among students and staff, and to share the application of that with the society at large. These two things which are probably significant in a global context seem to have particular relevance in the current context in Ireland.

It has been suggested that ICT provides new ways of accessing information and communicating ideas. As they become easier to access, these new tools change the fabric of the culturally patterned ways in which we undertake scholarship and work, and extend our capabilities through the process of distributed cognition. It is only a matter of time until access to powerful, portable technologies is available to all teachers and students (Somekh 2001). Since that article was written still further steady advances in processing power, memory capacity, applications software, accessibility to knowledge bases and communities, with reducing costs, facilitate increasing possibilities that impinge on learning and teaching. New technologies are not only changing technology, they are changing work. That is absolutely relevant to this present study because the study is not simply looking at technology in teaching and learning, but rather the professional and cultural practices which accompany that.

In higher education Nixon specifies three changing conditions that are impacting on academic professional identity: the changing student body, changes in curriculum, teaching and assessment and the changing conditions at work (Nixon 1996:6). Academic teaching staff are responding by planning more flexible responsive and inclusive programmes of study and they are being required to teach differently. The reality is that the task of the academic

teacher is shifting from the transmission of information towards the management and facilitation of student learning partly because the current student net generation expect to be involved in its use for learning (Oblinger & Oblinger 2005 : chapter 3).

Jones notes that Steve Wosniak, one of the originators of the personal computer at Apple has been quoted (Lyon 1995:54-73) as saying that the inventors of the PC were self-consciously exploring the idea of a technological revolution reshaping society (Jones 2004:84). Time will tell whether my assumption of a change of paradigm is valid.

2.3   Philosophical Approaches to Staff Development

In the previous section while attempting to understand and explain the terms used in this work, the important issue of the purpose for undertaking staff development was raised. It is now opportune to reflect on the rationale underpinning the approach taken that motivates this work and its relationship to the methodology chosen.

It is a topic that is fascinatingly rich and has been informed over many years as the research base has steadily increased, and is engaging by its very nature. In the short space available, it is not possible to set out in comprehensive detail the many strands of philosophical, scientific, political, cultural, psychological, religious and other thought. Each of these could be traced in much greater depth regarding how they have influenced current understanding and thinking about ontological, epistemological, hermeneutical, ethical and metaphysical influences on research related to staff development.

The danger in being selective is that the depth of scholarship which underpins each strand is such that, aspects inadequately covered or even not addressed, which others with involvement in that focused scholarship may consider critical to include, will be regarded by them as being overlooked. However despite this somewhat broad-brush sketch, I endeavour to convey what underpins this work leading eventually to the methodology chosen for it.

The question was raised earlier whether there was the gold standard of an ideal teacher, which might be an objective for staff development. This approach to staff development raises the issue of how that standard would be reliably measured and is related to the research over the years that has been informed by the positivist approach.

2.3.1 The weakness of a positivist approach

The approach based on positivism is one of the rich strands of research and comment over many years which it is not possible to cover adequately here. However the quote, 'many people have come to the realization that the age of progress is now over and we need to announce the death of development' (Webb 1996:32) comes as a rather stark conclusion at the end of a chapter arguing that positive knowledge, or positivism, as a foundation for practice, has been criticised as lacking insight into basic human understanding. What is being argued is that in practical terms there is not this gold standard, or ideal teacher whom we are trying to enable academic staff to become. There is a lack of confidence in the method of measuring progress and a lack of certainty that the results are reliable for many reasons (Popper 1979:204,342).

In the chapter Webb surveys the background to positivism, a view of the world that seeks to base knowledge on rational, logical and empirically verifiable information (Webb 1996:10), and how the critique of positivist scientific method concluded that scientific knowledge is provisional, that reason and rationality are essentially critical in nature rather than foundational, and, that progress is achieved through critique and refutation rather than the assembly of truthful propositions upon secure foundations (Webb 1996:14).

The critique and the related arguments summarised by Webb, concerning faith in reason and science, and evolution, and how they relate to educational and staff development may be claimed to capture the broad thrust of the many arguments advanced over much research, but of course they do lack the detailed attention that is important. For example, in the discussion about the role Kuhn played regarding his claim about change in natural science occurring through challenges to an existing paradigm, Webb doesn't mention that Kuhn actually introduced the use of the word paradigm to distinguish the natural sciences from the social sciences, within which he did not consider the use of the word appropriate.

The detailed critique and discussion related to positivism need not be repeated here, but they do raise the concept of what view of the world, or worldview, this work is being influenced by. The phrase, the fundamental perspective from which one addresses every issue of life, is offered as a somewhat vague definition of a worldview (Sire 2004:24), and it is an issue that will be developed more below.

2.3.2   Taking a Hermeneutics approach

Having stated his stark conclusion regarding the dependence on a positivist approach, and also argued it elsewhere (Webb 1993:99), Webb goes on to argue (Webb 1996:59) how hermeneutics, that is, how we use and understand language, as distinct from scientific method, places humanity and understanding in the foreground and how it is by gaining understanding of our shared humanity and of the position, concerns, thoughts and feelings of others, that we might help them learn and develop. As the argument from this perspective is stated more positively, it is questionable how deeply he believes in the death of development. That conclusion might even be a case of the tacit knowledge (Polanyi 1983), mentioned above, that Webb undoubtedly does have regarding staff development, not being explained clearly, or it may be an example of how a word needs to be understood, by me, in the context of a whole sentence, in order to understand the meaning of the word, a concept he attributes to Schleiermacher (Webb 1996:38) and something that is also expanded on below.

The work attributed to Schleiermacher in describing clearly the paradoxical nature of understanding, which he called the hermeneutical circle, is particularly helpful. I agree with Webb that this is one of the most useful tools in attempting to illuminate educational and personal development, and identify with his emphasis that this is of fundamental educational importance (Webb 1996:38).

Staff development is concerned with people, and the emphasis of even using the word staff tends to objectify the flesh and blood human beings who are staff. As with positivism, the details of the argument relating to hermeneutics do not need to be repeated here, suffice it to say that the

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historical summary of the key thinkers and their arguments emphasises that where natural science may seek explanation, human science seeks understanding of human life. The hermeneutical view also includes the ontological insight of our being-in-the-world before all else and our consciousness of our own being (Webb 1996:57).

Ironically the word hermeneutics is associated with Hermes, the wing-footed messenger of the gods to the mortals of the human world (Webb 1996:36). It is this notion, from the time of Plato, which underpins much of positivism. It is based on an idealist position, which sees truth transcending the everyday world of sensory experience, as opposed to the realist one where truth resides in reality, in the world of human beings. The idealist position nurtured the idea that the nature of truth was a matter for metaphysical reflection, while the economic and political systems were grounded in the every day experience of people.

What is needed is an approach that will link the metaphysical and the application in a way that our knowledge and understanding of truth practically informs action on how we live. This is what lies behind a worldview.

2.3.3   A worldview, modern circle and post-modern spiral.

A worldview is impacted and formed by views related to ontology, epistemology, hermeneutics, ethics, moral issues, politics and economics. This is where I find Schleiermacher's suggestion of the hermeneutical circle helpful. It is argued (Sire 2004:51) that, until the seventeenth century ontological issues had been implicitly understood to be primary. In other words, 'what is', or ontological thinking, informed how one can know, that is

epistemological thinking, and 'how one can understand and use language', that is hermeneutical thinking. These have an impact on ethical, moral, political and economic issues. A discussion of the scholarship in that debate is also beyond the scope of this work, but as a way forward I suggest that the hermeneutical circle may help. Schleiermacher's circle approach suggests that we can only understand the meaning of a sentence by understanding the meaning of each individual word of the sentence. Yet at the same time individual words can have different interpretations. The meaning of a particular word in a particular context depends on its place in the sentence and by reference to the sentence as a whole. I suggest that a characteristic of the debate about the order in which to address ontology, epistemology, hermeneutics, ethics and moral issues appears to have similar complications. Schleiermacher suggests that these should be considered as if in a circle of understanding. It does not matter where one enters the circle of understanding, rather the important thing is the subtlety of the relationship and the constant shifting of the position between the part and the whole (Webb 1996:39). A Christian position will conclude that ontology is primary, but others will argue that how one conceives of a worldview depends on one's worldview.

The term 'modern' has a long history (Habermas 1993:92), which Habermas argues has stretched from the late 5th century, though he recognises that some writers restrict the concept of 'modernity' to the Renaissance. The more recent 'post-modern' seems to date from the 1960's. However there is a view (Huyssen 1993:116) that there is a historical distinction between the postmodernism of the 1960's and that of the 1970's and early 1980's. In recognising the vast scholarship behind these terms it is not possible to discuss

them adequately here but in the context of a worldview that underpins this work on staff development they are relevant. For example Hegel and Marx, motivated to promote change, rather than just interpret the world in different ways (Webb 1996:59) wanted to make an impact through societal change. In this regard, building on the work of Marx, Habermas has contributed greatly to the development of a critical theory of society (Habermas 1987:116-130). However recent history has shown that the power of the state, Hegel's view, or seeking change through a class emphasis, the view of Marx, has not resolved the complexities of seeking a fair and just society in the world. Habermas argues (Habermas 1993:101), that instead of giving up modernity and its project as a lost cause, as those grounded on postmodernity appear to have done, we should learn from the mistakes of those extravagant programs that have tried to negate modernity. Huyssen however cautions against accepting the view of Habermas which he believes identified postmodernism with various forms of conservatism (Huyssen 1993:128), and yet Habermas respects Daniel Bell, whom he calls the most brilliant of the American neoconservatives (Habermas 1993:94), and who sees religious revival to be the only solution to the provision of a just society arguing that religious faith tied to a faith in tradition will provide individuals with clearly defined identities, and with existential security. This suggests that the positions of the key players are connected within a complex circle of understanding. Perhaps the concept of a circle is too rigid for the postmodernist as it suggests a sense of closure involving conclusions being made within the circle, when they prefer indeterminacy to determinacy (Belton 2002:3). To overcome that rigidity the concept of a hermeneutical spiral has been proposed (Paterson &

Higgs 2005:343). This provides a hypothetical space for all future contributions in a structurally schematic form and it provides a mechanism for testing their usefulness.

So while this scholarly debate continues to inform thinking it suggests that perhaps even the use of Schleiermacher's circle of paradox is too rigid and a more plausible approach to adopt for this work might be the hermeneutical spiral. The tentativeness that I have alluded to earlier identifies with this position in relation to the theories of learning and the framework for the research. That does not mean that I take a post-modern position and reject the grand narratives that are offered by the various theoretical positions referred to above. Rather I respect the scholarship behind those positions but anticipate that further change is more likely to be proposed by each of them. To ignore the potential contributions of philosophy to academic development is to impoverish the level of debate and ultimately to reduce its effectiveness in achieving its goals (Gosling 2003:70). This partly contributes to the tentativeness with which I want to present the research.

2.3.4   Action Research, Activity Theory, Phenomenography

Finally, in this broad-brush attempt to capture the wider perspectives on various methodologies that might be used for this study on staff development in higher education, which in Webb's view acts as the gatekeeper to privilege and supplier of labour to capitalist enterprise (Webb 1996:65), I want to make some brief comments that lead up to why I decided on a grounded theory approach, which will then be developed in detail in chapter 4. The comments seem to fit here as they concern action research, activity theory

and phenomenography, which have followed on from a critical theory of society mentioned above, and they are related to the ideal that the transformation of staff and the development of pedagogy can be progressed through staff development.

From the perspective of critical theory the ideal response by staff would be to realise their common interests in promoting a common purpose that would change the learning environment of students and contribute to change for a just future society. That ideal seems unlikely to be achieved because of the inability to achieve common purpose. Based on the motivation to take action to make change rather than to merely reflect, action research has been developed as a collaborative approach to examine critically the actions of individual group members as a process of changing lecturers' conceptions of teaching and learning (Gibbs 1995:21). Bourner et al. define action research as 'a form of social research that, typically, involves making changes to resolve a problem that exists in a social situation' (Bourner et al. 2000:233) and it has become somewhat codified as planning, acting, observing and reflecting (Gibbs 1995:30). The concept of a spiral may be applied to commence a further cycle for continuous development (Goodnough 2006:307), (McNiff 2006:36,37) or even a dual process to encompass macro, institutional, as well as micro, course level change (Beaty & Cousin 2003:143,144) reflecting the open ended improvement approach similar to that of the hermeneutical spiral. A standard definition of action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social and educational practices, as well as

their understanding of these practices and the situations in which these practices are carried out (Kemmis & McTaggart 1988 :5).

I agree with Webb's view that contestability and a refusal to curtail criticism should be hallmarks of staff development endeavours in the face of reassurances that a particular position or approach leads to better education, better staff development or a better world (Webb 1996:71). In this connection the view that action research in higher education must consist of a group process of rational reflection to generate a critique of the social and educational milieu (Zuber-Skerritt 1994:122) seems too rigid. For example, why can the response of a rational voluntary individual not make a significant contribution, which is argued (Somekh 1998:12) as a key concept in promoting change and something I will discuss below? In this work the initiative was not coming from a collective group motivated to improve staff development processes so action research was not chosen.

Activity Theory (Engeström 1999, 2000) developed out of Vygotsky's work (Vygotsky 1978), from roots in Hegel and Marx and provides a framework for learning and development which accepts that meaning arises and evolves during interactions that are influenced by the social relations within a community of practice, taking a socio-cognitive approach. Vygotsky's zone of proximal development (Vygotsky 1978:84) might possibly inform PBL theoretically (Harland 2003a:264), and just after the initial PBL stage of this research process I also became aware of the development of activity theory from Engeström's work. At that time having decided to take a more comprehensive approach than what appeared to be offered by PBL, I did not give adequate reflection to the possibilities of using activity theory for this

research at that time, thinking it was more appropriate to investigating contradictions in systems. At the time I was not focussing on the institution's systems but my focus was on identifying methods to collect and process data within a methodology and I realised that realised activity theory was not a methodology (Jonassen 2000:97). I will discuss this in more detail later during reflections on the research regarding how it might now be developed further.

Activity theory gives insight into the contradictions that may occur within and between surrounding activities. Contradictions may occur between systems that have different goals, responsibilities and accountability or because individuals are concurrently members of multiple communities with different roles, ways of working, and social relations. People must thus adjust roles, beliefs and actions to resolve conflicts that may exist within and between systems (Jonassen 2000:107,117,118).

In more recent work published since my earlier conclusion regarding PBL, an approach using activity theory (Peruski & Mishra 2004:47,48), has been applied to support academic staff in facing previously tacit thinking about issues such as course design, teaching methods and philosophies on teaching and learning. These issues have systemic relevance to how this work may be developed and will be addressed further in Chapter 9.

But to return to the reflection on methodologies, in order to map the qualitatively different ways in which people experience, conceptualise, perceive, and understand various aspects of the world and phenomena in the world around them, the research methodology of phenomenography (Bowden & Walsh 2000) has been developed. Phenomenography differs from phenomenology (Lyotard 1991: part II), in that it considers only second-order

or conceptual thoughts of people. The aim of phenomenography (Marton 1981:180) is to find and systematise forms of thought, in terms of which people interpret aspects of reality. Marton does not accept that it is possible to separate that which is experienced from the experience per se. Phenomenology on the other hand is concerned to understand how a subjective perception of 'essence' can be understood as distinct from particular circumstances, which Marton considers too abstract, and I agree that a phenomenological approach would not suit this work. However in seeking to present a critical review of phenomenography as a qualitative research process, Alsop and Tompsett argue (Alsop & Tompsett 2006:243) that although such studies are claimed to be strictly empirical and non-constructivist (Svensson 1997:164), they must be distinguished from both conventional science and educational psychology. Alsop and Tompsett seem to agree however with the alignment with the empirical tradition and non-constructivist approach. This suggests that such an approach would not align with the constructivist approach being taken in this work.

In this broad survey of the overarching philosophical orientation for staff development no mention has been made of techniques of data collection such as interviewing and general techniques of data analysis such as grounded theory. These techniques are of some use in all of the methods (Ashworth 2003:104), though Ashworth uses 'methods' where I use 'methodologies'.

This work, in seeking to understand the needs of colleagues in the world of human experience is located in the constructivist paradigm which grew out of the broad hermeneutical approach (Mackenzie & Knipe 2006:195), within which I am relying on the participant's views of the

situation being studied while recognising the impact of my own background and experiences in seeking to understand these.

Within that constructivist paradigm then what I required was a set of guidelines to process the data collected for the research, and given the tentative framework used for the research which will also be discussed later in chapter 3, I concluded that the literature on grounded theory should also be reviewed. I want to do that as thoroughly as possible and therefore it requires a chapter by itself which I will do in Chapter 4.

As a summary at this point to bring a focus to this discussion of background rationale, this work is located within the paradigm of social /cognitive constructivism and taking a theory generation approach within that paradigm (Mackenzie & Knipe 2006:196) using a grounded theory approach.

2.4   Impact on Staff Development of Introducing ICTs

Having considered staff development issues related to teaching and learning from the wider pedagogical and philosophical perspectives, this section focuses more particularly on the impact on staff development by introducing ICTs as part of a blend of learning, seeking to encourage student-centred learning. Some aspects related to the affordances of the technology of course have already been considered above.

2.4.1   The apparent emphasis on Training

When teaching with new technology, the most common form of support given to academic staff seems to be to show them how to use the

technology (Salmon 2003:12) rather than to investigate how the technology can be used to aid the teaching and learning process (Conole et al. 2004a:18). Salmon, as indicated earlier, suggests that training alone does not meet the needs of online teachers to make the online teaching environment successful for productive learners, because where training is provided it concentrates on the use of the technology rather than on the role of the online teacher. It also seems rather simplistic, in light of the earlier discussion on the complexity of affordances, to define a staff development programme consisting of separate components of what staff may need to learn, by identifying categories of skills expertise regarded as crucial to improved performance. That sort of training in performance skills falls far short of being able to apply pedagogical theory to the practice of knowledge delivery in a particular (set of) academic discipline(s). Schön argues that even knowing a theoretical principle is also insufficient because teachers need to recognise a classroom event as one where the principle applies. Therefore they also need the ability to identify events and distinguish among cases (Schön 1987:33-40).

Wenger argues that there is an important distinction between education and training which he has stated with sharp contrasts by comparing outbound and inbound trajectories affecting our understanding of personal growth and being.

> Education, in its deepest sense and at whatever age it takes place, concerns the opening of identities - exploring new ways of being that lie beyond our current state. Whereas training aims to create an inbound trajectory targeted at competence in a specific practice, education must strive to open new dimensions for the negotiation of the self. It places students on an outbound trajectory toward a broad field of possible identities. Education is not merely formative - it is transformative. (Wenger 1998:263).

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However Wenger also defines a wider range of trajectories (Wenger 1998:154) in relation to communities of practice within which we can experience personal growth, or 'constant becoming', through participating in the relations of engagement that constitute our community. There he argues, along with four other trajectories, that his meaning of the inbound trajectory is 'newcomers joining the community with the prospect of becoming full participants in its practice. Their identities are invested in future participation, even though their present position may be peripheral'. He then describes the outbound trajectory as 'one which leads out of a community as when children grow up'. He suggests that it seems more natural to think of identity formation in terms of all the learning involved in entering a community of practice and that being on the way out of such a community involves developing new relationships. This emphasis on all the learning involved when entering by the inbound trajectory seems to me to be at variance with the concept of learning being the outbound trajectory and training the inbound one. I thought it would be useful to check by some empirical studies whether this distinction of inbound and outbound trajectories as constructed is valid, but to date have been unable to locate any specific claims. Also, picking up the earlier discussion about affordances, and given that intelligence has been built into the tools available, they then are carriers of major patterns of previous reasoning (Pea 1997:53). They may now be used by a new generation with little or no awareness of the struggle that went into defining them and adapting them to the tasks for which they were created. But as such tools become invisible in this sense, it becomes harder to see them as bearing intelligence; instead we see the intelligence 'residing' in the individual mind using the

tools. The point is that to be able to use these tools effectively, given their inbuilt intelligence, requires sufficient knowledge of the affordances of the tool. For that reason I find it difficult to separate the concepts of education and training as both are interconnected through application of the tool.

Despite the contested claims for a distinction between education and training, there is a common agreement that the challenge facing higher education staff is, as Black asks, how best, given the new technologies available to us, can we as educators accomplish the primary goals of higher education (Black 2001:2)?

In the USA, seeking to bring some reason and research data to the issue of online learning applications, The Institute for Higher Education Policy, sponsored by the National Education Association, the nation's largest professional association of higher education staff, and Blackboard, a leading online education company, have been exploring the issues under twenty four benchmarks, divided into seven categories (Phipps & Merisotis 2000:2,3). One of the categories in the study is concerned with Faculty Support Benchmarks. However in the detail I have an underlying concern. The five benchmarks, out of 45 in the study as a whole, identified and listed under Faculty Support, page12, are

- o To provide technical assistance in course development.
- o Faculty members are assisted in transition from classroom teaching to distance instruction.
- o Peer mentoring resources are available to faculty members teaching online courses
- o Training continues throughout the progression of the online class
- o Faculty are provided with written resources to deal with (technical) issues.

In such a significant study it appears little attention is being given to the educational understanding dimension and much support is being offered in the technical skills dimension. That may of course reflect the interest of vendors but is that the best way to offer support to staff as they attempt to make the transition? The results of the benchmarks may suggest that staff have other unidentified needs. While the benchmarks were regarded as very important the three benchmarks concerning training and technical assistance for faculty had lower scores than others. One faculty member lamented that the technical aspect of online teaching is sometimes overwhelming. Another faculty member wrote that 'pedagogy of online learning must be part of training and the online environment' (Phipps & Merisotis 2000:20). In light of the lack of clarity on these distinctions of understanding and technical training it seemed necessary to be alert to the issue and how it impacts the academic staff involved in this research.

2.4.2   The need for deeper Learning Perspectives.

Instructional strategies and tools must be based on some theory of learning and cognition (Bednar et al. 1995:100-112; Bonk & Cunningham 1998:25). In a comprehensive article Bonk and Cunningham also find most hope for computer supported collaborative learning developments within the socio-cultural theoretical framework. While this article is more focused on the technology aspects there are some helpful insights relating to pedagogy which help to focus thinking on similar issues related to staff development. They agree with Ravenscroft that the tools can be used within both the cognitive constructivist viewpoint, from Piaget's earlier work, emphasising individual

constructions of knowledge, and the social constructivist position, relying on Vygoysky's work, emphasising the socio-cultural context. Their agreement suggests that both these theoretical foundations may have relevance in the related issues for staff development.

I mentioned earlier one attempt (Conole et al. 2003) to provide supports to academic staff that encourage them to consider pedagogical issues when considering the design of learning that incorporates the use of e-learning. Their model articulates the key components of existing learning theories, displays their inter-relationships and offers a means of mapping them against each other. Academic members of staff are encouraged to engage with the model, mapping learning theories to learning activities and associated mediating tools and resources. How I used a simplified version of the model with permission during the interview process of data collection will be explained in Chapter 5.

2.4.3   Key Concepts of Innovative Change

(Somekh 1998) has drawn on a wide range of research that provides insight into the process of innovation and change to see what can be learnt to support innovations in the use of ICTs in higher education. Two aspects seemed relevant to staff development. While recognising that innovation is complex and challenging within large organisations such as universities (Somekh 1998:12), she also believes that individual staff can make a difference, if they can understand more about the complexity of innovation and their own role within it and thus become 'change agents' rather than

merely 'users'. That involves finding ways to make a conscious contribution to change both in individual teaching and in the organisation as a whole.

The consequential challenge for this particular research project was to identify how best to incorporate this positive belief into effective staff development. There are related issues of organisational culture, which needed to be considered as these would impact on individual staff. There is also general agreement in the literature that innovation goes through stages.

Fullan had introduced his classic study on change in educational institutions and identified four stages (Fullan 1982). Over the years he refined these and issued a revised model in 1991 (Fullan & Stiegelbauer 1991). Drawing on his earlier work the project INTENT (Initial Teacher Education and New Technology, 1990-92) had been set up to incorporate his characteristic features of successful innovation. By analysing the process of change in five, participant, initial teacher training institutions the project team had identified significant differences between Fullan's model for supporting innovation and the model they derived empirically from their data. However shortly after releasing their findings, when Fullan issued the new edition of his book there was considerable overlap, indicating that the two analyses of the original characteristics features, carried out by different research teams located in different continents, had yielded similar outcomes (Somekh 1998). The work done by the INTENT team identified five key concepts of successful innovation (Somekh et al. 1997) and these argued for on the basis of 'being there' and actually experiencing something to underline a sense of authenticity. In summary the work of the INTENT team has shown that the five key concepts involve the following:

- those who manage change have to understand the complexity of the situations they are in, the power structures and the differing motivations of the people around them. …There is no blueprint for effective management, you have to deal with the situation you are in, and act in whatever way best enables you to use the situation as a stepping stone in the desired direction.

- the power of individuals to make a positive contribution to bringing about change

- partnership – unusual alliances between the more powerful and the less powerful in formal organizational hierarchies is extremely creative

- make teacher professional development central to the process of planning and implementing change

- integrate theory and practice… action research provides a methodology for achieving it. Encouraging participants to research the innovation they are introducing, even in a very small way, is a powerful means of supporting their development

While the supporting data was collected from teacher training institutions they do suggest important principles that might be applied in some form over the course of this research process, and in fact were motivational to continue in a context where there were so many demands on staff time and other variables affecting their participation. Some of the findings will be discussed in the later chapters.

2.5   Conclusions

This targeted review of the literature leads to a number of conclusions which have relevance to both the themes and the methodology for taking forward the research in relation to those themes in the context of this study. It will be convenient to summarise the themes in four groups, the first group in relation to learning and teaching, the second group in relation to change in

technology, the third group in relation to institutional change and the fourth group in relation to methodology and methods.

Consideration of pedagogical and technological issues, existing models of learning and teaching, and the underpinning rationale for staff development helped to identify the following conclusions.

2.5.1   Learning & Teaching.

o   It might help to try to establish what pedagogies staff use, since their grounding assumptions about learning and teaching directly determine what they design.

o   Since there was the likelihood that these pedagogies were implicit in their thinking and possibly not likely to be explicitly expressed it may help to listen carefully to their thoughts on such issues and to be proactive to include the staff in the process of data collection.

o   Reflection on some dilemmas related to teaching and learning might encourage cognitive understanding of the subject matter content and the relationships between such understanding and the instruction teachers provide for students.

o   By encouraging reflection on their teaching, teaching expertise and experience in the classroom, individual components of their knowledge of teaching might surface. Where possible these individual components should also be assessed from an integrated perspective and an attempt made to integrate their responses into a 'generalisable' framework.

o It would be useful to determine how global access to learning and teaching resources affects existing pedagogy and whether there are any new categories in the knowledge base of teachers.

o The research would need to accommodate the implications of national and institutional culture on education systems and traditions.

o Reflection on the data gathered might then help to identify what teachers need to know and how they need to represent it to facilitate a student-centred learning environment.

2.5.2   Change in Technology

Notwithstanding the assumption that a change of paradigm may have occurred there may be possible unknowns regarding learning theories with the introduction of the affordances of ICTs into the learning environment.

o Existing research suggests that using technology changes the scope and competencies required of academics. It therefore would be necessary to seek to identify these changes in order to answer the research question of how the institution could improve staff development processes to enable staff to develop a blend of learning (including online) to enhance Learning and Teaching.

o Clarity needed to be brought to staff learning and training needs to ensure that all academic staff members seeking to transition from traditional learning develop their understanding of the role of the online teacher.

o Across the range of different options for teaching and learning using these technologies it would be important to clarify any distinction between the contested trajectories of learning and technical training. Learning may be

encouraged through new knowledge building communities established to facilitate staff development. The research should seek to identify how these communities would be formed and facilitated.

o The changes in technology may also change the fabric of culturally patterned ways in which scholarship and work are undertaken. It would be essential to respond to these changes creatively and in a way that would be supportive of staff.

o Understanding and responding to these changes in institutional culture appropriately would possibly contribute directly to achieving institutional change.

2.5.3 Institutional Change

The strategic plan of the institution internally, backed up by the national and international policy changes externally, is driving the change to a student-centred learning environment. Additional to this it was important to note that

o Fundamental technological change may possibly ultimately beget structural change. Therefore inclusiveness of staff in the process should be established during the research to encourage and help identify relevant and supportive staff development policies.

o It could also be important to have an inclusive involvement with staff to maximise the possibility that they accept that they can be change agents in the wider process of institutional change.

o It could be essential to identify how educational, structural and cultural traditions affect staff development approaches.

o At a systemic level a change of culture that would bring together a radical craft culture and a research culture may be needed to achieve effective educational reform. Involvement of staff in the research process may contribute to this.

o The research should try to understand how best to accomplish primary goals of higher education through a clearer policy (Trowler et al. 2005:440) for staff development.

2.5.4   Methodology and Methods

o A socio-cultural theoretical framework seemed to be the most hopeful way to investigate computer supported collaborative learning developments. The policy of inclusiveness of staff would fit this framework. However it was noted that tools associated with such environments could also be used within both the cognitive constructivist and the social constructivist viewpoints. Encouraging new knowledge building communities might need to embrace the cognitive aspects at the same time.

o Involving staff that were representative of the culture of the organisation could possibly provide a rich and diverse source of data collection from a range of academic traditions, within the institutional culture.

o Involving academic staff directly in the research process might be a way to 'use the research' to influence change through them as it could encourage them to become change agents.

o The framework for the research needed to be flexible to encompass the rich diversity that may arise from accessibility and availability of global

learning resources, bearing in mind existing orientations to and the possible change of paradigm related to global technical resources and affordances for learning and teaching.

o Ensuring that data was collected from staff in different academic disciplines and in different faculties would provide opportunity for a representation of the external business environment.

o The use of a grounded theory approach held out a possible way to apply principled analytical strategies which would directly support the tentativeness of the research framework.

o Analysis of the data should seek to identify individual components that make up the knowledge teachers bring to any reflective processes of teaching and learning. However an attempt should be made to retain an emphasis on an integrated interpretation across all the individual components.

o The triangular model diagram representing the relationships between knowledge, teacher and pupil needs extension to reflect how the knowledge is represented using technology.

These four themes of learning and teaching, changes in technology, institutional change, and methodology and methods are picked up in the following chapters since they affected the framework of the research and the methods chosen. In chapter four the literature on the related strategy of using a grounded theory approach is also addressed in detail.

CHAPTER 3

DEVELOPING A THEORETICAL FRAMEWORK FOR THE RESEARCH

3.1   A Tentative but Robust Framework

3.1.1   Introduction

The targeted literature review, recorded in the previous chapter suggested that the methodology of the work could be located in the social/cognitive constructivist paradigm because an investigation of teaching and learning when including technology support could be achieved through social interaction and through cognitive processes. The review had also helped to identify a number of conclusions that might take the research forward in the investigation of changes in learning and teaching when impacted by changes in technology. It also suggested that use of a grounded theory approach could be effective as a method to analyse the data collected.

This short chapter is intended to establish how the theoretical framework for the research evolved and why it was considered appropriate to hold the framework rather tentatively when seeking to progress the research in order to facilitate the possibility that some of the unknowns regarding the apparent change of paradigm might be accommodated.

Learning Technology is a relatively young research area (Conole et al. 2003:1) with many unknowns, such as what additional elements of, or even new theories of learning underpin the design of the technology, how integrating the use of such technology impacts learning in collaborative communities (Ravenscroft 2003a:11), and how the structures of educational institutions could be radically changed (Fullan 2005:24) to enable ICTs to transform learning. These become more focused as key issues to be investigated when trying to understand how some staff members, who, based on the initial PBL meetings with the initial staff team, may have limited

pedagogical awareness, seek to introduce the use of ICTs into their learning and teaching.

Reflecting on recent discussions with academic colleagues in the institution, there appear to be those who have some pedagogical understanding of how their academic material should be delivered, but have limited understanding of how the affordances and constraints of technology may interact with educational theory to advance learning and teaching that is pedagogically sound.

The reciprocal corollary of course is that technical staff, having a set of technical skills with which they are comfortable and understanding of how these learning tools can function, may not have the pedagogical awareness required to apply the tools effectively to learning and teaching in a specific academic discipline (Mishra & Koehler 2002:2).

Sometimes tools and other supports that are made available to non-technical users seem to have been developed in a generalised form and as such may not be suitable to use across a number of disciplines. The affordances of the technology are therefore not maximised, since the staff from both these backgrounds have little or no collaborative involvement in designing and developing course materials using technology supports.

The design, development, representation and delivery of learning and teaching which intentionally incorporate online delivery in the blend of learning, can all be impacted by the affordances of the technology now available as global resource.

For these reasons, apart from the assumed change of paradigm that may have taken place in this learning and teaching context, I wanted to

develop with some tentativeness a theoretical framework for the research. Despite the tentativeness, the framework needed to be robust enough to enable the research to progress successfully.

3.1.2   From Triangle to Tetrahedron.

I mentioned in the previous chapter that the learning and teaching relationships between Teacher and Pupil, and the Knowledge being shared between them has been represented with a triangular framework, Figure 2.2.2, but that this needed extension to include how knowledge is represented using technology. Reflecting on how this could be extended, it seemed important to understand more about the knowledge that teachers had a need to represent.

The classification by Shulman (Shulman 1987: 8), of teachers' knowledge has proven to be very stimulating for research into teachers' cognitions and has significantly influenced the debate about pedagogy. Since they will be referred to below, for completeness the issues are summarised here. Shulman was responding to four questions:

- What are the sources of the knowledge base for teaching?
- In what terms can these sources be conceptualised?
- What are the processes of pedagogical reasoning and action? and
- What are the implications for teaching policy and educational reform? (Shulman 1987: 1).

He describes teachers' practice as drawing upon a professional knowledge base built up from the following seven elements, which I will discuss more below:

- content knowledge (i.e. knowledge of subject matter);
- general pedagogical knowledge, with special reference to the broad principles and strategies of classroom management and organization that appear to transcend subject matter;

- curriculum knowledge, with particular grasp of the materials, and programs that serve as 'tools of the trade' for teachers;
- pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding;
- knowledge of learners and their characteristics;
- knowledge of educational contexts, ranging from the workings of the group or classroom, the governance and financing of school districts to the character of communities and cultures; and
- knowledge of educational ends, purposes and values and their philosophical and historical grounds.

Recently, attempts have been made (Salmon 2005:212), (Laurillard 2002:103), to come up with some models for effective integration of technology in the design and delivery process so that learning is enhanced. As noted earlier, technology alone does not lead to change. Rather it is the way in which teachers use the technology that has the potential to change education. (Carr et al. 1998:5-15).

Another specific example was a Transactional Model (Mishra & Koehler 2002:3), where Content, Technology, Representation and Pedagogy were identified as four components that needed to be integrated for good online courses. Mishra and Koehler et al. used a diagrammatical representation based on a tetrahedron, see Figure 3.1.1.

Pedagogy

Technology   Content

Representation
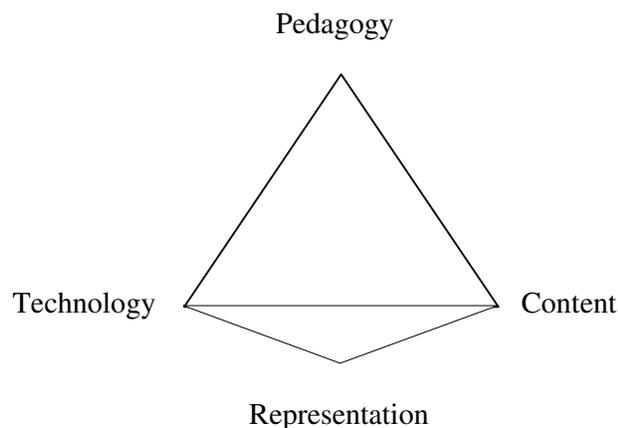
Figure 3.1.1 –Transactional Model of Mishra and Koehler

They claimed that the model formed the basis for how we think about technology in teaching in general and in particular how we think about developing faculty (*staff, my insert*) to teach online. They argued that separating these four key issues is an analytic act and one that is extremely difficult, as the four exist in a state of dynamic equilibrium, relating their argument to the philosopher Kuhn on the state of 'essential tension' (Kuhn 1979) in (Mishra & Koehler 2002:4).

In trying to establish a theoretical framework suitable for the research, I began to conclude that there may be a range of key components between which there are such interdependent relationships and had, concurrently with Koehler and Mishra, drafted a tetrahedral representation. Decisions about any one of the components that could be represented at the corners of the tetrahedron had implications and consequences for others related to them. However the components I identified were not the same as those identified by Koehler and Mishra with whom I communicated at the time. I argued that the technology was more accurately described as simply another 'more sophisticated' form of the representation of the course design and content, earlier examples being the blackboard, or slate and chalk. Moreover I was convinced that the concept of pedagogy was better represented, not as a component, but through the learning theories that related some of the components to each other.

It is interesting to note that Koehler and Mishra et al. have amended their thinking in the published version of the paper (Koehler et al. 2004:48) and in an intermediate paper have also identified a possible additional component in the knowledge base for teachers. By reverting to a triangular

model, see Figure 3.1.2, they have included in the definition of technology both the 'commonplace', like chalkboards, and the 'advanced', such as digital computers, thus incorporating into the technology node the concept of representation.

Content

Pedagogy   Technology
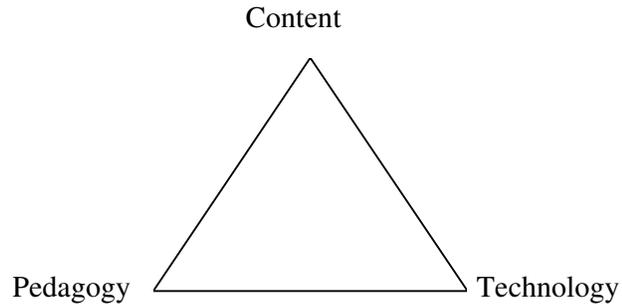
Figure 3.1.2 Triangular Model of Mishra & Koehler

They argue that the framework emphasises the connections, interactions, affordances, and constraints between and among the content, pedagogy and technology

> ….that is we make an argument similar to that of Shulman (1986) who argued that knowing a content domain, and general purpose pedagogical techniques was not sufficient – arguing instead for a form of context-specific and highly integrated way of knowing that he labelled "pedagogical content knowledge" (Mishra et al. 2004:2).

Content

Pedagogy   Technology
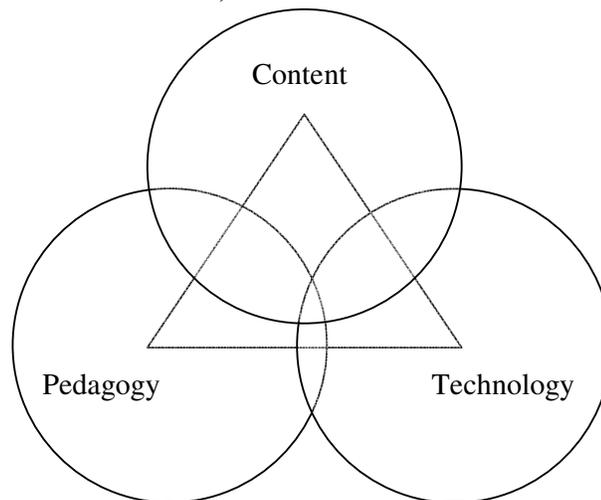
Figure 3.1.3– Model arguing for Pedagogical Technological Content

They develop the argument that by the addition of technology into a model of teaching requires knowledge about technology, but also knowledge of the complex interplay of Content (C), Pedagogy (P), and Technology (T), see Figure 3.1.3. Thus they extend Shulman's argument beyond a sensitivity to pedagogical content knowledge to include content-technology knowledge (C-T), pedagogical-technology knowledge (P-T), and even pedagogical-technological-content knowledge (C-P-T) (Keating & Evans 2001) in (Mishra et al. 2004:2).

Basically this is a supportive argument to the one made earlier in this chapter that there is a need to integrate the components of knowledge and skills sets of the specialists in technology design, domain content, and pedagogy to maximise the representation of the knowledge for effective delivery. The argument suggests that it would be useful to be alert to the possibility that additional components might now need to be added to Shulman's model, and in particular one of pedagogical-technological-content knowledge, giving another reason to hold tentatively the framework for the research described below.

Pedagogical content knowledge was considered by Shulman to be of special interest because it identifies distinctive bodies of knowledge for teaching. It represents the merging of content and pedagogy into an understanding of how particular topics, problems or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction. An additional distinctive body of knowledge now of course is how technology can be understood and used to help organise, represent and present knowledge in a variety of subject areas.

A useful study in distinct yet interrelated components; orientations to teaching, knowledge of the curriculum, knowledge of student understanding, knowledge of assessment and knowledge of instructional strategies (Goodnough 2006:304,305) used by Goodnough to explore her pedagogical content knowledge in the use of PBL could be developed in order to explore pedagogical technological content knowledge of the affordances of the technology.

In seeking a robust framework that would facilitate the research as it developed, I had drafted a number of tetrahedral models with various key concepts allocated to the nodes. Trying to fit the range of tetrahedrons together into one composite framework so that the same concept represented by a node was located at the same physical point produced quite an elaborate 'bee-hive like structure'. It certainly gave a visual picture of the complexity of the various and integrated relationships, but it was too complex to use as a working framework. In the end one particular tetrahedron, Figure 3.1.4. was identified to bring focus to the research with four key components.
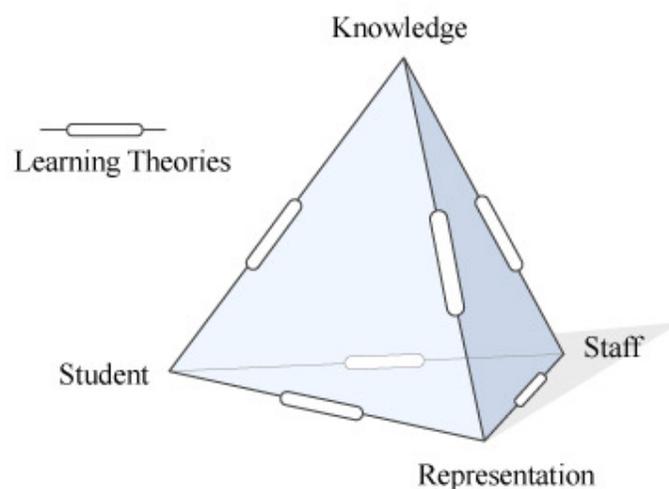
Figure 3.1.4 – The tetrahedral Research Model

The node for Knowledge included the curriculum, (Kansanen 1999:24,25), the syllabus, the components of the teacher's knowledge and such matters that would be included in the broad body of knowledge, associated with an academic discipline as suggested in Shulman's model.

The Representation was intended to include how the body of knowledge would be communicated between staff and student, allowing both to be learners, using whatever 'technology' was deemed effective, and including the affordances of ICTs, thus including a possible consideration of pedagogical technological content knowledge.

The theoretical framework is designed to facilitate consideration of both staff and student sides of the tetrahedron as the research progresses but the first phase is to give focus to the staff side. In further possible investigations, noting the relationships between staff and student, it is intended to follow up the perceived learning by the student and in particular to look for any correlation between student learning and staff learning and development following the implementation of the proposed improvements, that are set out in this thesis in support of staff development to enable staff members in the institution to use ICTs effectively.

Represented by the edges of the tetrahedron there are relationships and theoretical underpinnings on how the staff and student learn through constructing an understanding of the representation of the knowledge, similar to the knowledge-building environments (Scardamalia 1996), (Bereiter 2002) mentioned in chapter 1.

3.1.3   Recognising the Learning Environment

Since this work is particularly focused on the context of one particular institution at a time of considerable change, with the associated challenges on how to improve staff development processes to enable staff use ICTs in a way that will enhance teaching and learning, it is important to include in the framework acknowledgment of the learning environment.

This element has been missed in a number of grounded theory studies leaving them open to the challenge of being decontextualised, and by extension objectified (Charmaz 2005a:511). When considering in the next chapter why the procedures associated with grounded theory were selected as a method to collect and analyse the data, I will develop this in more detail.
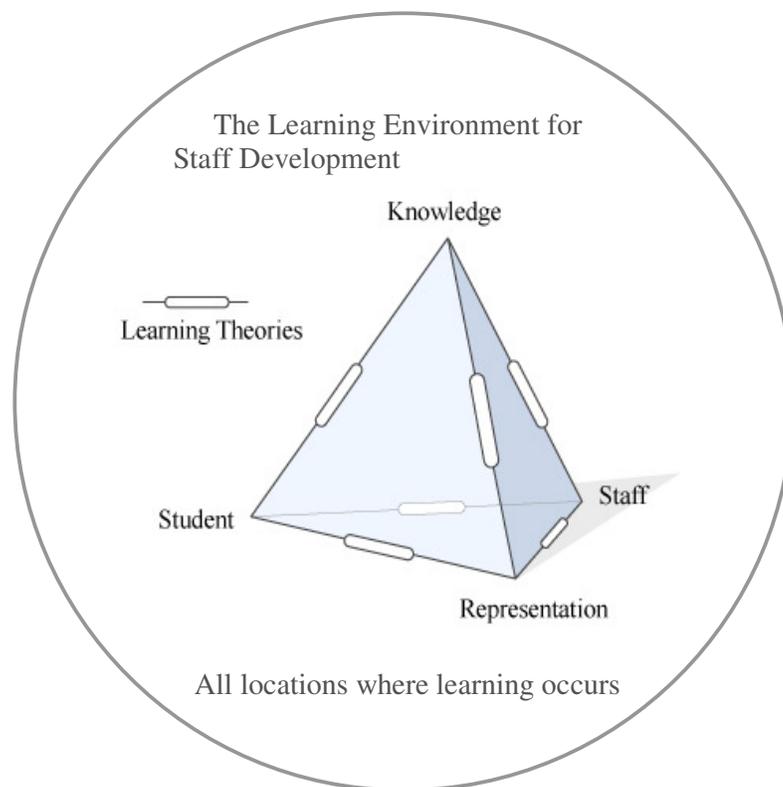
Figure 3.1.5 – The Research Framework in the Learning Environment

In this study the context of the learning includes the broader business environment, and other situations where non-formal learning (Eraut et al.

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2004) is experienced, because both the academic staff and the students would be influenced by, experience development within, and learn through their involvement with the workplace and other opportunities to use technology. So Figure 3.1.5 shows as a diagrammatic representation of the framework for the research, where the circular boundary represents the learning environment, within which the processes of staff development are being experienced.

3.1.4   The linkage of the Framework with the Methodology and Methods

Using a socio-cultural emphasis that includes social constructivist and cognitive constructivist approaches for learning the intention is to investigate what is happening between the components, as represented by the nodes of the tetrahedron, regarding learning and teaching issues and theories, as represented by the edges of the tetrahedron, concentrating in this dissertation on the staff related aspects only. It was considered essential to have a better understanding of these relationships, learning issues and theories in order to provide an informed answer to the question of how best to improve staff development processes to enable staff within the institution to use ICTs in a way that will enhance teaching and learning.

As will be described in the data collection methods below, towards the end of the interview process with the academic staff involved in the research, they were asked to comment on this tentative framework for the research. In addition, using an associated handout, I also asked them to engage with a simplified version of the 'toolkit' (Conole et al. 2004:24) offered as a model to encourage staff to develop pedagogically driven approaches to learning design (see Appendix 3).

CHAPTER 4

SELECTING THE METHODOLOGY

4.1 The Influence of the Context

4.1.1 Introduction

In the grouped conclusions from the targeted literature review summarised in section, 2.5.4, I identified that a socio-cultural theoretical framework seemed to offer the most hopeful way to investigate computer supported collaborative learning developments. The tools associated with such environments could be used within both the cognitive constructivist and the social constructivist viewpoints.

One possible way to build theories that might underpin the relationships between staff, the knowledge they are building, and how they apply that knowledge to the design, development and representation of learning material, including the use of ICTs would be to test pre-existing hypotheses that came from somewhere, suggested by someone. An alternative approach, which underlies the theoretical basis for a grounded theory approach is to use data, suitably collected to provide richness and diversity, in such a way that it stimulates and shapes the inductive processes of the researcher, as is elegantly stated by Charmaz:

> Let the world appear anew through your data. Gathering rich data gives solid material for building a significant analysis. Rich data are detailed focused and full. They reveal participants' views, feelings, intentions, and actions as well as the contexts and structures of their lives (Charmaz 2006:14).

The guidelines to use in this latter approach have been outlined extensively in the literature on grounded theory covering a wide range of problem areas and indeed indicating some confusion over what exactly the grounded theory method consists of. A particularly succinct and informative paper is the winning Graduate Student Research Paper from the 1996 Midwest

Research-To-Practice Conference in Adult, Continuing and Community Education (Babchuk 1997) in which he draws on an exhaustive review of the relevant literature up to that time, coupled with hands-on experience with this method. Without taking sides, he presents the key issues that distinguish the different understanding of grounded theory that arose between Glaser and Strauss in the years following their joint introduction of the method (Glaser & Strauss 1967).

In this chapter I discuss the key features in the method that are associated with the recognised scholars who are still continuing the work to develop the method up to this present time (Charmaz 2005b), interweaving the discussion with how I have applied the method to this research.

All grounded theory researchers agree that a grounded theory approach suits a qualitative methodology deriving its name from the practice of generating theory from research that is "grounded" in data, although I will discuss the accuracy of this statement later when considering the distinction between observed data and the phenomena that any theories constructed from the data seek to explain.

Since I came to be increasingly convinced that the use of grounded theory methods held out a possible way to apply principled analytical strategies to the data collected, this chapter reflects a review of some relevant literature associated with this method in such a way that argues why I was eventually comfortable with that choice. Further comment will also be made in the next chapters on data collection and analysis regarding the identity and selection of categories emerging from the data using this method, and how an attempt has been made to minimise the impact of subjectivity in the associated

problem of reliability in identifying categories and themes using grounded theory techniques, while trying to find ways to improve staff development processes in order to prepare staff effectively to meet the demands of teaching and learning, including the use of an online environment.

4.1.2   Responses to conclusions from the literature review

Within the socio-cultural framework, with both cognitive and constructivist emphases, a very deliberate policy to include the staff in the research activity was also identified in the grouped conclusions as a helpful approach to begin to understand how best to improve staff development processes that would enable the staff to use ICTs in ways that will enhance teaching and learning.

Asking staff to remake knowledge in the present by encouraging them to talk about teaching was also likely to provide a rich and diverse source of data. The diversity could be deliberately encouraged by selecting a mix of academic disciplines from a range of departments across different faculties of the institution, which were representative of various business sectors within the national culture. Bearing in mind the international trend towards lifelong learning, particularly facilitated by using ICTs, further diversity could be provided by selecting a range of degrees offered from both a full-time and part-time mode of delivery. It has become increasingly difficult to draw the boundary between full-time and part-time study, and in time this may be even more blurred. However there is still some distinction between those studying part-time while holding down full-time employment, and those supposedly studying full-time while supporting themselves with part-time employment.

The choice of academic members of staff that provide the teaching resource on degree programmes offered across such a mix of academic disciplines could also be selective to include full-time and part-time associate staff. Each of the staff teaching on most degree programmes is likely to bring a diverse range of knowledge, competence, and skill in using ICTs, from very limited involvement to a more confident application of the technology. The detail of the rationale for the selection of the academic disciplines, the degrees, and the staff is discussed later.

This chapter will therefore discuss the relationship between the research question, that had been focused through the structured literature review, the theoretical framework for the research, the suggested methods to capture the data, and, how the choice of a grounded theory method as a principled analytical strategy for analysis of that data, might provide the flexibility I was keen to preserve and maintain as the research developed.

4.2   Taking a Grounded Theory approach

4.2.1   Characteristics of grounded theory and grounded theorists.

In the endeavour to be flexible and open to the consequences of uncertainty surrounding the use of ICTs, a key driver in my thinking was to recognise the urge to avoid uncertainty and to get quick closure. The reflective and slow process of constant comparison at the heart of methods associated with grounded theory, seeking to identify categories within the data, seemed likely to alleviate this trend, although in the crucible of the comparison process it is difficult to decide when to conclude that further reflection will cease to contribute meaningful new characteristics for a category. Closure has

to come eventually for this piece of research to retain its practical benefits though, undoubtedly, there could be further enlightenment through continued reflection.

Since I also wanted to identify what theories staff were using, explicitly or implicitly, in their delivery of learning and since I did not know what these theories were, I considered that identifying theory grounded in the data is more likely to 'fit' the data than theory generated from a priori assumptions. Therefore a grounded theory approach seeking to generate theory seemed reasonable. Such theory was likely also to be usable in practical applications, which was a specific objective for the outcome of the research project.

Another characteristic that is open to challenge in taking a grounded theory approach is my involvement as an instrument on the research process. I will discuss the attempt made to balance the 'negative' aspect of subjectivity a little later, but it is perhaps worth noting that there are also some 'positive' attributes, which can be further developed through carrying out the research:

> The self as an instrument in the data collection and analysis process is a point underscored by Rew, Bechtel, and Sapp (1993), who listed the following as attributes needed by qualitative researchers: appropriateness, authenticity, credibility, intuitiveness, receptivity, reciprocity, and sensitivity (Strauss & Corbin 1998:6).

While I am not the best person to recognise how much I possess these qualities, I believe some of them have been nurtured through the discipline of using the grounded theory approach. Hopefully my arguments will encourage confidence in my credibility. I will endeavour in this chapter and the next to present an authentic record of the processes used in the research. In doing so a

measure will be established of the appropriateness of the decisions taken in light of the fact that I do not believe it would have been practical to stick rigidly to the original position of Glaser's definition, developed below, of pure grounded theory. It requires effort to remain somewhat detached from the data in order to be able to critically analyse situations that are the focus of comments from colleagues. At the same time sensitivity to the words and actions of respondents is required to pick up nuances that contribute to the reflective processes with the data and the ongoing analysis of it.

Having a defined set of procedures to guide the research along a principled approach, while remaining flexible and aware of the dangers of implementing them in a purely rote manner, developed a sense of absorption and devotion to the analytical process. The recurrent cycle of noting a growing variety of characteristics within the data, being able to compare these through reflection and thus develop relationships between the characteristics allowed increasing awareness to be developed concerning the thinking of the respondents. This process followed the approach of Glaser and Strauss:

> On the factual level, evidence collected from other comparative groups is used to check out whether the initial evidence was correct. Is the fact a fact? Thus facts are replicated with comparative evidence, either internally (within a study), or externally (outside a study), or both. Sociologists generally agree that replications are the best means of validating facts (Glaser & Strauss 1967:23).

This characteristic of grounded theory also suggested that it might be a useful strategy to contribute to the identity of an integrated understanding, as desired by Brown and McIntyre, of the various facets of teachers' knowledge by supporting the establishment of relationships between various components.

While I was satisfied that a grounded theory approach could help to reduce the possibility of missing any new theoretical understanding related to the use of ICTs, I was conscious that by progressive focussing of the emerging categories, thus limiting the eventual scope of the investigation, some of the 'newer' categories, if there are any, might not be as closely scrutinised as those identified as the 'core' or dominant categories.

Another benefit I perceived in taking a grounded theory approach was that the guidelines established by the authors of the method guided and provided a style for the research by offering a strategy for handling the data, providing modes of conceptualisation for describing and explaining the phenomena arising within it. Where I struggled was to decide which guidelines were flexible and which were non-negotiable, since the key Grounded Theorists seemed unable to agree an answer to this dilemma. These following sections of this chapter are my authentic attempt to argue a principled position for the stance I have become comfortable in adopting and applying in this case.

4.2.2   Using the constant comparative method.

In this method data collection, analysis, and, eventual theory stand in close relationship to one another. A common acceptance by Glaser, Strauss, Corbin and Charmaz, whose developments and understanding of the definition of grounded theory are summarised and compared below, is that the clear objective of using comparative analysis is to generate theory, rather than to validate theory.

In generating theory it is not the 'fact' in the data that is critical. It is probably a fact that not all 'facts' in the data can be relied upon as truly

accurate regarding trustworthiness, since there are many possible variables affecting such a 'fact'. The important element is the conceptual category to which the 'fact' can be aligned and the property that can be assigned to that category. Such a concept, and its properties, is the key element for constant comparison. While it may be that such a conceptual category is generated from one 'fact' of data, gradually through the analysis, the category is likely to become populated with more 'facts' from the data. Thus the possibility that one, or a few of these 'facts' is not trustworthy becomes less of a problem when the density of the category increases. A necessary element therefore in providing a sense of integrity to the analysis process is to clearly specify the rationale for including a fact within a category, and then to distinguish between the category and the property that describes it, and to give some understanding of the density of the category. In the chapters on data collection and analysis I endeavour to do this within the limitation of available space and time, but hopefully what is documented will provide sufficient clarity to support the integrity of the entire process. The category and the property associated with it are concepts indicated by the data and not the data itself. By constantly comparing many groups, or concepts, attention is drawn to many similarities and also to differences. Considering these similarities and differences leads to the generation of abstract categories and their properties, which, since they emerge from the data, lay the foundation of the theory that emerges to explain the data collected from staff on learning and teaching. The process involves capturing the large number of initial categories, continuing the analysis and constant comparison among these to identify an increasingly smaller number of higher-level categories that integrate and conceptualise the

key issues from which the theory emerges. The more detailed examples of what happened in practice, as described in the next two chapters, endeavour to make this transparent and principled.

4.2.3   Analysis informing new data collection

Part of the analysis process involves description of the categories. In some cases the initial description may even already be there in the words of the respondent, which are known as 'in vivo codes' (Strauss & Corbin 1998:105). The description is the basis for more abstract interpretations of the data and eventually may lead to theory development, although it may not necessarily do so if a category is eventually subsumed into a higher level, more abstract category based on careful consideration of the description and the contexts associated with the original category. Description embodies the concepts. The description is not theory but it is basic to theorizing, and theoretical explanations are validated through further data gathering. The objective is to build dense, well-developed and comprehensive theory. In going through this constant qualitative analysis process, the concepts and their relationships emerge from the data, thus providing further information that makes it possible to decide how to proceed with further data collection that will further inform the analysis process.

4.3   The Continuum of Grounded Theory Methods

4.3.1   Glaser and Strauss: Beginning steps

In order to introduce the rationale for the 'version' of grounded theory that I eventually used, I want briefly to describe the position of key scholars associated with the method so that I can then argue a case for my choice. Working together, Glaser and Strauss described their development as a new approach to scientific investigation (Glaser & Strauss 1967:1). When their book was published they conceived grounded theory to be the beginning of a venture in the development of improved methods for discovering grounded theory.

They sought to further the systematisation of the collection, coding and analysis of qualitative data for the generation of theory, but argued that both qualitative and quantitative data could be used to that end. In particular they wished to provide researchers with a set of categories for writing theories within a rhetoric of generating theory, to balance out that of verifying theory.

As the method had just been released there were various positions, counter-positions and examples stated rather than offering clear-cut procedures and definitions because they believed that their slight knowledge makes any formulation premature (Glaser & Strauss 1967:1).

Their stated principal aim was to stimulate other theorists to codify and publish their own methods for generating theory, and in their own attempt to discuss methods and processes for discovering grounded theory, they for the most part kept the discussion open-minded to stimulate rather than freeze thinking about the topic.

Their method was to use comparative analysis to generate theory, regardless of the size of the social unit being analysed. By comparing evidence from the range of sources within the unit of collection, the objective is to

check out whether the initial evidence is correct, asking the question 'is a 'fact' a fact?' The replication of facts is noted through comparative evidence. They also noted, and disassociated themselves from one unfortunate use of the comparisons: to debunk, disprove, or discount the work of colleagues. In particular they intended to hold a dialogue with those who "put down" the comparative strategy as "not especially original".

Subsequent research and refinement of the method led to the publication of *Theoretical Sensitivity* (Glaser 1978) and *The Basics of Grounded Theory Analysis* (Glaser 1992).

4.3.2   Strauss and Corbin: Firming up procedures

However during this time Strauss had teamed up with Corbin and by 1992 two somewhat distinct approaches had evolved based on the original work, each with its own underlying epistemology and attendant properties. Babchuk concludes that the differences between the two approaches are paramount to an understanding of grounded theory and may have profound effects on how adult educators conceptualise and operationalise this method (Babchuk 1997:2).

Collaboration with Corbin led Strauss and Corbin to produce *The Basics of Qualitative Research*, since revised (Strauss & Corbin 1998). Arising out of these differences, and in an attempt to be supportive to those wishing to use the approach, Babchuk critically assesses the key elements of grounded theory as a potentially viable approach for qualitative research and identifies the need to evaluate grounded theory analysis. I will discuss

evaluation further below as it is more important here to develop the argument for why I chose grounded theory as a strategy for data collection and analysis.

At the heart of grounded theory analysis is the coding process, which consists of three types: open, axial, and selective. These, too, will be further explained in the following sections, with examples to clarify them in the chapters on data collection and analysis, so that I can continue here to focus on the rationale behind my choice of grounded theory as the method for this research. I have argued that I want to hold the theoretical framework for this research tentatively, and the differences between the principal authors of the method suggest there is good reason for tentativeness. It is precisely in this area of coding that the differences between Glaser and Strauss are emphasised. Glaser takes exception to the guidelines systematically outlined by Strauss and Corbin in their text concerning the modus operandi for all three coding strategies (Strauss & Corbin 1990:101,123,143).

This point becomes particularly evident with regard to Strauss and Corbin's treatment of axial coding which they view as a process of "putting data back together in new ways by making connections between categories and subcategories" (Strauss & Corbin 1990:97). This is done they argue through conceptual elaboration of categories by means of a coding paradigm denoting causal conditions, context, action/interactional strategies, and consequences. In Glaser's view this process can all too easily result in researchers missing the relevance of the data by forcing it into a preconceived network. He believes that Strauss and Corbin's overemphasis on extracting detail from the data by means of a pre-structured paradigm yields full conceptual description at the expense of theory development or generation.

Strauss and Corbin believe that 'The research question in a grounded theory study is a statement that identifies the phenomenon to be studied' (Strauss & Corbin 1990:38). Conversely, Glaser emphatically stresses that the research problem itself is discovered through emergence as a natural by-product of open coding, theoretical sampling, and constant comparison. Ideally, the grounded theorist begins his or her study 'with the abstract wonderment of what is going on that is an issue and how it is handled' (Babchuk 1997:3).

It appears to me that the laudable, open-minded concern to stimulate thinking and not to debunk the work of colleagues had got somewhat lost in the process during these formative years for the method.

My position seemed to be more aligned to that of Strauss and Corbin at this stage, particularly as this piece of work had already become focussed around a research question and the problem being investigated was already focused, rather than going to become a by-product of the coding process of grounded theory, which seems to be Glaser's position. I also found the definition of procedures for the analytical and coding processes, suggested by Strauss and Corbin, particularly supportive in my quest to find a suitable principled approach to the work. It seems reasonable to me that the original research question, having been considered in the context of searching the literature and been refined to be somewhat less open-ended could now lead me to examine the data from a specific perspective and to use suitable data-gathering techniques and modes of analysis. I was satisfied that taking this approach would enable the research to progress as the issues and problems of the area under investigation emerged. I was also more comfortable with the

position of Strauss and Corbin that there are procedures to help provide some standardisation and rigour to the process. However these procedures were designed not to be followed dogmatically but rather to be used creatively and flexibly by the researchers as they deem appropriate (Strauss & Corbin 1998:13).

4.3.3 Charmaz (and Glaser) – grounded theory for the 21st century

As the grounded theory approach has continued to be developed and applied across a growing spectrum of qualitative studies, Charmaz has added another 'version' as a vision for future qualitative research, that of Constructivist Grounded Theory. Constructivist grounded theory celebrates first hand knowledge of empirical worlds, takes a middle ground between postmodernism and positivism, and offers accessible methods for taking qualitative research into the 21st century. Constructivism assumes the relativism of multiple social realities, recognises the mutual creation of knowledge by the viewer and the viewed, and aims toward interpretive understanding of subjects' meaning.' (Charmaz 1994:509).

Charmaz argues that researchers can use grounded theory methods whether they are working from an objectivist or a constructivist perspective. The rigour of grounded theory approaches offers qualitative researchers a set of clear guidelines from which to build explanatory frameworks that specify relationships among concepts. Grounded theory methods do not detail data collection techniques; they move, as Charmaz notes, each step of the analytic process toward the development, refinement and interrelation of concepts.

> In brief the strategies of grounded theory include (a) simultaneous collection and analysis of data, (b) a two step data

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coding process, (c) comparative methods, (d) memo writing aimed at construction of conceptual analyses, (e) sampling to refine the researchers emerging theoretical ideas and (f) integration of the theoretical framework (Charmaz 1994:510).

Glaser, however, in what he calls 'the excellent article by Charmaz on constructivist grounded theory', refers to and uses it as scholarly inspiration to get at the fundamental issues on why grounded theory is not constructivist! He seems to transfer the adjective constructivist from the theory, as used by Charmaz, to the data…

> I show that constructivist data, if it exists at all, is a very, very small part of the data that grounded theory uses. (Glaser 2002:1).

I agree that grounded theory uses a much wider scope of data than 'constructivist data' but Charmaz doesn't seem to me to make that claim, arguing rather that the grounded theory approach can be refined to embrace a constructivist viewpoint. That seemed to be the stance I was taking, because 'Constructivism assumes the relativism of multiple social realities', (as reflected in my range of colleagues and their learning and teaching environments selected for the research), 'recognises the mutual creation of knowledge by the viewer and the viewed' (recognising my participation alongside them in the research), and 'aims toward interpretive understanding of subjects' meaning' (which was my clear objective).

So perhaps, from my less experienced position of a researcher seeking a principled method to progress the analysis of the data, rather than one seeking to become associated with a particular theoretical stance, it is apt to use a quote used in Babchuk's article:

> "It is a capital mistake to theorise before one has data" Sherlock Holmes!

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4.3.4   Concluding comments on grounded theory literature

Despite these openly argued differences between the originators of grounded theory, and their successors, in an unexpected way I was even more encouraged to trust the method. The encouragement stemmed from the fact that both sides had reasoned arguments for their position, and it seems to me the method was robust and had flexibility of definition that could accommodate somewhat variant views. What is important is that a principled argument can be made for whatever 'name' is given to the particular position, and I endeavour to provide that theoretical argument in the next section, backed up later by a transparent presentation of the practical data analysis and further collection in Chapters 6 and 7. In between these chapters, in Chapter 5, I will seek to bridge the theoretical adoption of the grounded theory method in this chapter with the practical application of the method for data analysis in Chapter 6, by providing a description of how the full data set was populated.

Since Glaser considers that the conception of Strauss and Corbin has deviated so completely from the original, he calls it by a different name, "full conceptual description". But the grounded theory approach in my view allows researchers to use the 'strategy', grappling with the problems of interpreting data, regardless of the granularity of the analytical focus, the coding method, or the method of data generation. Many others have written of the value of using this approach and argued for its validity. Babchuk sets out more details in a comprehensive list arguing, with which I agree, that

> A cursory examination of these studies indicates that grounded theory has been viewed by scholars and practitioners in

education and adult education as an umbrella term which encompasses an entire spectrum of procedures and practices seen as falling under the domain of this methodology (Babchuk 1997:4).

One such paper not listed by Babchuk, takes grounded theory even further by providing a methodological reconstruction of Glaser and Strauss's perspective on social science enquiry, and takes the view that grounded theory is best regarded as a general theory of scientific method concerned with detection and explanation of social phenomena (Haig 1995:1). It is a stimulating paper that encompasses the key issues underlying the method, clarifying why Haig thinks grounded theory can be strengthened by reconstructing it in accordance with recent developments in scientific realist methodology, calling the resulting improvements "abductive explanatory inferentialism" (AEI). This supportive argument further strengthened my confidence in the theoretical foundation for grounded theory, introducing yet another 'name' for the developing method, and my confidence was further consolidated by a response to Haig, which uses his work to reflect on recent tensions in the research literature on effective teaching (Kinach 1995:2), but in the interest of time and space I will not develop that here.

In concluding this section on the literature associated with grounded theory, it is however worth noting a few other key points made by Haig and Kinach, which contribute to the section by seeking to further clarify the theoretical basis for the method. It is agreed that the general goal of grounded theory is to construct theories in order to understand phenomena. The quotations below are set out to establish some helpful definitions that in my view clarify some key concepts underlying the method. Haig understands a good grounded theory is one that is:

(1) inductively derived from the data, (2) subjected to theoretical elaboration, and (3) judged adequate to its domain with respect to a number of evaluative criteria (Haig 1995:1).

Charmaz summarises it slightly differently, quoting from Glaser and Strauss:

a completed grounded theory meets the following criteria: a close fit with the data, usefulness, conceptual density, durability over time, modifiability, and explanatory power. (Glaser, 1978, 1992, Glaser & Strauss, 1967) in (Charmaz 2006:6).

These expected outcomes can be used to judge the theory arising from this research.

When trying to position grounded theory as a general theory of scientific method Haig in his enthusiasm to explain how enquiry is possible, and at the same time provide guidance for the conduct of the research argues that the account of problems that boasts these twin virtues is the constraint-composition theory (Haig 1995:2). Briefly stated, the constraint-composition theory asserts that a problem comprises all the constraints on its solution, along with the demand that a solution be found. On this formulation the constraints are actually constitutive of the problem itself; they characterise the problem and give it structure. The explicit demand that a solution be found arises from the goals of the research program, the pursuit of which leads, it is to be hoped, to filling an outstanding gap in the problem's structure

Haig argues that while Glaser and Strauss clearly understand the importance of understanding method in the context of problem-solving, they misunderstand the relationship between problems and method by presupposing that problems and methods are separate parts of inquiry. However in taking this position he seems not to accept the difference that arose between Glaser and Strauss over the issue of the research question. Glaser, clearly in my view,

argues that the research problem itself is discovered through emergence as a natural by-product of the reflective coding process. Strauss takes the position that the research question identifies the phenomenon to be studied. .

As I argued above I incline to the position of Strauss on the research question and that is why I hope to resolve the problem stated in the research question through integrating it with the method for the research. I argue that 'my version' is principled and robust and seeks to accommodate the rigour argued for by the authors of the various versions discussed above.

I also referred earlier to the distinction between observed data and the phenomena that any theories constructed from the data seek to explain and predict. Haig argues that failure to distinguish between data and phenomenon produces a misleading account of the nature of science, for it is typically phenomena, not data, that our theories are constructed to explain and predict. Thus properly formulated, grounded theories should be taken as grounded in phenomena, not data. Phenomena are relatively stable, recurrent general features of the world that we seek to explain. Data, by contrast, are idiosyncratic to particular investigative contexts. They are not as stable and general as phenomena. Data are recordings or reports that are perceptually accessible. Thus they are observable and open to public inspection. Phenomena are not, in general, observable. The importance of data lies in the fact that they serve as evidence for the phenomena under investigation. In extracting phenomena from the data, we often engage in data reduction using statistical methods. Generally speaking, statistical methods are of direct help in the detection of phenomena, but not in the construction of explanatory theories (Haig 1995:3).

When responding to Haig (Kinach 1995:2), Kinach adds some further explanatory comment on how Haig goes beyond Glaser and Strauss's discussion of theory construction to theory verification. I accept that data provide evidence for the phenomena (or theoretical categories) which social science researchers investigate. But while Haig argues that reliability of data forms the basis for claiming that phenomena exist he goes further to say that reliability is the basis for justifying claims about phenomena. Kinach understands that judgments about explanatory coherence are the appropriate grounds for theory acceptance, which leads her to the conclusion that in discussing theory appraisal Haig goes beyond Glaser and Strauss to what philosophers call 'inference to the best explanation' (Kinach 1995:1). Later in this work I will construct theory from the phenomena I detected in the data but the inference of the best explanation I believe will be tested when that theory is applied within the learning environment from which the data was collected.

These ongoing developments of new understanding related to grounded theory may suggest why there are differences between Glaser and Strauss, and between them and others, who continue to develop the understanding and application of grounded theory, as the method continues to evolve in its depth of theoretical rigour and application to problem solving through data analysis. As a method it seemed to me very suitable to apply, to enable this research to be progressed with the tentatively held framework, and the uncertainties associated with the possible change of paradigm in relation to the affordances of the technology and their impact on learning and teaching.

4.3.5   Evaluating the 'version' of grounded theory

Having outlined my reasons for the growing confidence underpinning the choice of grounded theory as a method, I want to return to the recommendation by Babchuk, based on his comprehensive survey of the related literature, that each use of grounded theory for analysis should be evaluated. Each use should clearly establish which 'version' of the method has been used, and why, in order to be consistent in applying principles underlying the method. The procedures and canons of grounded theory must be taken seriously otherwise researchers end up claiming to have used a grounded theory approach when they have used only some of its procedures or have used them incorrectly (Strauss & Corbin 1990:6).

This sub-section provides general 'theoretical' evaluative comments regarding which version and why. The more detailed 'practical' response for evaluation is set out in the next three chapters, Chapter 5 providing how the application of grounded theory methods contributed to the data collection and how I proposed to apply the method to the data collected, followed in Chapters 6 and 7, with a transparent description of the actual application of the method throughout the data analysis.

Glaser seems to emphasise that grounded theory relies on a series of steps, none of which can be missed, if the analyst wishes to generate a quality theory. However his criticism of Strauss and Corbin's version is that it tortures the data through heaps of rules and fracture methods that are hard to remember and follow, and yield low-level abstract description. Strauss and Corbin advocate flexibility allowing individual researchers to invent specific procedures (Strauss & Corbin 1994:276), and while they set out procedures

and techniques, do not wish to imply rigid adherence to them" (Strauss & Corbin 1990:59).

My choice of 'version' is more aligned to the flexibility associated with Strauss and Corbin, although I have not rigidly adhered to their 'version', rather seeking to be consistent in application of the principles while adopting a method that most suited the context of the research. I also take the position of Strauss and Corbin that the research question in a grounded theory study is a statement that identifies the phenomenon to be studied. However, I seek to move beyond the position of Glaser, and somewhat beyond that of Strauss and Corbin, because I agree with Charmaz's reasoning.

> Glaser gave grounded theory its original objectivist cast with its emphases in logic, analytical procedures, comparative methods, and conceptual development and assumptions about an external but discernable world, unbiased observer and discovered theory (Charmaz 2005a:509).

While I am comfortable with much of Glaser's original emphases as identified by Charmaz, I am not an unbiased observer and I do not wish to make assumptions about objectivity. Charmaz also challenges the assumptions about objectivity, but goes further to challenge the view that the world is an external reality, the relations between the viewer and the viewed, the nature of data, and the authors' representations of research participants, instead viewing positivist givens as social constructions to question and alter. Again I find my position comfortable with much of this, particularly the dangers in my possible (mis)-representations of research participants and my interpretation of the data derived from their involvement, and certainly embrace the desire to question and challenge 'givens', but I struggle to fully embrace the position of challenging the world as an external reality. There seems to me to be a danger

in the desire by the postmodernist views to challenge the objectivist position and to make this challenge with what comes across as very objectivist statements. An article that supports my identification of this danger has been written by a philosopher friend with whom I had an interesting discussion while formulating my personal position (Zuboff 19951-5). So while I go beyond the position in the use of grounded theory as adopted by Strauss and Corbin, with that associated positivist and objectivist cast, I fall somewhat short of the total position taken by Charmaz, while embracing the constructivist re-envisioning of the method. I accept that the methods we as researchers use, while merely tools, do influence what we observe, and I accept that my preconceived, even somewhat unconscious beliefs influence how I reflect, and so impact on what I am even able to detect in what I do observe. In other words, I am not claiming to be a neutral observer, and I recognise that I have already made assumptions which will impact my judgments and reflections.

Strauss and Corbin's versions of grounded theory emphasised meaning, action and process, consistent with his intellectual roots in pragmatism (Hickman & Alexander 1998:3-7) and symbolic interactionism (Prus 1995 : Chapters 1-3). I accept willingly that my interpretation of events in this research is going to be influenced by my personal interaction with symbols and representation of the observed world in which I function.

The framework for the research is also located in the constructivist position seeking to emphasise the contextual backdrop of the staff interviews, situated within the learning environment of the respondents and their student groups, at a period of time when change is being observed in the institution.

So 'my version' of grounded theory is located between the positions of Stauss and Charmaz as a set of flexible analytic guidelines that enable me to focus the data collection and to build middle-range theories through successive levels of data analysis and conceptual development as argued by Charmaz

> Grounded theory methods provide the tools that researchers can – and do – use from any philosophical perspective – or political agenda (Charmaz 2005b: footnote 10,:531).

This use of a grounded theory approach has enabled me to remain close to the world in which the research study is located and to develop an integrated set of theoretical concepts through synthesis and interpretation of the collected data by establishing relationships between the phenomena emerging from the data.

Among the criteria suggested for use in the validation process are judgments about validity, reliability and generalizability, as well as judgements about the research process and the empirical grounding of the research findings. How these criteria are applied and complied with, including the specifics of 'my version' and the argument of the case for making the decisions that I did, is developed in the next three chapters on collection of the Data Set, and the Data Analysis, which of course also informed ongoing on-going data collection. However as a brief concluding section to this chapter I want to open the door into the collected Data Set, and then use the next chapter to establish a bridge between this theoretical perspective on the method and the practical application of it in the data analysis, by clarifying how I used some of the important instruments employed to collect the data.

4.4   Connecting the Method to the Data Analysis

4.4.1   Instruments for the collection of the Data.

As has been argued from the findings in the literature and referred to on a number of occasions in earlier chapters, a key contribution to the collection of data would be derived from listening to members of staff talking about teaching. This suggested the use of interview, both individual and group, and to facilitate the analysis process, it seemed necessary to record these. Both digital voice and video recordings were used, and supplemented with further focus group discussion, which were also digitally recorded and videoed.

Since I have not yet referred to any literature findings relating to the use of Interviews, or the use of Video, and the recording of such, it is appropriate to preface the next chapters on the analysis process and the findings with a more thorough account on the decision stages that were enacted in order to determine how best to deal with the data. This will be better defended in relation to literature and for this reason I shall give it separate treatment in a chapter in its own right in chapter 5.

CHAPTER 5

POPULATING THE DATA SET

5.1   The Methods for Data Collection

5.1.1   Introduction

By the end of this chapter my objective is to provide an overview of the data set, having described what I tried to achieve through the data collection instruments that were used, and the ways in which the data collected was recorded and analysed, in order to provide the reader with a sense of the shape of the data and the scope, and the ways in which I developed the analysis in terms of depth and level and also chronologically in terms of theme and activity.

In this research there were three phases of data gathering, which are described below as Phase 1, during which the initial data gathering helped to identify the research problem, Phase 2, when the substantive data collection to inform the research was obtained and Phase 3, when Focus Groups were used to obtain a sharper focus on the phenomena identified in the data from Phase 2.

To prepare for a discussion of the three Phases, this section briefly outlines what instruments were used in the research, and why and how some of them were developed and then used. These instruments included a variety of types of interviews, questionnaires, questions used at interview, recordings, both digital and video, and the use of focus groups to seek to further clarify issues in more detail. In an effort not to digress too broadly, I will discuss the instruments used roughly in the order that they arose chronologically during the research process. It should be noted also that at each phase, using any instrument, all respondents were given a commitment to confidentiality of any material gathered. The commitment was given verbally as well as obtaining a

written commitment signed by the participants. Most of the data is available in a compressed digital format on DVD, accessible, but suitably edited to fulfil the commitment to this anonymity, by contacting the Office of Academic Affairs of the institution. I can make this arrangement if contacted by email, or through the School of Education at the University of Nottingham. A second DVD, confidential only to the examiners of this thesis, containing the video versions of the Focus Group data at Phase 3, is provided to back up the arguments of the analysis that resulted in the themes arising out of the work. In certain circumstances, under strict conditions, this second DVD may be made available in the interest of further research. I have however also provided on the first anonymised DVD a textual record for each focus group corresponding to the confidential video data contained on the second DVD.

5.1.2   Initial Interviews - Phase 1 - Informal, Conversational interviews

At the most basic level interviews are conversations. Qualitative research interviews (Smith 2004:104) are attempts to understand the world from the subjects' point of view, to unfold the meaning of peoples' experiences, to uncover their lived world prior to scientific explanations (Kvale 1996:1). Interviews that are conducted for qualitative research rely for their quality on the nature of the interactions with the interviewees (Partington 2001:32). Such quality embraces issues like the importance of empathy and rapport, listening and questioning, restatement, clarification and persistence (Wolcott 1990:61-102). However in order to achieve quality in these areas, it is important to step back a little further to the preparation process. Key to the conduct of useful research is gathering reliable information (Litkowski

1991:20,52). That involves careful preparation depending on the nature of the interview to be conducted, and being well prepared in order to maximise the opportunities provided at the interview. Such preparation involves designing questions, questionnaires, and locating a suitable environment and time, where there will be no distractions from the interaction between interviewee and interviewer, so that the researcher can get the kind of information required to draw valid conclusions.

Various types of interviews were used at different phases, and to remain focused rather than give a deeper analysis of literature related to the use of interviews, I will only refer to the types specifically used in the research. The Informal, Conversational interview was used initially, where no predetermined questions were asked in order to remain as open and adaptable as possible (McNamara 1999:1) to the issues identified by the group as they responded to their analysis of the 'problem' being discussed. In this case the issues were raised by two teams of staff addressing the real world Problem Based Learning (PBL) 'problem' of introducing the use of ICTs to support the learning process in their two degrees. I, as the researcher, led the interviews in which the format was very open as associated with a PBL environment. All staff involved in the meeting could raise any issue related to the 'problem' being discussed. The use of these interviews contributed in this more exploratory, initial Phase 1 of the research by identifying the underlying weaknesses inherent in the initial approach and, although exploratory in nature Phase 1 contributed significantly to the more planned approach of Phase 2. Some of these relative weaknesses are referred to later in 5.3.1 under initial data collection.

5.1.3   Questionnaires – Phase 1

Phase 1 also used a questionnaire to gather personal feedback for use as a baseline of data and to guide a group discussion (see below). The questionnaire is shown in Appendix 1. The data collected was useful to refer back to later. A questionnaire is a well-known tool for research, but even a popular and well-validated questionnaire can be misused (UBHT 2002:1). In particular it cannot be assumed that such a questionnaire, validated in one context, can be transferred to a different group in another context. The purpose of this questionnaire was to gather personal information from each participant staff member under three broad headings: the extent of their Prior Learning and Teaching, their current Learning and Teaching using technology, and their experience after having used a PBL approach for two meetings. The questionnaire was designed to make each question relate to only one point. Time was spent in an effort to make the presentation of the questionnaire look neat. Sufficient space was designed into the questionnaire to encourage the respondent to write meaningful comments without encouraging verbosity. It was not intended to score the results returned on the questionnaires, but the responses were helpful by contributing to the baseline of data and also by informing the participants how the weaknesses identified at this stage could be more rigorously addressed. The questionnaire was also used to focus the issues at two group discussions, elaborated on below, with the staff. Since the two groups with whom it was used were facing the same challenges, by very minor adjustments, referring to the particular degree context, effectively the same questionnaire could be used with both groups.

5.1.4   Group Discussions – Phase 1

A Group Discussion is a discussion with about 6 -12 people. When chairing a group discussion, it is important to be aware of the effect of group cohesion when people feel that they are being accepted in a group. When people feel that they belong to the group, they tend to be more willing to give a positive contribution to the group atmosphere. Various group dynamics can influence how a group discussion develops (Schreurs 2005:1) because the individual participants are impacted differently by the range of interactions experienced For example some participants may be influenced to conform to a majority view, or a dominantly led view. In that scenario there is a danger of less dominant but nevertheless important contributors not being heard. The impact of conformation, when an individual tends to adapt his or her own opinion to the norm of the group, requires the moderator or chair of the group to be aware of this and to encourage individual opinions. Group discussions allow the exchange of information and can give the experience of working in a team (Trekk Team 2005:1) because of a common commitment to, but not necessarily unanimity on the task being discussed. This approach early on in the research facilitated the development of a sense of 'team' among the two groups of staff members and enabled me to draw on their ideas and expertise as well as acknowledging that they were valued members of staff. Various roles and tasks tend to be taken up by different members of a group (Trekk Team 2005:1). Positive and negative roles can influence the group. For example people who initiate ideas are invaluable, but those who seek information can equally stimulate the discussion. Then there may be those

who can facilitate the process by, for example, documenting minutes or decisions. It is useful too for the chair to be able to provide a good summary at the end of the proceedings. These roles are more task-oriented. On the more social side there are those who seek to maintain harmony, others relieve tension, or encourage compromise. Examples of the negative roles that need to be avoided where possible are, someone who is disgruntled and tends to inhibit discussion by their critical remarks, or someone who attacks comments made by others before listening carefully to the contribution being made. The chair needs to use skill to lessen the impact of a dominant contributor, or someone who for whatever reason may not take the issue under discussion seriously, tending instead to cause distraction by flippant comments. To prepare for these possible roles and tasks being present, it was useful to agree ground rules early on and to remind the groups regularly of the agreed rules at the start of each discussion. Since these discussions were only able to take place during lunch hours, the staff also appreciated the provision of refreshments prior to the commencement of the formal discussion. That social interaction in itself contributed to the development of team spirit.

5.1.5   Video recording – Phase1 and Phase 3.

I also decided to video the two group discussions at Phase 1 and used this facility again at Phase 3. From reading some recent articles it appears that relatively little systematic research has been conducted on the feasibility and effectiveness of various types and uses of video in education (Bowman 1994:1-3); (Hollingsworth 2005:147). In a comprehensive article (Harrison et al. 2006:1) it is argued that there is a good deal of work to be done in this

relatively new field and that defining the research agenda is an important part of that work. In this research however I was not seeking to use video primarily as a tool for the development of teachers' learning, nor as source for extensive data analysis but more as a supportive recording medium. Further extensive data analysis might be a useful development of the research as there are tools available to support qualitative and quantitative methods to analyse video data. For example, it might be useful to investigate the collected video data in more detail to compare individual responses with the overall findings from this research. The main purpose in using video was to be able to observe the interviews and discussion in a 'slowed down' mode to enable a more detailed record to be retained than was possible by trying to take notes. There are other additional unique and especially powerful affordances offered by the use of video to support teaching and learning (Bowman 1994:3). An example might be that reviewing the video could offer some insight into analysing facial expressions with a degree of detail possible only on video (Cole 1996:591). Other benefits that accrue from using video include; having greater flexibility than that provided by observations that had been recorded manually by note-taking, allowing retrospective analysis at leisure and in much greater depth than would be possible using techniques involving live coding, and enabling categorisation of the data to be more fully developed after viewing the tapes and adopting an 'open minded stance', allowing the data itself to influence the design of a 'category system derived from analysing it rather than being imposed on it'. (Bowman 1994:1).

This last finding by Bowman was interesting in light of the choice of a grounded theory approach as a suitable method for data analysis in this

research. Some important practical issues were also noted from the brief survey of related literature. It is important to prepare well for the video session including, where possible, the support of a technically qualified colleague to ensure that all the equipment functions at a maximum level. Issues like sound level, suitable location of unobtrusive cameras, checking angles and reliability. Potential problems identified were the implications for transcription if a suitable sound quality was not achieved, and the impact on respondents due to the effect of the presence of both the researcher and the camera. It was helpful to note that where the situation being observed is sufficiently engrossing and demanding of the participant's attention that he or she, at least temporarily, forgets the observer's presence (Smith 1981) quoted in (Bowman 1994:3). On a more positive note, using video tapes allows for revisiting of the data for further analysis, or for analysis on a different basis as might be a desired development with this research to obtain greater depth in the analysis, or to use the data retrospectively for some new related purposes.

5.1.6   Further Interviews - Phase 2 – General Interview Guide Approach.

Returning to other types of data collection instruments used at Phase 2 and Phase 3, where the substantial data collection took place, a more structured approach (Murray & Savin-Baden 2000:116) was used than the informal conversational interviews used at Phase 1. During Phase 2, as will be explained below, the scope of the data collection was expanded from two to five degree groups. The selection of the members of staff for interview is also elaborated on below in 5.2.

The general interview guide approach (Patton 2002:342) was selected for the 23 individual staff interviews. This was intended to ensure that the same general areas of information were collected from each interviewee, in order to achieve more focus than the conversational approach, but still allowing a degree of freedom and adaptability in getting the information from the interviewee. Pre-prepared questions, carefully constructed to guide the interview, underpin the process. There is the danger of forcing the interviewee to provide data with a specific content by having a pre-conceived framework. Being aware of that possibility, this approach had to be weighed up against being so open-ended that the interview would become so unfocused as to be unhelpful. I would argue that having a well-prepared and considered open-ended interview guide to explore the topic actually can prevent the danger of rash un-considered questions in response to the discussion taking place. Making all telephone calls, internal or external, inaccessible, prevents telephone interference, so that the possible impact of disruption is minimised. The interviewee can be talked through the process to be used, with any supporting documentation that is also to be included, so that there are no surprises. Again confidentiality can be assured and at the end the interviewees can be thanked and asked to maintain confidentiality with other colleagues regarding the questions discussed. The initial question (and welcome) should seek to make the interviewee feel relaxed and positively comfortable with the interview. Follow up questions should be introduced as naturally as possible to maintain a 'flow' to the discussion and flexibility applied regarding the time allocated to answer each question.

During Phase 2 a further set of five Group Interviews was also obtained with each degree group using the Group Discussion approach as described above at Phase 1.

5.1.7 Digital Recording – Phase 2 and Phase 3

During Phase 1, video recording was available using the professionally trained staff of the telematics laboratory of the institute to facilitate the process using more sophisticated recording equipment. At a later date it was possible to have these videos transferred, using digital technology, on to DVD. For Phase 2, I had to conduct interviews, usually in my room with the more standard recording equipment. However using a small tape recorder rather than professional quality recording can have limitations. Making analogue recordings using cassette tape can introduces noise, particularly hiss, which can drown out softly spoken words and makes transcription of normal speech difficult and tiring (Gilbert 2002:1), so a good tape recorder is indispensable to fine fieldwork (Patton 2002:380).

Fortunately with the improvements in technology it is possible to record digitally. A very small digital recording device such as the Sony IC Recorder ICD-MS515, as used in this research, can be used, located unobtrusively at a corner of the table during the interviews. It is worthwhile having a compatible stereo microphone such as the small portable Sony ECM-DS70P, to maximise the recording ability. Care needs to be taken to ensure that batteries will last for the duration of the interview, expected to be about 20 to 30 minutes for individuals or 45 minutes to one hour for groups. Similar precautions need to be taken, regarding sound quality, to those noted above in

recording video. In addition it is important to ensure that sufficient recording capacity is available on the digital memory. I followed the advice not to try to use software that was available for voice recognition when these recordings were being transcribed into text. It may be possible to 'train' the software to recognise one particular voice, but the technicalities have not yet been overcome to recognise multiple voices as in this case with so many different staff involved. In order not to lose data it is important immediately after the recording to take back-up copies on to computer files. One enormous advantage of using digital recording is to have available on computer a digital voice file, created, and able to be manipulated by software such as the Sony Memory Stick Voice Editor, Version 2.04. The voice file can relatively easily be transcribed into a text file on the same computer, having access to both files simultaneously on two windows of the screen. That makes it possible to synchronise control of both sets of software. Another advantage is that the voice file can also be slowed down, and increased in volume to maximise accuracy during the transcription. It is also possible to insert time indicators into the text at specified intervals, to facilitate easy recovery of particular sections of voice when it is necessary to listen again to that section for more reflection. One disadvantage is that the rate of conversion of voice into text is likely to be approximately four times greater than recording voice (Davidson 2002:3). I found this to be the case. Unquestionably it appeared very beneficial to have so much data collected on to such a small and light piece of equipment that I could take anywhere for transcription or for further listening and reflection, although once transferred to a computer file it is also portable via a USB port using a removable flash memory card.

5.1.8   Focus Groups – Phase 3

The decision to use Focus Groups was not one that was planned at an early stage of the research, but it is appropriate to discuss the issue here because they were used later in the third Phase of data collection. Since there are methodological issues connected with focus groups, these will be dealt with here. To obtain a finer focus on issues arising from the interviews at Phase 2, focus groups seemed to be the way forward. Focus groups are a form of group interviewing but it is important to distinguish between the two (Gibbs 1997:1). Group interviewing involves interviewing a number of people at the same time, the emphasis being on questions and responses between the researcher and the participants. Focus Groups however rely on interaction within the group based on topics that are supplied by the researcher (Morgan 1997:12). That interaction is the crucial feature of focus groups because the interaction between the participants highlights their view of the world, the language they use about an issue and their values and beliefs about a situation. Interaction also enables the participants to ask questions of each other, as well as to re-evaluate and re-consider their own understandings of specific situations (Kitzinger 1994:103-121), (Trigwell et al. 2005:254,255).

Criteria defined in an early article (Merton & Kendal 1946:541-557) suggested that participants need to have a specific experience or opinion about the topic under discussion. The main criteria was that they had to be able to yield an amount of data that would enable a qualitative analysis to take place (Dey 1993:82). Although focus groups have many advantages as with all research methods, there are limitations. For example, I knew I would have

little control over the interaction other than trying to keep participants focused on the topic. The control could be a limitation if exercised in a directive way but advantageous if used lightly to facilitate focus rather than distraction from the topic that the group were seeking to clarify. The participants had to be allowed to talk to each other, ask questions, and express doubts and opinions. To prevent any potential limitations developing, the groups would need to be carefully planned and moderated to achieve as consistent an approach as possible. The same format should be used for each.

A potential limitation of these groups is that it cannot be assumed that the individuals in the focus group are expressing their own definitive individual view. However I considered that they were speaking in a specific context, within the culture of the institution, which was directly relevant to identifying how best to improve staff development processes. The method potentially could discourage absolute honesty and openness because of various fears of what colleagues might be thinking about their contributions, so it was important to counteract that by endeavouring to create an atmosphere of acceptance, commitment to honesty to try to make a difference to future improvements to staff development, and to give re-assurance again of anonymity. In addition to the technical issues, there is also the issue of the authority position of this researcher and the associated issues related to situated discourse. I have acknowledged my own subjectivity and I have attempted to deal with this issue in an earlier chapter and clearly those points are relevant here. In the final analysis these issues are not ultimately solvable; except in so far as the data itself can provide an indication that the participants' willingness to engage frankly with sensitive and difficult issues

did in fact occur. This is important and in a sense methodological discussion is not going to resolve the issue but I will hope to argue successfully later on in chapter 8 that there is internal evidence from the data, which suggests that the participants were willing to engage in discussion of sensitive issues including ones that did engage with power.

Four of the five Focus Group discussions could take place in one faculty, thus facilitating video recordings directly on to DVD. The fifth could only be digitally recorded in an audio format on the Sony Voice Recorder due to the limitations of technology in the other faculty location. These videoed recordings are available on the second, confidential Data Library DVD with a corresponding, suitably anonymised, textual record on the first library DVD as stated above in the Introduction.

5.2   The Data Collection Plan

5.2.1   Phase 1 – PBL, Questionnaires, Video Recording

Planning for this phase took place before a comprehensive literature review was prompted by the outcomes from the data collected during the Phase. Initially a rather more simplistic plan had been established to use the approach of Problem Based Learning as a vehicle for focussing staff discussion on the issue of developing use of ICTs in a learning environment with two separate groups of staff on the two degrees in the one school. At that time this was thought to be a realistic way forward to resolve the 'problem' of how best to introduce the use of ICTs into the learning environment. In due course this perspective was widened, and with all the groups there was

ultimately a focus on the permeation of new technologies in all aspects of teaching, nevertheless the contribution of this phase of data collection to the more extensive plan of Phases 2 and 3, which were informed by the related literature review, is of such significance that it needs to be recorded within the overall description of the research that has taken place.

Key engagement with the staff, who also continued to contribute to the later phases, enhanced by a broader source of data through deliberately extending the range of staff involved, laid the foundations for the planning of Phases 2 and 3. As part of the learning issues identified at the PBL meetings, I offered to prepare a questionnaire to collect the baseline data so that it would inform the developing thinking of the staff as the PBL process enfolded. From the literature associated with PBL (Evensen & Hmelo 2000:114) I sourced a useful instrument to analyse video recordings of discussions. Following communication with the authors, I was granted written permission to use the instrument and that prompted the planning to utilise the excellent video facilities available in the telematics laboratory to record the group discussions regarding the questionnaire. The intention was to obtain a different lens, from a group perspective, on the individual responses to the questionnaire. Analysis of the data thus collected, coupled with the related literature review, and the development of the theoretical framework for the research, which was in parallel supported by international conference networking, directly influenced the planning of the data collection for Phases 2 and 3. Reflections on what was learned from the data collection at Phase 1 are set out below.

5.2.2   Phase 2 – The Range of Informants for Individual, Group Interviews

leading to fully transcribed Recordings

Having become informed by the focused literature review and the initial data from Phase 1, I concluded that I needed to extend the scope of the data collection by extending the range of informants to include a wider representation of the institution and the business environment. To explain why and how I selected the data sources I now explain the rationale behind the range and number of informants chosen to contribute to the data collection and how they were selected.

To contribute to a more rich and diverse source of data that would be required, I broadened the range of informants from the academic staff associated with the initial two degrees within the school for which I had operational responsibility to include academic staff from another school, with different academic disciplines, within the faculty, and academic staff from another faculty within the institution. In all, that encompassed five undergraduate degree programmes from three schools across two faculties. Further diversity was deliberately encouraged by identifying degrees that were delivered to students who were in full-time and in part-time mode of study. Within those degrees there was further diversity among the academic staff because some were full-time employees of the institution and others were part-time pro-rata contracted staff.

I projected that this would provide the added benefits of more widely reflecting the ethos of the national business sector, the culture at faculty and institution level, including a link with change agents since the other faculty that was chosen had adopted the decision to include the use of ICTs one year

earlier. It also reflected my response to the literature to support the integration of theory and practice, by involving participants to research the innovation. As mentioned earlier, various forms of interviewing techniques were intended to collect data that could then be transcribed accurately, in full, to provide written records of the participants' commentaries. Since the intention was to obtain data which could be analysed in order to recognise learning issues raised by the participants, I was not too concerned at this initial stage to obtain records of facial expressions and decided not to video record the individual or group interviews at Phase 2. At a later Phase it might be important to obtain a finer focus on these issues and that would be an opportunity to video additional data input.

As argued earlier, I decided to use a grounded theory approach to analyse and inform the collection of further data. Because the scope of the data had been decided, the initial step of Open Coding, as described below in 5.4.4, did not start with a broad open set of data. That meant that I would need some more objective consideration of the data to balance my subjective selection of the scope of data from the five degrees. I therefore planned to involve three colleagues from the Learning and Teaching Centre, as co-raters, in the initial scan of the data at Phase 2. Their selection, involvement and contribution are described below in 5.4.3. I anticipated that using the open coding approach associated with grounded theory, I would obtain from this Phase a range of learning issues identified as arising from the interviews with the staff from the five degrees. Following further refinement of these issues into learning categories using the axial coding, also described in more detail below in section 5.4.7, associated with grounded theory methods, I planned in Phase 3

to obtain a finer focus on these categories by seeking the input of the same staff members from which the data was generated by asking for their participation in focus groups.

5.2.3 Phase 3 – Focus Group Discussions and Recordings

The literature suggested that the participants in Focus Groups should have specific experience or opinion about the topic under discussion. That was expected to be the case since the issues under discussion were derived from the earlier interviews given by the same people. The topics I planned to supply to each degree group for discussion at the Phase 3 focus groups were those that would arise out of an extensive period of analysis and repeated analysis. They were those identified by the co-raters as the learning issues that had been most frequently raised by staff members arising out of the analysis at Phase 2 of the transcribed interview data from each degree, together with the most frequently raised learning issues identified across all degrees, (for example group interactive learning, or the perceived benefits of technology. The range of learning issues will be elaborated on below). The purpose was to further refine my understanding of what key issues were impacting staff by exploring their interaction with these learning issues and thus contribute to my reflection on how to build on this understanding in order to seek to improve staff development processes. I also planned to seek their responses to any learning they might identify as having occurred since the earlier interviews and to finish each focus group by asking an open question inviting their response on any other issues they regarded as relevant. The focus groups needed to be very carefully planned and structured for a number of reasons. One was that I

wanted to minimise any variation in relation to my own input as far as possible, secondly I wanted to maximise the discussion of the range of topics that had emerged and therefore I would need extraneous topics to be removed, and thirdly this was the final phase of raw data collection so it was going to do a number of jobs in terms of amplifying, extending, and providing more information of various sorts, but also hopefully confirming some things and identifying any possible areas for future discussion that were unanticipated. To minimise the tendency to degenerate into a broad group discussion rather than maintaining a specific focus, I decided to prepare a handout that would summarise the most frequently raised learning issues, in each specific degree and across all degrees. I had decided how I would conduct the focus group by explaining what we had to do, put the papers containing the issues on the table and say 'this is what you seem to be raising from my earlier interviews, and this is what came out across all the degrees. I would like you to talk to me about these issues and clarify your thinking in them'. I had a very definite plan going into each group. Viewing these staff members as representative, I was going to treat the data as representative of the courses, and I wanted to be able to make comparisons across courses and within courses and for that reason it was very important that they were conducted in very similar ways. This comparison will be presented in Chapters 7 and 8. Indeed the preparation of handouts to support and scaffold the discussions was again precisely to maximise the discussion within the focal areas and to minimise any possible variation in how I might mediate and steer them if it became necessary.

In the event this careful attention to structuring and collecting the data in the focus groups paid additional dividends when subsequent analytical

procedures that again were not planned at the beginning of Phase 2, were able to be applied. I will report on these in chapters 6 and 7, when explaining how I used the further constant comparative method associated with grounded theory methods, which led to refinement of the properties of the categories, detailed memo writing and note taking, and identity of theory that arose out of this analytical process on the data.

The detail of what happened during the groups is recorded below. I planned to conduct these focus groups in the telematics laboratory to avail of the opportunity to video record the data on to DVD, except for one group where the facilities were not available on the site of their faculty. I did not intend to transcribe the recordings into text but rather to listen carefully to the recordings, viewing the participants while listening where the recording of their group was on video. For the fifth group I could only plan to listen carefully on a repeated basis.

Degree	α	β	γ	δ	ε
Phase 1 – Framing the Research	14.03.02 - 22.05.02 'PBL' Minutes of 7 meetings with 4 Staff		22.04.02 – 10.06.02 'PBL' Minutes of 5 meetings with 4 Staff		
	17.04.02 5 Individual Questionnaires by Staff		30.05.02 4 Individual Questionnaires by Staff		
	14.06.02 1h 36m Videoed Group Discussion on Questionnaire		17.06.02 1h 1m 56s Videoed Group Discussion on Questionnaire		
Phase 2 – Collecting Data to inform Phase 3	22.01, 28.01, 02.02, 03.02, 18.02.04 5 Individual Staff Interviews fully transcribed from digital recording	22.01, 26.01, 27.01, 28.01, 09.02.04 5 Individual Staff Interviews fully transcribed from digital recording	28.01, 03.02, 12.02.04 3 Individual Staff Interviews fully transcribed from digital recording	29.01, 03.02, 09.02.04 3 Individual Staff Interviews fully transcribed from digital recording	3 on 29.01, 3 on 03.02, 1 on 05.02.04 7 Individual Staff Interviews fully transcribed from digital recording
	16.03.04 Group of 4 Staff Interview, fully transcribed from digital recording	15.03.04 Group of 5 Staff Interview, fully transcribed from digital recording	02.04.04 Group of 4 Staff Interview, fully transcribed from digital recording	02.04.04 Group of 4 Staff Interview, fully transcribed from digital recording	28.04.04 Group of 7 Staff Interview, fully transcribed from digital recording
Rating Transcripts	3 Co-raters individually analyse identical transcripts to identify learning issues to present to Focus Groups in Phase 3				
Phase 3 – Focus Groups	12.05.04 Video recording of 4 staff in Focus Group on Phase 2 outcomes 55 mins 30 secs	26.04.04 Video recording of 4 staff in Focus Group on Phase 2 outcomes 1 hr 5 mins 45 secs	24.05.04 Video recording of 4 staff in Focus Group on Phase 2 outcomes 51mins 25 secs	10.05.04 Video recording of 3 staff in Focus Group on Phase 2 outcomes 1 hr 9 mins 0 secs	19.05.05 Digital recording of staff 7 in Focus Group on Phase 2 outcomes 43 mins 30 secs

Table 5.2 – Three Phases of Data Collection

5.2.4   The Phases of Data Collection to provide the Data Set

Table 5.2, using α, β, γ, δ and ε to identify the degrees, summarises the discussion of data collection thus far, and also quantifies on the table the dates during the three Phases when the various instruments were used to collect the raw data. This table can be used as a reference point during the discussion across the next three sections. What actually happened in practice is set out in these next two sections, 5.3 collecting Phase 1 data (5.3.1), and collecting Phase 2 data (5.3.2), and 5.4 arguing the case for how I applied an Open and Axial Coding approach associated with grounded theory methods to the Phase 2 data. I will discuss why and how I took the decisions I did during the Open and Axial coding processes, culminating in the learning issues presented to the Phase 3 focus groups. Having obtained the Phase 3 data from the focus groups, the entire data set is then set out in the 5.5 in order to capture the extent of the data in one place. In that section with its associated tables I also quantify the data set in terms of word length of the transcribed interview recordings and the duration of the video and digital recordings of the focus groups. Chapters 6 and 7 discuss how the data set was further analysed, by applying Focused Coding, as Charmaz labels it (Charmaz 2006:57-60), also known as Selective Coding, as Strauss and Corbin label it (Strauss & Corbin 1998:143). Before applying it, I will explain in 5.4.8 why I have chosen to use the term Focused Coding, not least in that it was the process associated with analysing the Focus Groups. The focused coding was associated with memo writing and note taking, which are also explained, during the reflective inter-relating of the themes arising out of the data set, leading to the development of a theoretical understanding of the phenomena identified from the data.

5.3   Collecting the Data

5.3.1   Phase 1 – The contribution of the Initial Data Collection

The initial, or informative, data collection consisted of PBL meeting notes of discussions among eight academic staff, as they faced up to the challenge of how to deliver some of the modules on their two programmes through using ICTs. At this stage the objective was to identify how best to achieve this goal, as it was not yet clear that there was a need to carry out a more careful analysis to identify how best to support staff development in order to achieve that goal. An early attempt to provide a baseline of data consisted of the creation of formal minutes of meetings from the discussions among the initial two degree groups. A more focussed collection of data was attempted through nine completed individual staff questionnaire responses among staff on these two degrees in the school to try to establish the baseline of individual understanding of prior knowledge and use of ICTs. That phase of the data collection culminated in two video recordings of each group discussing the same questions that had been asked on the individual questionnaires. This initial data was collected before a more focused identification of the research question and specification of the method, although in hindsight what was actually happening was the process known in grounded theory as initial theoretical sampling.

Through analysis of this initial data collection, specific shortfalls were identified in the understanding and skills of the staff involved that suggested a more thorough investigation was merited using a richer collection of data. These are elaborated on below.

Particular weaknesses that might constrain the research, a point that was later affirmed by the focused review of the literature, were identified through consideration of the individual responses to the questionnaires and reflecting on the group discussions. For example, there was uncertainty specifically expressed among the staff regarding how to assess and evaluate group learning that would arise out of using ICTs. I concluded that rather than proceed with this sort of uncertainty, it would be more helpful to undertake a careful analysis to find out what the key issues were that could inform how best to support staff development. In the group discussions a significant skills deficit in using ICTs was also identified. There was also not a clear understanding of what online learning implied. It was also identified, during this initial analysis of the challenge to design, develop and deliver learning materials using ICT's, that the emphasis was on what training might be required to assist staff. The possible distinction highlighted by Wenger on two different trajectories of training and of education (Wenger 1998) influenced the decision to try to establish what learning theories underpinned their existing teaching strategies. A further example of how the initial phase informed the development of the research concerned the concept of involving staff. Reading related research papers began to inform the thinking of staff. Uncertainty among some early adopters of ICTs, throughout the institution, regarding how to develop their initiatives also motivated the staff teaching on one of the degrees to suggest that a bid be submitted for funding to conduct an institute-wide study among academic staff regarding the use of ICTs. That sort of response from the staff, together with the suggestions in the literature that to involve participants in the research could assist the participants to establish

new learning frameworks, influenced the decision to ask staff to talk about teaching, to obtain their 'thought in action', and to encourage reflection on their experience of teaching, and their prior learning. I was also keen to respond to the point raised in the literature that curricula and pedagogies need to be analysed and understood in terms of the larger cultural context (Pepin 1998), and that without such understanding changes cannot be predicted to be successful. That cultural context included the culture of the institution and that of the business community it sought to serve. I argue therefore that if the data collection was to be restricted to one school, then the representation of the richness of culture of both the institution and the business community would be diminished and so I considered it appropriate to expand the scope of the data collection.

To overcome these constraints and more thoroughly investigate the issues behind them, I decided to expand the sources and range of data that I perceived would be required to better inform more a rigorous approach to research the issues. I decided therefore to broaden the data collection to include another school and another faculty as described above in the data collection plan.

As had been the case in the two initial degrees, across this expanded scope of the data, within each programme it seemed apparent that the awareness by the academic staff members of the affordances of ICTs ranged from very little awareness to considerable confidence in exploiting the affordances of the technology. This view was based on my observation of those members of staff who were using ICTs to support their learning environment. However, even if the academic staff member had confidence to

seek to exploit the affordances that did not necessarily mean that s/he had a corresponding confident understanding of the theoretical underpinning of the learning theories that could guide an appropriate use of that technology. Although I did not intend to use the male / female aspect of the range, both genders were represented on each of the five degree groups of staff.

5.3.2   Phase 2 – collecting, preparing data for analysis

5.3.2.1 Recording the Data

During a period of 6 weeks individual interviews were recorded with 23 individual staff teaching on the five degrees. The approach taken at each interview was as consistent as possible, seeking to make the interviewee as relaxed as possible, using the questions set out in Appendix 3 as a guide to ensure that each interview covered similar ground, but giving priority to the interviewee's response to the leading questions, and introducing the same handouts at the appropriate time. The interview was introduced using the critical incident technique (Flanagan 1954) where the interviewee was invited to focus on incidents when they believed they had been particularly successful in a teaching and learning experience. The individual interviews ranged in duration from thirteen minutes twenty eight seconds to thirty one minutes thirty nine seconds, as informants spent varied times responding to the various leading questions. Allowing a period of at least one month after the final individual interview for a degree, that degree group of staff was invited to participate in a group discussion focused on the same content as had been covered during the individual interviews. The reason for the time gap between the individual and the group interviews was to minimise the likelihood of staff

being influenced by memorising what their earlier contributions had been. In one case, which I noted in my journal before the group interview, one member of staff requested to be reminded of what had been said earlier but, by explaining the purpose of the group interview, the request was graciously refused. In my journal I noted the following, having met the colleague in the corridor:

> Hi Robbie. I'm OK for that discussion tomorrow – to help me prepare can you remind me of what I said the last time. I want to make sure I'm consistent. (Short laugh!)
> Well actually I am hoping that everyone will participate spontaneously without any prompt so if you don't mind I would prefer to hear your current thoughts.
> Oh I see. Fair enough. (Further short laugh!)

In the case of the five group interviews the duration ranged from forty-one minutes and six seconds to forty-seven minutes and eight seconds.

Table 5.3.2.1a summarises the contribution to the data set that was collected during Phase 1 from the PBL meetings, questionnaires and group discussions, followed by the individual and group interview recordings at Phase 2.

Table 5.3.2.1b then provides a summary of the transcribed data that was prepared from these recordings in order to provide the co-raters with identical files of transcripts. As will be explained in 5.3.2.3 below, letters from the Greek and English alphabets were used to identify the degrees and the staff respectively.

Degree	α	β	γ	δ	ε
Phase 1 – Framing the Research	14.03.02 to 22.05.02 'PBL' Minutes of 7 meetings with 4 Staff		22.04.02 to 10.06.02 'PBL' Minutes of 5 meetings with 4 Staff		
	17.04.02 5 Individual Questionnaires by Staff		30.05.02 4 Individual Questionnaires by Staff		
	14.06.02 1h 36m Videoed Group Discussion on Questionnaire		17.06.02 1h 1m 56s Videoed Group Discussion on Questionnaire		
Phase 2 – Collecting Data to inform Phase 3	22.01.04 28.01.04 02.02.04 03.02.04 18.02.04	22.01.04 26.01.04 27.01.04 28.01.04 09.02.04	28.01.04 03.02.04 12.02.04	29.01.04 03.02.04 09.02.04	29.01.04 29.01.04 29.01.04 03.02.04 03.02.04 03.02.04 05.02.04
	5 Individual Staff Interviews to be fully transcribed from digital recording	5 Individual Staff Interviews to be fully transcribed from digital recording	3 Individual Staff Interviews to be fully transcribed from digital recording	3 Individual Staff Interviews to be fully transcribed from digital recording	7 Individual Staff Interviews to be fully transcribed from digital recording
	For details of individual and group transcription data see the next page				
	16.03.04 Group of 4 Staff Interview, to be fully transcribed from digital recording	15.03.04 Group of 5 Staff Interview, to be fully transcribed from digital recording	02.04.04 Group of 4 Staff Interview, to be fully transcribed from digital recording	02.04.04 Group of 4 Staff Interview, to be fully transcribed from digital recording	28.04.04 Group of 7 Staff Interview, to be fully transcribed from digital recording

Table 5.3.2.1a **-** Collected Data at Phases 1 and 2

Degree	α	β	γ	δ	ε
Phase 2 – Transcript Data for Co-raters to analyse	Staff B 02.02.04 20m 09sec 3118 words	Staff A 26.01.04 21m 08sec 3940 words	Staff C 03.02.04 16m 07sec 2773 words	Staff K 03.02.04 15m 07sec 2483 words	Staff D 29.01.04 19m 32sec 3769 words
	Staff E 18.02.04 21m 16sec 3935 words	Staff I 09.02.04 18m 56sec 2816 words	Staff F 12.02.04 23m 31sec 4229 words	Staff L 29.01.04 23m 04sec 3902 words	Staff J 29.01.04 22m 49sec 3952 words
	Staff G 22.01.04 23m 17sec 3564 words	Staff O 27.01.04 18m 56sec 3014 words	Staff S 28.01.04 21m 19sec 3102 words	Staff N 09.02.04 31m 39sec 5090 words	Staff P 03.02.04 14m 44sec 2963 words
	Staff H 03.02.04 27m 30sec 5869 words	Staff R 22.01.04 22m 17sec 2820 words	Staff W Unable to attend	Staff Y Unable to attend	Staff Q 03.02.04 13m 28sec 2987 words
	Staff M 28.01.04 23m 38sec 3642 words	Staff T 28.01.04 20m 08sec 3520 words			Staff U 29.01.04 18m 41sec 3536 words
					Staff V 03.02.04 15m 50sec 2970 words
					Staff X 05.02.04 22m 26sec 3777 words
	Group 16.03.04 45m 44sec 7951 words	Group 15.03.04 43m 39sec 7465 words	Group 02.04.04 47m 08sec 10034 words	Group 01.04.04 41m 06sec 7428 words	Group 28.04.04 44m 44sec 10242 words
Total Time Words	2 h 40m 50s 28079	2h 24 m 25s 23575	1h 48m 5s 20138	1h 50m 56s 18903	2h 52m 14s 34196
Overall Total	11 hrs 36 minutes 30 secs of recording giving 124,891 words of transcript				

Table 5.3.2.1b Phase 2 Data, Transcripts created from interview recordings

5.3.2.2 Transcription Accuracy of the Data

The decision was taken to transcribe all of these interview recordings in full to facilitate the later use of grounded theory methods and provide the three co-raters with exactly the same data source and layout from which to identify learning issues. The assistance of a transcriber was a valuable aid to my use of time, allowing me the space to listen to each recording very carefully while reading the draft transcript prepared by the transcriber in order that I could make any corrections to the transcript for precision and accuracy. It was important to do this quality check on every transcript to ensure not only accuracy of transcription, but also anonymity of the interviewee as I describe below in 5.4.3. This was very time consuming, since as Table 5.3.2.1b indicates there was a total of 11 hrs 36 minutes 30 seconds of recording giving 124,891 words of transcript. These transcripts were checked by the researcher for accuracy and edited, a process that took approximately 40 hours. To facilitate analysis at a later time and assist in quickly locating a section of data to clarify the context, time intervals were inserted into the transcription record every fifteen seconds. The data from each interview was copied from the original transcribed document to one using a standard format with two columns, the data being held in the right hand column and the left hand column being available for the future use by co-raters. A sample page showing the layout chosen to present each transcription in a standard format is shown in Table 5.3.2.2. To indicate the response by the informant to each question, the question number was also recorded on the left hand side of the standard layout format in case it might be needed during the analysis phases. The file of

all the transcripts was further edited, as described in 5.4.3, in order to ensure

anonymity of the informants.

Q1.	Well Staff I, thanks for your time for the interview. How long have you been teaching on the XXXX courses?
	Over the last 11 years.
	11 years ok. Well during that period (00.15) maybe that's
Q2.	taking you too far back, but you must have had an experience where you would come out and say 'that was positive', I really enjoyed that. Can you recall a teaching experience that made you feel very positive? (00.30)
	I can the classes were small enough to participate fully and I got a good, I got good feedback from the class and we were able to discuss the issue and we had time to discuss the issue. (00.45)
	You've actually begun to unpack it a bit you know, it was a small enough group and you had time, I was going to ask you
Q3.	as a follow up to the question, what do you think made it a positive experience?
	Yeah, what made it a positive experience (01.00) I think were two things. It wasn't a classroom, it was a small group and they were comfortable with one another. They had known each other for a short, a reasonable while so I was comfortable with the topic and (00.15) that we had the time and that was what it was about, that we had the time to discuss something and that the exercise they were carrying out was also enjoyable. So it was a positive experience. (01.30) There was an element of a test about it and they enjoyed that and ah so that's really, and they were also comfortable about the eh content they were learning because I had warned them (01.45) in advance and I had asked them to do a pre-course questionnaire and eh so nobody was surprised by the information so it was sort of a non-threatening environment.
	Good. So you've mentioned (02.00) time, numbers, non-threatening, prepared in advance, lots of things there. Could you extend that and talk to me about using new technologies?
Q5.	What would you say about where they can take you in terms (02.15) of the potential and what you've talked about?
	Well I think that new technology and having access to PCs allows people to participate (02.30) from their homes and from from distances and it's not that intrusive to e-mail somebody or use a chat room to discuss something with a teacher if you're given the right time. And em so it (02.45) means that em I think you can interact more with the teacher possibly and the class members themselves by sending little e-mails during the week whereas they mightn't see one another, they'd only see one another maybe twice a week. (03.00) If there was new technology there, they might well communicate with each other a bit

Table 5.3.2.2 **-** Page of Transcript for individual use by each Co-rater to identify Categories

5.3.2.3 Ensuring Anonymity of the Informants

Since written commitment had been given to each informant that all data collected would remain anonymous, a further editing process was then performed on the each transcript to honour that promise. In order to make the data anonymous the degrees were given Greek letters α, β, γ, δ, and ε and each member of staff was given an alphabetic code from A through Z, but not allocating these letters consecutively in order to promote the anonymity. Within the text care was taken to ensure that the staff letter accurately replaced all references to staff colleagues by personal name. All references to a degree, or a subject within a degree that might allow identity of the degree, and possibly the staff member, or even reference to a student by name, were also replaced by a suitable synonym that would also not affect the meaning of the text. Four ring binders, each containing identical copies of the complete set of transcribed and edited pages of all transcripts, were prepared for the analysis by the co-raters.

However before discussing the work done by the co-raters it is appropriate at this point to comment on the version of grounded theory used, because in this research the role of the co-raters was an important component in the initial step of theoretical sampling. The scope of the data having been already determined by the selection of the staff teaching on the five degrees meant that the range of data available for the application of a grounded theory method was constrained to this sample. Normally a theoretical sample is identified upon which to perform the first step of open coding. However in this case, as I was taking as the sample the entire data range, I wanted to minimise my subjectivity in identifying and selecting learning issues from the data and

so I decided to involve the co-raters in that step. This is discussed in the following section.

5.4 Justifiying the 'Version' of Grounded Theory used

5.4.1 Constraints on the initial steps of theoretical sampling

The application of grounded theory methods to ongoing data gathering and analysis is driven by the concepts derived from the evolving theory and based on making comparisons between these concepts in order to maximise opportunities to discover variations among the issues being investigated and to increase the depth of categories in terms of their properties and dimensions (Glaser & Strauss 1967:56-60). From a starting point of a very broad sample, the focus becomes sharper regarding how the sample is progressively selected. As the categories become more focused, evaluation of the method involves a description of how this theoretical sampling proceeded and how the core categories were selected, and then followed by judgments about the empirical grounding of the findings of the study.

In the case of this research, the scope of the data collection had already been set by the research question, limiting the investigation to the staff development processes within the institution, and, the targeted literature review had informed the selection criteria for the data sources in order to increase the diversity and richness of the data required. Thus the initial step of theoretical sampling had been carried out. As explained in detail above, that consisted in the selection of five degree-level programmes which were delivered in either full-time or part-time modes, with both full-time and part-

time staff providing the learning and teaching support to a range of students across the degrees which were representative of a broad cross section of industry. While it could be argued that this constrained the theoretical sampling, it is also the case that the boundary constraints on the scope of the research enabled an initial focussing of the sample. From the transcripts of these recorded interviews conducted with this selected set of staff, the analytical process then followed the constant comparative method of analysis associated with grounded theory methods. In the context of this research what that meant was that the range of identified phrases, using the descriptions generated by the co-raters to describe the identified learning issues, were used and these alone were used, in order to commence the process. The process is described in more detail below. These phrases were then very carefully considered, including the context in which they were identified, and given properties that described the learning issue. It was important to reflect on the descriptive phrase used by the co-raters, the properties associated with it, and the original context in which it was identified, to see if the phrase was related to the same learning issue, or if the phrase was describing something in a very different context. That was very important to make sure, so that when I collapsed the data into a smaller number of learning issues, and then categories with corresponding properties, that the properties associated with that phrase were consistent in meaning and learning context. The input of the co-raters was crucial in determining the initial sample of learning issues, and it was also considered important to carry out inter-rater reliability tests on the sample as described below in 5.4.6.

5.4.2   Rating the Initial Theoretical Sampling

Having established the criteria to identify suitable respondents that were likely to provide a rich and diverse range of data, and accordingly selected the full-time and part-time staff on the chosen degree programmes, as mentioned above I considered it to be important to lessen the impact of my subjectivity at the first step of analysis of the theoretical sample. To contribute to this reduction in the impact of subjectivity three independent co-raters were involved with the first phase of the analysis.

Commitments that had been given to the respondents regarding anonymity also had to be honoured before involving the co-raters. As described above alphabetic characters, using the English and Greek alphabets, were used to code the staff and the degrees. Further, any reference to a subject or student name within each transcript, that might indicate the source of the original material, was converted to a unique anonymous code, which was used consistently throughout the data for that subject or student, laboriously taking extreme care in doing so not to alter the original meaning in the sentence.

The three co-raters were then asked to independently analyse a common copy of the transcripts of all the interview recordings. Perhaps unusually therefore, the inter rater reliability in this study was calculated on three co-raters looking at the entire data set of over 120,000 words. These common copies had been formatted, as described above, with two column sections, with the interview text in the right hand column and a blank left hand column to record their description of, or comments regarding, the learning issues as they identified what, for them, were the key learning issues by underlining these in the text in the right hand column. The process and

outcomes from this phase are detailed in the next section with examples given to demonstrate the process.

5.4.3 Co-raters of the Data, and the Process Used

Sample layouts are shown below in Tables 5.4.4a and 5.4.4b, using a selected page of data, chosen to show a sample in order to assist in understanding the process used to manipulate the Phase 2 data from transcription of the recorded interviews, through the analysis by the co-raters, into a form suitable for further detailed analysis and reflection that would identify key learning issues raised by staff. The three co-raters, academic colleagues in the Learning and Teaching Centre, agreed to reflect independently on the identical transcripts provided. One meeting was arranged with them to hand over the materials, to explain the refinements already undertaken regarding coding of staff and degrees and to agree the process, but minimal discussion was allowed on the data itself in order to maximise the independent work they had undertaken to do.

It turned out that one colleague was unable to allocate the time needed within the required timeframe to complete the work, although some work was partially completed on the group interview transcripts. In the interest of consistency, I decided to ignore this partial work and to proceed with the completed responses from my two colleagues for comparison with my own analysis. Should the third co-rater's response be received, I would repeat the ensuing stages of the constant comparative analysis in the interest of assuring that the outcome of theory without that data is not affected by its absence.

My colleagues agreed to maintain strict individual analytical work on the Phase 2 transcripts. Both had academic backgrounds in educational theory, one more involved with the application of technology to learning than the other.

Table 5.3.2.2 shows a sample of the format used to provide a common layout for each co-rater's analytical work on a transcribed interview. During the meeting to explain and agree the process, I presented a file of all transcribed data in this format to each co-rater, with a typed 'guidance handout', shown in Appendix 4, containing a brief explanation of the 'process' and the description of the coding used for the staff name and degree title. We agreed that our task was to read each transcript independently and seek to identify perceived learning issues raised by staff. When such a learning issue was identified in the transcribed text, the co-rater would underline the text in the right hand column and write a word or phrase in the left hand column, opposite the underlined text, to describe what they perceived to be the learning issue they identified. Given this minimal input on the process the co-raters completed their work independently and returned their inserted comments to me in the original folders.

5.4.4   The Application of Open Coding to the Phase 2 Data

In order to capture the results of this independent work in a digital format, I then used a digital copy of the original digital file of each interview transcript as a common base, with line numbers inserted in the left hand column. I digitally underlined in the right hand column whatever text the co-raters had manually underlined as a learning issue, and recorded in the left

hand column which co-raters, A1, A2, or A3, had identified the learning issue. The page and line number enabled a quick reference back to the original work, thus preparing to assist in the additional reflection, including consideration of the learning context, which would be required during the constant comparative analysis process to be carried out on the data. I also recorded the word or phrase used by the co-raters to describe the learning issue. Some subjectivity is involved in this step as I had in some cases to use a shorter phrase, but as far as possible the specific wording of the original learning category defined by the co-rater was used. They had chosen the learning issue and described it. In this sense the openness of the description they had chosen had been sparked by their individual reflection allowing their ideas to emerge. That approach, while initial and provisional, allowed them to create descriptions that they thought best fitted the data. Further discussion on this issue will be developed in the next chapter. A page showing a sample of this step is in Table 5.4.4.a.

			have you got, what knowledge do you have already and to
1			use that more. Em you find out by talking to them (09.45)
2			but again <u>participation and talking to them takes time, so</u>
A1		1/3	<u>time constraints</u> are there and cost factors because you
4 Time			<u>need more classes</u>. Em, and then there's the reflection and
5			non-reflection (10.00) em just to get reflecting on
6			something and then just learning it and doing it, I haven't a
7			comment on that at the moment. The <u>individual and the</u>
8			<u>social is an interesting one because I see people who are</u>
9			<u>(10.15) interested in joining groups and others who work</u>
A1 A3		2/3	<u>better on their own.</u> And some people come up to me and
11 Group Individual issues			ask questions, other people just go away and learn it. Em so
12			somehow we have to (10.30) learn from them so just in
13			terms of the course, the curriculum, and the syllabi, I'm a
14			bit stuck on this one. I have the knowledge, the courses,
15			the curriculum, the syllabi, (10.45) the knowledge hopefully
16			would increase everyday with my own experience in the
17			outside workplace as well so that I can bring it into them.
18			And if I have issues during the day from work, to get them
19			involved, particularly with (11.00) grievance and disciplinary
20			(11.00) and they often open up then get them to use the
21			flip chart or conflict handling, get them to talk about an
22			issue at work, get them to compare. So I think <u>size of the</u>
A1 A2 A3		3/3	<u>class is a huge factor</u> (11.15) in getting people to learn
24 Class size			either as a group. When you're in a very large group more
25			than 15 or 20, people are broken down into little sub-
26			groups, individuals (11.30) so there's less of a chance of
27			learning from one another, it's too big a group. So em what
28			else?
29			You mentioned getting to know students (11.45) and em
30			presenting real life work situations here so are you taking
31			the knowledge you have and trying to, how are you using
32			this representation, teaching and learning (12.00)
33			resources, you're using groups, you're using examples of
34			real work.
35			
A1 A2 A3		3/3	Yeah<u>, examples of real work because they're adults and</u>
37 Real Life scenarios			<u>they're in the workplace. I'm very conscious of that</u> (12.15)
38			and I want to talk to people who have the same
39			experiences. That's my 'Subject P' background that would
40			allow me to do that. That's how we operate em and compare
41			it with them and talk to them about their experiences and
42			make them more aware of the (12.30) existence of
43			'Subject P' in the background, in the company even though
44			they're not in 'Subject P' departments. So getting to know
45			where they're at, it's difficult sometimes when you have 36
46			in the class. It's getting to know where they're at and
47			that's one way of learning certainly (12.45) and we develop
A1 A2 A3		3/3	then because <u>I learn from them certainly and hear about</u>

Table 5.4.4a – Sample Transcript of Learning Issues identified by the Co-raters

	A	B	C	D	E	F	G	H	I	J
1	Degree	Staff	Page	Line	A1	A2	A3	T	Q	Learning Issue Description
2	β	I	1	9	1		1	2	2	Enabled interaction
3	β	I	1	19	1		1	2	3	Good relationships
4	β	I	1	24	1		1	2	4	Fun
5	β	I	1	29	1			1	4	Advance Preparation
6	β	I	1	44	1	1	1	3	5	Affordances of ICT
7	β	I	2	5	1	1	1	3	5	[In]Equality of access
8	β	I	2	19	1	1		2	5	Technology Potential
9	β	I	2	37		1	1	2	6	Collaborating with technology
10	β	I	2	43	1	1	1	3	6	Locus of Power
11	β	I	3	12		1	1	2	6	Confusion by collaborating
12	β	I	3	46			1	1	7	Prior learning
13	β	I	4	3	1			1	7	Time
14	β	I	4	10	1		1	2	7	Group/Individual issues
15	β	I	4	23	1	1	1	3	7	Class size
16	β	I	4	36	1	1	1	3	7	Real Life scenarios
17	β	I	4	48	1	1	1	3	7	Real Life scenarios
18	β	I	5	13			1	1	7	Group/Individual issues
19	β	I	5	24	1		1	2	7	Group/Individual issues
20	β	I	5	48		1	1	2	7	Application
21	β	I	6	15	1		1	2	7	Relevant
22	β	I	6	19	1		1	2	7	Staff Student learning together
23	β	I	6	29	1		1	2	7	Locus of Power

Table 5.4.4b Sample of Spreadsheet created from the transcription data

shaded highlight refers to Fig. 5.4.4a

The Open Code used during analysis, applying a grounded theory approach, was the Degree/Staff/Page/Line Number/Question Number, and the identified Learning Issue as a Description. To support the analysis, I transferred the Open Code, including the corresponding Learning Issue Description, to a spreadsheet and gave a value of 1 under the co-rater code, A1, A2 or A3 if any co-rater had identified the learning issue, and the value of 'blank', if any co-rater(s) did not identify that issue. A sum total of the values, T, allocated to A1, A2 and A3 was then calculated. A sample page, corresponding to the page selected for Table 5.4.4a, demonstrates this in Table 5.4.4b. This approach enabled easy sorting to be performed on this additional

Phase 2 data, created in the spreadsheet, to identify the number of occurrences of issues identified by 1 out of 3 co-raters, 2 out of 3 co-raters and by all co-raters. In case it might be needed for later analysis the Question number, Q, was also included. Using this code, I was able to quickly reference the original Phase 2 recorded data in the transcript during constant comparative analysis.

From the raw digital audio interview data collected at Phase 2, carefully transcribed to maximise accuracy in the written text in relation to the original interview context, I now had added to the data set a digital copy of the learning issues identified by the co-raters, with Open Coding applied to the data, associating the learning issues directly within the code. Later, in Chapters 6 and 7, I will discuss each step of the analysis of the data. However I mention the open coding step of analysis here, during the discussion of data collection, because the constant comparative method uses analysis to inform further data collection and this first step of applying Open Coding contributed further data to the collection in the form of the created spreadsheet. It can also be regarded as the first step in the analysis process; this first step of the analysis having been carried out by the co-raters. In the chapters on data analysis, I will refer to six levels of analysis, this step of applying Open Coding being identified as Level 1.

Having set out the approach taken to Open Coding, I will now comment on the outcomes from this Level 1 of the process before explaining how I intended to apply the next steps in the process, that of applying Axial and Focused Coding.

Specifically in 5.4.5 I will summarise the results of a broad 'analysis' of the created spreadsheet when I used the facilities of the software to sort this

Open-Coded Phase 2 data into learning issues identified by the co-raters, noting where three out of three agreed, two out of three agreed and where only one out of three agreed. Later having completed the six levels of analysis, I will return to the issue of how to handle those items of data that were only identified by one co-rater as a learning issue but which need to be addressed in order to apply any emerging theory from the analysis to all of the data, in keeping with the principles of a grounded theory approach, the so called 'negative cases' or 'outliers'.

In 5.4.6, I will briefly comment on the reliability of the data created by the co-raters when completing the Level 1 analysis, before explaining the approach taken when applying axial coding, in 5.4.7, and focused coding in 5.4.8. Finally in the last section of this chapter, before moving on to discuss the analysis of the data, I will summarise the entire data set in Section 5.5.

Degree		All 3 Agree	2/3 agree	A1 and A2	A1 and A3	A2 and A3	1 only	A1	A2	A3	Learning Issues Total	Unique
α	No. of learning issues	46	41	15	22	5	59	36	6	17	146	104
	percentage	32%	28%	34%	54%	12%	40%	61%	10%	29%		
β	No. of learning issues	47	48	20	20	9	42	18	15	9	136	105
	percentage	34%	35%	42%	42%	19%	31%	43%	36%	21%		
γ	No. of learning issues	26	23	9	8	6	22	11	7	4	71	55
	percentage	37%	32%	39%	35%	26%	31%	50%	32%	18%		
δ	No. of learning issues	22	40	10	22	8	21	11	2	8	83	47
	percentage	27%	48%	25%	55%	20%	25%	52%	10%	38%		
ε	No. of learning issues	79	63	31	23	9	28	16	7	5	170	91
	percentage	46%	37%	49%	37%	14%	16%	57%	25%	18%		
All	No. of learning issues	219	215	83	95	37	172	92	37	43	606	146
	percentage	36%	35%	38%	44%	17%	28%	53%	22%	25%		

Table 5.4.5 - Summary of learning issues identified by the 3 Co-raters

5.4.5   Learning Issues identified from the Open Coding

- Level 1 of the Data Analysis Process.

This application of Open Coding to the analytical work done by the three co-raters resulted in a total of 606 separate items of learning issues being identified from the Phase 2 data transcripts. Using the spreadsheet as a basis, one for each degree and one for the combined degrees, to capture the analysis digitally, I was able to sort this data in various ways to group the same learning issue descriptions together. Further sorting also enabled me to identify where co-raters identified the same learning issues independently on the identical transcribed interview layouts, and gave them common learning issue descriptions. I was able to identify specifically where all three co-raters agreed what was a learning issue and used a common description, where two out of three agreed, and which two; and where only one co-rater selected specific text and which one. The discussion will be expanded in the next chapter as I discuss all levels of the analysis. The results from this level 1 analysis are summarised in Table 5.4.5 showing, for each degree and for the combined degrees, the total number of learning issues identified, the number of learning issues where all three co-raters agreed and used a common description for the learning issue, where two co-raters agreed, and which two, and where only one co-rater, and which one, identified a learning issue. The table also expresses the counts as percentages. I also record the number of unique learning issue descriptions identified during Open Coding, at Level 1 analysis, in each degree, and overall, as this was used in the inter rater reliability statistical test applied, as set out in 5.4.6.

The further levels of the analysis process will be expanded in more detail in the discussion on the application of Axial Coding during constant comparison of the Phase 2 data and the application of Focused Coding to the Phase 3 data. During axial coding the categories identified were given properties, referring back to the transcriptions of the original recorded interview data in order to assist in the allocation of the properties by reflecting on each learning issue in its learning context. This was followed by the process of focused coding to grapple with large amounts of Phase 3 data.

The purpose of using the three co-raters was to reduce the impact of my subjective identity of key learning issues had I completed the exercise myself. It is worth noting that the researcher was coded as co-rater A1 and the results of the analysis show that A1 identified considerably more learning issues than A2 and A3. This suggests that A1 was probably more thorough and had ideas in constructing new categories. What is also significant is that both of the other co-raters often agreed with A1 in the identification of learning issues, although they did not agree so often with each other. This tends to strengthen the case that the learning issues identified by the researcher at this Level 1 of the analysis process, being re-enforced by each of the other co-raters, could reliably be taken forward to the succeeding levels of analysis. The lower rate of agreement between A2 and A3 may be perhaps be due to A2 and A3 being more conservative in their approach or lacked the confidence to construct new categories. A1 probably also spent more time reflecting on the data to identify learning issues as this was a very time consuming exercise, and my co-rater colleagues may not have had the time that I was able to allocate to it.

This step of analysis in applying open coding to the data also began to focus the learning issues. The relatively common agreement among the co-raters was noted and in addition some inter-rater reliability tests conducted on this created Phase 2 data. The reliability tests and the rationale for them are discussed in 5.4.6. The results of these reliability tests are shown in Appendix 5 as Table 5.4.6a through 5.4.6f. It should be noted that the discrepancy of 1 in the total number of categories, in the reliability tests in Appendix 5 in Tables 5.4.6a, 607 and 5.4.6e, 84 as against 606 and 83 for degree δ in the Table 5.4.5 above, is explained by one comment that I personally made on the text of Degree δ to remind me of a 'good comment' made by a colleague that I wanted to remember. The discrepancy of 1 here is due to a coding error and I rectified the coding error by not using this comment in the analysis.

A full listing, identifying all the learning issues selected by the co-raters of the data text files, and the subsequent spreadsheets created and used during the Axial Coding is provided as a digital file on the DVD attached to this dissertation with the original digital voice recordings and the other digital files that supported the analysis process.

In an effort to provide clarity and transparency of the way the analysis was conducted, during the discussion of the data analysis in the next chapter, I will use some specific learning issues as examples of the process, following the process through for one degree, showing how properties were allocated, and how these properties of categories were used to create sub categories.

5.4.6   Inter Rater Reliability Tests

To support the reliability of the selection of the learning issues by the co-raters, inter-rater reliability tests were also carried out on each degree group and on a consolidated set of data for all degrees. The argument, using Degree α as an example, and assuming that responses to different statements are independent, in the probabilistic sense, goes along the following lines.

There were 146 different learning issues identified in total by the co-raters on this degree. Any co-rater had to identify each issue independently and allocate the description to the learning issue. Each issue description can be rated according to one of 104 unique common values, since a number of the identified issues had the same description, and when sorted, in issue description order, these common descriptions were identifiable together for common counting.

It is reasonable to assume that, in principle, each of the 104 categories is equally likely to be chosen by any co-rater.

The probability of two co-raters agreeing on one 'specified' learning issue, on Degree α, = 1/104 = 0.0096, because there were 104 unique learning issues out of 146 in total. This is because whatever response co-rater one selects co-rater two has a 1 in 104 chance of opting for the same, assuming each response is equally likely. Consequently the probability that the co-raters do not agree is 103/104.

The probability that the two co-raters disagree on all 146 statements is $[103/104]^{146}$, i.e. 103/104 raised to the power 146. Consequently the probability that the co-raters agree on 'at least one' statement is $1 - \{[103/104]^{146}\} = 0.7560$.

The expected number of agreements is $146*[1/104] = 1.4038$.

The standard deviation is $\sqrt{\{[146*[1/104]*[103/104]\}} = 1.1791$

Using the normal approximation to the binomial, according to the standard tables available, the probability of agreement on 5 or more learning issues is .00026. As the number of learning issues on which agreement might occur is increased, the probability dramatically decreases. In my case I had over 50% agreement, which is statistically impossible by chance.

Based on the tests, I was happy to proceed with the selected learning issues from each degree group as the ones I could reliably work with to identify the learning categories through the use of the next step of applying axial coding. These categories were the ones that I would seek further clarification on through the focus groups.

5.4.7   The Application of Axial Coding to the Data

Having identified the key learning issues, to inform potential categories, emerging from the findings of the first level of analysis as validated by the three co-raters, the next step was to apply the process known in grounded theory methods as Axial Coding. The process of relating categories to their sub categories is termed 'axial' because coding occurs around the axis of the category, linking categories at the level of properties and dimensions (Strauss & Corbin 1998:123). A number of criteria influenced the coding process adopted.

In order to support the reflective analytical process, I knew it would be necessary to be able to quickly relocate original sections of the transcripts where the key learning issues were located in their original context. Therefore, as explained above, each line of the transcript page was given a line number.

The staff letter, the degree letter, the page number and the line number of the transcript were used in the open code adopted. The remainder of the open code was the description of the learning issue, and in case it was needed, the number of the question used to guide the original interview was also included. This open coding 'system' facilitated constant referral to the data in their original contexts, a very important factor always to apply in the constant comparative analytical process (Glaser & Strauss 1967:106).

For a first pass, at Level 1 as noted above, these open codes were then simply recorded on spreadsheets, a separate one for each degree and a consolidated one for all degrees, to enable later sorting for the second pass of constant comparison, to commence the axial coding.

> Procedurally, axial coding is the act of relating categories to sub categories along the lines of their properties and dimensions. … Sub-categories answer questions about the phenomenon, such as when, where, why, how, and with what consequences, thus giving the concept greater explanatory power (Strauss & Corbin 1998:125).

Examples of the actual steps of the analysis will be discussed in detail in the next chapter in order to try to provide clarity of the process used, but I will briefly outline the process in this section.

In the second and subsequent passes I planned to consider the learning issue descriptions very carefully, with their context, and where common contexts and descriptions suggested common understanding of the learning issues, the learning issues would be grouped into a common category, with properties, noting when, where, why, how and with what consequences. Simultaneously I was making notes or memos as they are known in grounded theory (Strauss & Corbin 1998:107). The use of spreadsheets was invaluable during the axial coding process because they facilitated any required sorting,

allowed careful control counts and summations to be maintained as the categories were refined and integrated, and the copy/paste facility enabled me to develop a consistent approach with each degree set of data. I will endeavour to make the process clear in the next chapter.

As the properties began to be associated with categories further passes in the analysis process enabled comparison of the properties to be reflected on, resulting in, where it was considered to be justified, a combining and focusing of the category properties and thus in the reduction of the number of emergent categories. Again the details of these results are also set out in the next chapter but in order to be able to identify the entire data set before dealing with the analysis of the data in the next chapter, I will also briefly describe the process for the application of focused coding.

5.4.8   The Application of Focused Coding to the Data

From the emergent categories, particular categories began to be recognised as dominant in terms of their density of population. When I had reached what appeared to be saturation of the categories, when it did not appear possible to combine them any further based on their properties, I had completed the process of axial coding. These categories informed the selection of focus to be presented to the original respondents at a series of focus groups at Phase 3, called to further inform the definition and understanding of these categories. I chose the categories with the highest number of occurrences in each degree, and the categories with the highest number of occurrences overall as the issues to be presented to each focus group. The Phase 3 data collected from these focus groups consisted of digital recordings of the discussions, four

of which were also videoed. These recordings were then subjected to further comparison and analysis as the grounded theory process moved more to Focused Coding with the identity of emerging theory. Memo writing and notes continued to be made to assist the process. I will discuss the detail during the next chapter on analysis.

In Open Coding I was concerned with identifying the learning issues and quantifying their occurrences. In Axial Coding these learning issues were used to populate categories which were systematically developed, and through their properties linked with sub categories, thus reducing the number of categories, but enhancing the associated properties. However it is not until the major categories are finally integrated to form a larger theoretical scheme that the research findings take the form of *theory*. Selective coding is the process of integrating and refining categories (Strauss & Corbin 1998:143).

I had mentioned earlier in 5.2.4 that I would explain why I chose to use the term Focused Coding (Charmaz 2006:57-60) instead of using this term Selective Coding used by Strauss and Corbin. There are two main types of coding in grounded theory. One concentrates on the initial analysis, line by line of the data seeking, by careful study, to identify suitable descriptors that will eventually be integrated into categories with associated properties. Thereafter focused coding permits you to separate, sort, and synthesise large amounts of data (Charmaz 2006:11).

This more focused phase uses the most frequently identified learning categories for this purpose. Earlier I had analysed the Phase 2 data with the purpose of identifying the key learning issues that I would need to bring to focus groups for further clarification. I had sought to remain open to all

possible theoretical directions indicated by the reading of the Phase 2 data. Having arrived at the identity of the most frequently used categories I was now ready to focus. The use of the term 'focused' coding seemed to me to capture the process slightly better than 'selective' coding, which instead seemed to suggest the concept of selecting some and ignoring others.

By discussing the most frequently identified categories the focus groups produced the Phase 3 data recordings. I now wanted to sift through these recordings seeking to decide how to categorise the data by careful analysis and reflection. In presenting the analysis in Chapters 6 and 7 I will seek to illuminate this process by referring to various sequences in the data as meaningful examples.

To assist the process of identifying the emerging theory I was building up notes, or memos, as they are referred to in grounded theory, on the properties of the categories. These were then sorted and reflected upon. Again I will explain in Chapters 6 and 7 how and why I sorted them as I did, during the reflective process. I took a little detour to use the concept of a vector to represent the most frequently identified categories for each degree. Associated with this purposeful detour I found some interesting comparisons of these vectors and the associated clusters (Everitt et al. 2001:ch 1), of learning categories, as described below.

As a further step to validate the theory I compared it to the raw data, when the less dominant categories or those descriptions with less densely populated learning issues, the outliers, were also considered from the perspective of differences in contrast to the similarities of the densely populated categories. Strauss and Corbin suggest that discovering these outlying cases (sometimes

referred to as "negative cases") and building explanations into the theory for them increases its generalisability and explanatory power (Strauss & Corbin 1998:160).

The results arising from the application of these general principles of using this 'version' of grounded theory are considered in detail in the next two chapters, which are intended to support the argument for transparency, appropriateness, authenticity, credibility, intuitiveness, receptivity, reciprocity, and sensitivity as suggested above (Strauss & Corbin 1998:6) referring to (Rew et al. 1993), which I mentioned in the chapter describing the use of a grounded theory approach as a method, to be an important and necessary argument when seeking to justify the version of grounded theory used.

5.4.9   Concluding Comment

Having described the process used in the first pass through the transcribed text of the raw audio data by the co-raters to produce the list of identified learning issues, and given a brief description of the subsequent process to be adopted for the application of axial and focused coding, it is appropriate to summarise the entire data set at this stage. This is in an effort to provide the reader with the range of data available before describing the analysis stage in detail. Due to the nature of a grounded theory approach using constant comparison of the data, the output from the earlier stages of analysis provides necessary input to further data collection. Thus it is not possible to have a clean break between data collection and data analysis. Taking this approach in documenting the process is intended to be helpful by giving as broad an understanding of the entire process as possible.

Tables, 5.3.2.1a, describing the collected 'raw' data from Phase 1 and Phase 2, and, 5.3.2.1b, quantifying the transcripts that were created at Phase 2 from the 'raw' data recordings of individual and group interviews, were supplemented with the key learning issues identified by the co-raters as set out in Table 5.4.5. The final part of the data set consisted of the Phase 3 recordings. These are summarised in the next section 5.5 in order to provide a definition of the entire Data Set in one location of this work.

In Table 5.5.4 I have endeavoured to give some indication of the chronological order of collecting the Phase 3 data together with some measures on the quantity of that data by showing the duration of the digital audio and video recordings, and the numbers of staff involved in each degree and in the groups.

All of these Tables describing the data set will be useful to refer to during the discussion of the detail of the analysis process in the next two chapters.

Degree	α	β	γ	δ	ε
	12.05.05 Video recording 4 staff Focus Group on Phase 2 outcomes 55 m 30 s	26.04.05 Video recording 4 staff Focus Group on Phase 2 outcomes 1 h 5 m 45 s	24.05.04 Video recording 4 staff Focus Group on Phase 2 outcomes 51m 25 s	10.05.04 Video recording 3 staff Focus Group on Phase 2 outcome 1 h 9 m 0 s	19.05.05 Digital recording 7 staff Focus Group on Phase 2 outcomes 43 m 30 s

Table 5.5.4 – Phase 3 Data, Summary of Focus Group recordings

5.5 <u>The Data Set</u>

5.5.1 Phases 1 and 2 Collected Data. The range of this data is presented in Table 5.3.2.1a. The data itself is on the first Data Library DVD.

5.5.2 Phase 2 Data accurately transcribed into text files. This data is quantified as presented in Table 5.3.2.1b. A full set of the transcripts is on the first Data Library DVD.

5.5.3 Co-Raters identity of Learning Issues from the Transcripts. These are quantified as presented in Table 5.4.5. The full listing of learning issues is in Appendix 6. The spreadsheets created and used during the analysis that identified the issues for the focus groups are available on the first Data Library DVD.

5.5.4 Phase 3 Data - Focus Group Video and Audio Recordings

The resulting recordings of the focus group discussions generated the Phase 3 data, which is summarised and quantified in Table 5.5.4. The actual video recorded data is available digitally on the Data Library on the second, confidential, DVD. To support readers of the thesis I have also provided on the first Data library DVD suitably anonymised WORD files that provide the thrust of these recordings, but they are not precisely exact transcripts as was provided for the Phase 2 data and have therefore less detail than the video recordings.

CHAPTER 6

DEVELOPING A STRUCTURED APPROACH

TO THE ANALYSIS OF THE DATA

(LEVELS 1, 2, 3)

6.1   Introduction to the Analysis Process

The analysis process consists of two parts, which will be described in this and the following chapter. Firstly, I will describe in this chapter the approach taken that led to the development of a structured approach for analysis of the Phase 3 data. Secondly, in the following chapter I will set out that analysis, but the two chapters should be taken together as the description of a single process.

To try to assist an understanding of the depth of analysis of the data that was undertaken Table 6.1 shows a roadmap of the process used to analyse Phase 2 and Phase 3 data, setting out the six levels of analysis used, in an attempt to provide greater clarity and transparency regarding the method using a grounded theory approach. The following sections in this chapter therefore attempt to argue the motives and influences on decision making that drove the process using the principles of a grounded theory approach, seeking to answer how and why the analysis was conducted as it was, resulting in the identity of learning issues, capturing these as categories with properties which were grouped into themes, and how these themes were inter-related, leading to the definition of the theory to explain the phenomena arising in the data.

As mentioned above, Phase 1 data was used to focus identification of the extent of the 'problem' challenging us, thus supporting an analysis of the nature of that challenge, and assisting in the framing of the context of the research. I have explained in section 5.3 how analysis of the data collected at this initial phase influenced the more extensive approach that was then adopted to the research for Phases 2 and 3, so in these next two chapters I will focus on the analysis of the more substantive data collected at Phases 2 and 3.

The Data Analysis Process

Phase of Data	Level of Analysis	Process	Data used, or created	Outcomes
2	**1.**	**Open Coding for Learning Issues** Code used was Numeric Identifier plus alphabetic phrase of learning issue description used by co-raters	Co-raters identity of Learning Issues from Transcripts of Interview Recordings. Created spreadsheets of codes	For each degree and all degrees combined: List of Learning Issues on a spreadsheet, with a code for each
2	**2.**	**Axial Coding for Categories** Perceived common Learning Issues were combined into a Category with properties. For each degree the resulting spreadsheets were used repetitively, as successive input to the process until perceived saturation of categories	Initially, spreadsheets from level 1. Repetitively thereafter the resulting spreadsheets with reduced categories but more detailed properties Data sorted and grouped into new spreadsheets with reduced categories but more detailed properties	For each degree and all degrees combined, with control counts: List of Categories on a spreadsheet, with associated properties, held on associated Word documents. Final 'saturated' list of categories to inform Focus Groups at Phase 3
2	**3**	**Cluster and Vector Analysis**	Final List of categories from level 2	Vectors, Cosines, Clusters for degrees
(1,2),3	**4.**	**Focused Coding for Themes** Developing the Themes	Focus Groups digital recordings Vectors, Cosines, Clusters from 3	Memos and notes of learning properties, expanded as each degree was processed
(1,2),3	**5.**	**Explanations and Integration of the Themes** Constant comparative process	Memos and Notes with Recordings Word Files of Themes and their Properties expanded each time	Word files of inter-related Themes Outcome was expanded after each 'pass' through the data
(1,2),3	**6**	**Defining Theory**	Word Files of relationships checked across all data for relevance	Conclusions and Recommendations

Table 6.1 A map of The Data Analysis Process

The six levels in Table 6.1 reflect the increasing focus of the constant comparative method associated with grounded theory methods. Level 1 consisted of a first pass through the learning issues identified by the co-raters from their work on the Phase 2 transcripts of the recorded interviews. The outcome was a list of 606 learning issues. At level 2 these learning issues were subjected to the axial coding analysis resulting on the creation of categories with common properties and a reduced number of items, some of which were more populated than others. The categories identified from these levels of analysis, as those most frequently referred to across each degree and across all degrees, were then presented as the focus of discussion at the five focus groups in order to generate the data to be used as input to level 3 analysis, i.e. the digital recordings of the discussion groups.

The analysis conducted at levels 1 and 2 is discussed in the sections of 6.2.

Level 3 analysis consisted of careful reflection on the recordings of the focus groups, creating memos and combining categories into themes with associated properties. As part of the process to inter-relate these themes, which would be based on some structured approach, I used SPSS to capture the key categories for each degree and represent each in the form of a multi-dimensional vector. This facilitated comparisons across the five degrees and also with the mean of the key categories across all degrees. Section 6.3 will use examples to try to illuminate this process before I discuss the actual analysis in 7.1 and then draw conclusions about theory in 7.2. The outcomes from the analysis produced themes that were more dominant than others but some of the out-lying themes, outliers, or 'negative cases' as they are known

in grounded theory methods, were also noted. Table 7.2 represents the findings showing dominant and subordinate categories. During level 4 I attempted to develop and test out these themes to try to bring some explanation of what was arising. That will be discussed in 7.3.

The two chapters are set out as a descriptive account to try to explain how these six levels of analysis were performed on the data, so regular reference to the roadmap of the process in Table 6.1 during the reading of the descriptive sections may assist in coming to a clearer understanding of both the descriptive and the 'mapped' presentations.

However, before discussing the analysis in some detail, a more general observation regarding subjectivity is appropriate at this point. My involvement during this analysis with committed colleagues, moves beyond the individualistic nature of Schön's notion of reflective practice to include reflection grounded in discourse among colleagues similar to that claimed by Garman in an article by Piantanida and Grubs

> (Garman 1994:1-7), in discussing the nature of supervisory practice in education, challenges the individualistic nature of Schön's notion of reflection and argues for a practice grounded in discourse (Piantanida & Grubs 2002:2).

I am particularly conscious of the need to challenge my own self-understanding as I seek to understand colleagues. That involves recognising what assumptions I have taken for granted, looking at preconceptions or even misconceptions, but in the process endeavouring to understand better and to explain to others what I have learned, with the objective of furthering how to improve our learning environment.

The test of whether I have been successful can be judged from the resulting theory. Babchuck suggested that the resulting theory should be an

explanation of the categories, their properties and the relationships between them. If done well the resulting theory should fit the data set. When drawing conclusions from the analysis I will return to this.

6.2   Levels 1, 2 of the Data Analysis Process

6.2.1   Level 1 Open Codes, Identifying Learning Issues

The process of applying open coding, planned as explained in 5.4.4, resulted in the identity of a total of 606 learning issue descriptions over the five degrees. The table summarising the breakdown over each degree is in Table 5.4.5, showing by number and by percentage, the breakdown of the learning issues identified by each of the co-raters.

In order to describe as transparently as possible the process used to apply open coding, I will use the data from Degree α as an example. Exactly the same process was applied to the data from each degree.

In 5.4.4 I explained how I created a spreadsheet of the adopted open codes, i.e. Degree / Staff / Page / Line / A1 / A2 / A3 / T / Question No. / Learning Issue Description, from the rated transcript data returned by the co-raters. Where a co-rater had identified a learning issue and given it a description, I had recorded the learning issue description and coded a 1 for the particular co-rater, A1, A2 or A3. T was the total of these identities by A1, A2, and A3. This set of spreadsheet data, named 'List of Learning Issues', was sorted into descending T and then in ascending order of the learning issue description and resulted in the list shown in Table 6.2.1a pages 1 to 3. (Note that the degree, staff, page, line and question number have not been shown in

the table to facilitate clarity of layout. These parts of the code were used during each step of the analysis for quick reference back to the transcripts of the recorded data to ensure that each learning issue description was considered in its context, when making the decision whether or not to group learning issue descriptions that were perceived to have common properties, as described below). This listing of learning issue descriptions was the outcome from the first step of level 1 analysis, resulting in the identity of a total of 146 learning issue descriptions for Degree α. The actual spreadsheet data is available on the DVD Data Library.

A1	A2	A3	T	Learning Issue Description
1	1	1	3	Affordances of ICT
1	1	1	3	Anxiety about technology
1	1	1	3	Assessment driving learning
1	1	1	3	Assessment feedback
1	1	1	3	Assignment feedback
1	1	1	3	Collaboration
1	1	1	3	Collaboration
1	1	1	3	Feedback to students
1	1	1	3	Fun
1	1	1	3	Group Dynamics
1	1	1	3	Group Dynamics, peer pressure
1	1	1	3	Group Individual issues
1	1	1	3	Group Interactive learning
1	1	1	3	Group/Individual issues
1	1	1	3	Group/Individual issues
1	1	1	3	Group/Individual issues
1	1	1	3	Hands on learning
1	1	1	3	Interactive groups
1	1	1	3	Interactive groups
1	1	1	3	Kolb
1	1	1	3	Kolb
1	1	1	3	Lack of qualifications
1	1	1	3	Leadership issues
1	1	1	3	Learning on technology
1	1	1	3	Non judgmental support asking questions
1	1	1	3	Perceptions about collaborating with colleagues
1	1	1	3	Preparation
1	1	1	3	Prior learning
1	1	1	3	Reasons for poor uptake in technology
1	1	1	3	Reflection
1	1	1	3	Reflection on teaching
1	1	1	3	Relevant
1	1	1	3	Role of staff development
1	1	1	3	Small Group Assignments
1	1	1	3	Socio cultural issues
1	1	1	3	Socio cultural issues
1	1	1	3	Staff learning from students
1	1	1	3	Staff Motivation
1	1	1	3	Staff student response
1	1	1	3	Student Learning
1	1	1	3	Technical support
1	1	1	3	Theory to practice
1	1	1	3	Time
1	1	1	3	Time
1	1	1	3	Time
1	1	1	3	Variety of Teaching methods
1	1		2	Benefit of technology
1	1		2	Kolb
1	1		2	Learner types
1	1		2	Peer issues

Table 6.2.1a page 1 - List of Learning Issue Descriptions from Degree α
Showing which co-raters A1, A2, A3 selected the issues, and the total (T) out
of the three.

A1	A2	A3	T	Learning Issue Description
1	1		2	Prior learning
1	1		2	Reflection
1	1		2	Reflection to develop participation
1	1		2	Reflective response
1	1		2	Role play into reflection
1	1		2	Staff Collaboration integrated assessment
1	1		2	Student expectation
1	1		2	Teaching styles
1	1		2	Theory to practice
1	1		2	Time
1		1	2	Technology supports group work
1		1	2	Understanding not clear
1		1	2	Assessment
1		1	2	Case study building on prior knowledge
1		1	2	Communication rapport
1		1	2	Creativity
1		1	2	Fun
1		1	2	Group work
1		1	2	Learning from each other
1		1	2	Linkage workplace to theory
1		1	2	Moderating self paced learning
1		1	2	Motivation
1		1	2	Personal Satisfaction
1		1	2	Preparation
1		1	2	Preparation
1		1	2	Relaxed Atmosphere
1		1	2	Self Directed study
1		1	2	Staff development by ongoing doing
1		1	2	Staff new knowledge
1		1	2	Staff Student learning together
1		1	2	Student interaction
1		1	2	Student Prior Reading
	1	1	2	Facilitator
	1	1	2	Learning opportunities
	1	1	2	Make linkages theory to practice
	1	1	2	Technology needs
	1	1	2	Theory to practice
1			1	Assessment Strategies
1			1	Balance of Power
1			1	Benefit of Technology
1			1	Benefits from colleagues learning
1			1	Control by technology
1			1	Creative & Artistic skills
1			1	Early adopter
1			1	Fear
1			1	Fear demotivates
1			1	Feedback develop through moderating
1			1	Fun
1			1	Fun
1			1	Impact of a leader

Table 6.2.1a page 2 - List of Learning Issue Descriptions from Degree α
Showing which co-raters A1, A2, A3 selected the issues, and the total (T) out
of the three.

A1	A2	A3	T	Learning Issue Description
1			1	Knowledge of students
1			1	Leader
1			1	LTC supports reflection
1			1	Organisation Culture
1			1	Peer issues
1			1	Peer pressure
1			1	Peer pressure
1			1	Peer review
1			1	Peer review
1			1	Prior knowledge
1			1	Prior Preparation
1			1	Pursuit of excellence
1			1	Relevant
1			1	Research Informed
1			1	Staff preparation
1			1	Student feedback
1			1	Student involvement
1			1	Student types
1			1	Theory and practice
1			1	Time
1			1	Time and team effort
1			1	Variety of teaching strategies
1			1	Work related
	1		1	Affordances of ICT
	1		1	Benefits of Technology
	1		1	Collaborating using technology
	1		1	Impact of leaders
	1		1	Perceived benefits of technology
	1		1	Wariness of IT
		1	1	Attitude to technology
		1	1	Engage in hands on
		1	1	Interactive groups
		1	1	Learn individually
		1	1	Learning did happen
		1	1	Positive Staff attitudes
		1	1	Relevant
		1	1	Role of Academic
		1	1	Teaching on your own
		1	1	Try something out
		1	1	Variety of learning
		1	1	Variety of teaching strategies
		1	1	Variety using technology
		1	1	Very individual approach
		1	1	Visual handouts
		1	1	What students want
		1	1	Work as individuals
				Number of Learning Issue Descriptions 146

Table 6.2.1a page 3– List of Learning Issue Descriptions from Degree α
Showing which co-raters A1, A2, A3 selected the issues, and the total (T) out
of the three.

Learning Issue Description	Count
Affordances of ICT	2
Affordances of ICT	
Anxiety about technology	1
Assessment	1
Assessment driving learning	1
Assessment feedback	1
Assessment Strategies	1
Assignment feedback	1
Attitude to technology	1
Balance of Power	1
Benefit of technology	3
Benefit of Technology	
Benefits from colleagues learning	1
Benefits of Technology	
Case study building on prior knowledge	1
Collaborating using technology	1
Collaboration	2
Collaboration	
Communication rapport	1
Control by technology	1
Creative & Artistic skills	1
Creativity	1
Early adopter	1
Engage in hands on	1
Facilitator	1
Fear	2
Fear demotivates	
Feedback develop through moderating	1
Feedback to students	1
Fun	4
Fun	
Fun	
Fun	
Group Dynamics	2
Group Dynamics, peer pressure	
Group Individual issues	4
Group Interactive learning	1
Group work	1
Group/Individual issues	
Group/Individual issues	
Group/Individual issues	
Hands on learning	1
Impact of leaders	2
Impact of a leader	
Interactive groups	3
Interactive groups	
Interactive groups	
Knowledge of students	1
Kolb	3
Kolb	

Table 6.2.1b page 1 – Sorted (Alphabetic) List of Learning Issues grouped, and counted to identify the number of unique learning issues

Learning Issue Description	Count
Kolb	
Lack of qualifications	1
Leader	2
Leadership issues	
Learn individually	1
Learner types	1
Learning did happen	1
Learning from each other	1
Learning on technology	1
Learning opportunities	1
Linkage workplace to theory	1
LTC supports reflection	1
Make linkages theory to practice	1
Moderating self paced learning	1
Motivation	1
Non judgmental support asking questions	1
Organisation Culture	1
Peer issues	2
Peer issues	
Peer pressure	2
Peer pressure	
Peer review	2
Peer review	
Perceived benefits of technology	1
Perceptions about collaborating with colleagues	1
Personal Satisfaction	1
Positive Staff attitudes	1
Preparation	3
Preparation	
Preparation	
Prior knowledge	
Prior learning	3
Prior learning	
Prior Preparation	1
Pursuit of excellence	1
Reasons for poor uptake in technology	1
Reflection	5
Reflection	
Reflection on teaching	
Reflection to develop participation	
Reflective response	
Relaxed Atmosphere	1
Relevant	3
Relevant	
Relevant	
Research Informed	1
Role of Academic	1
Role of staff development	1
Role play into reflection	1
Self Directed study	1

Table 6.2.1b page 2 – Sorted (Alphabetic) List of Learning Issues grouped, and counted to identify the number of unique learning issues

Learning Issue Description	Count
Small Group Assignments	1
Socio cultural issues	2
Socio cultural issues	
Staff Collaboration integrated assessment	1
Staff development by ongoing doing	1
Staff learning from students	1
Staff Motivation	1
Staff new knowledge	1
Staff preparation	1
Staff Student learning together	1
Staff student response	1
Student expectation	1
Student feedback	1
Student interaction	1
Student involvement	1
Student Learning	1
Student Prior Reading	1
Student types	1
Teaching on your own	1
Teaching styles	1
Technical support	1
Technology needs	1
Technology supports group work	1
Theory and practice	4
Theory to practice	
Theory to practice	
Theory to practice	
Time	6
Time	
Time	
Time	
Time	
Time and team effort	
Try something out	1
Understanding not clear	1
Variety of learning	1
Variety of Teaching methods	3
Variety of teaching strategies	
Variety of teaching strategies	
Variety using technology	1
Very individual approach	1
Visual handouts	1
Wariness of IT	1
What students want	1
Work as individuals	1
Work related	1
Number of Learning Issue Descriptions 146	
Count of Learning Issue Descriptions	146
Number of unique Learning Issue Descriptions	104

Table 6.2.1b page 3 – Sorted (Alphabetic) List of Learning Issues grouped, and counted to identify the number of unique learning issues

The second step was to copy the list to a second worksheet, named 'No. of Learning Issues' of the spreadsheet. That enabled me to sort the learning issue descriptions into ascending order, bringing duplicate descriptions together. Working through each line of data, for each learning issue description, I reflected on the original context, using the open code to access the original data quickly, and where I perceived the learning issue description to be describing the same learning issue, I combined them and created a column on the spreadsheet to record the count. Careful controls on the counts were maintained to ensure all were accounted for. Table 6.2.1b pages 1 to 3 show the counts for each learning issue description, with the perceived duplicate lines of descriptions subsumed in the count on the first occurrence.

The third step was to eliminate these rows of duplicate descriptions, resulting in the identification of a list of 104 unique learning description issues for Degree α from this application of Open Coding at level 1 of the analysis process. This list was to inform the first step of level 2 analysis described below.

When I had completed the same process for each of the five degrees, resulting in the total number of learning issue descriptions and the number of occurrences of each unique learning issue in each case, I grouped this reduced set of learning issue descriptions by copying the data from the spreadsheet for each degree and pasting it on to a cumulative spreadsheet showing all learning issue descriptions. Sorting this cumulative set of learning issue descriptions again into learning issue order, and comparing the contexts, resulted in a further reduction in the number of unique learning issues over all degrees from

a sum of 402, when counting the individual degree unique issues, to 146 unique issues on the combined list for all degrees as shown in Table 5.4.5.

6.2.2   Reflection on the process of Open Coding

While the process I have used for open coding of the Phase 2 data did not strictly follow the initial theoretical sampling as outlined by Glaser, Strauss and Corbin, I argue that, accepting the constraints of the scope of this research and how that has impacted on the data collected to inform the investigation of the research question, I have endeavoured to apply a principled and rigorous approach to the analysis of the data. By involving the co-raters early in the analysis I have sought to provide the equivalent of the theoretical sampling process. The unexpected level of agreement by the co-raters in identifying learning issues and assigning them with descriptions, supported by the attempts to establish reliability of the data encouraged me that I could proceed with a level of confidence. The selection of the various elements of the open code proved very valuable by providing a mechanism for quick and easy access back to the transcribed text of the original recordings. This was absolutely essential to be able to reflect on the learning context associated with each identified learning issue. Although I have taken Degree α as an example to describe the process used, exactly the same process was consistently applied to the data for each of the degrees and the files used in the process are available on the Data Library DVD. One potential weakness associated with the process could be in those cases where the allocation of a shorter learning issue description, than the one actually used by the co-raters, was applied in the interest of compactness. I would argue that this did not

become a significant weakness, because in the next steps of applying axial coding, these learning issue descriptions were grouped into categories that were given meaningful descriptions based on the properties associated with them. Therefore any of the longer learning issue descriptions used by the co-raters that I had shortened was eventually subsumed during the ongoing analysis process into a meaningful description for the category anyway. Charmaz supports this approach when she argues that codes are provisional in the sense that they may be re-worded to improve fit and part of the fit is the degree to which they capture and condense meanings and action (Charmaz 2006:48).The important discipline was ensuring that the description that was used accurately reflected the learning issue within its context.

Another potential weakness relates to how much more time might be allocated to reflecting on the data and selecting appropriate codes. Qualitative codes take segments of data and give them named descriptions that have meaning and reflect in a concise way the understanding of the rater. The question can always be asked subsequently, if further reflection might not produce yet more interpretive codes. It appears that some significant work has been achieved in other research by taking a more longitudinal study approach, and that may be possible as a follow-up to this piece of work.

I was also conscious of this foundational step in the analysis process being a very important beginning as it began to shape the analytical frame that I was starting to build.

6.2.3   Level 2 – The Axial Coding Process

Having identified the set of unique learning issue descriptions for each degree, and for the cumulative degrees, the process of axial coding was applied to each set in order to continue to group the learning issue descriptions together into learning categories with associated properties. This was a focused and selective phase when I took the data identified by the co-raters through a more intensive analysis to identify the most salient categories associated with this data.

The technological process steps for this level 2 analysis were very similar to that used for level 1 Open Coding, using the support of the affordances of the technology to cut, paste, sort, group and re-sort to create new spreadsheets of data. The process is explained below, continuing to use the data set for Degree α to demonstrate the various steps. However the analytical process required additional considerations. In this process of axial coding it was important to consider each learning issue description in its original context, reflecting on why, when, where, how and with what consequences, to determine whether it could be grouped into a category with properties, along with other learning issue descriptions with the same properties. A rather simple example might be where a co-rater used 'Group/Individual Issues' as a description for learning being undertaken in a group context where individual assessment was also required. Another co-rater might have used 'Individual/Group Issues'. With the context confirming that these two descriptions were being used to describe the same learning issues, they could be grouped into a category that could use either one of the descriptions as a common name for the category. In a more complicated example the description 'Feedback develop through moderating', when

considered in its context, was very close to 'Feedback to students' in its context, so they were combined in one grouped category called 'Feedback to students'.

To carry out the process I continued to use the worksheet called 'No. Of Learning Issues' on the spreadsheet used to analyse Degree α. To another area of this worksheet I copied the list of unique learning issue descriptions with their counts from the Level 1 analysis. Each learning issue description was considered carefully to determine if it could be transferred into a category, and if so, I recorded in the adjacent column the category to which it would be attached. For example, 'Feedback develop through moderating' was recorded as 'to Feedback to students', see Table 6.2.3a pages 1 to 3. To maintain control counts, I created a second count column in which the receiving category accumulated the increasing count for the category, leaving the source learning issue with a blank count. In this way I was able to check that all learning issues transferred from their original location were duly counted into their new category.

Learning Issue Description	Transferred to Category with Counts		
Affordances of ICT	to Benefit of Technology	2	
Anxiety about technology	to Fear	1	
Assessment	Assessment	1	5
Assessment driving learning	to Assessment	1	
Assessment feedback	to Assessment	1	
Assessment Strategies	to Assessment	1	
Assignment feedback	to Assessment	1	
Attitude to technology	Attitude to technology	1	1
Balance of Power	Balance of Power	1	1
Benefit of technology	Benefit of technology	3	8
Benefits from colleagues learning	to Collaboration	1	
Case study building on prior knowledge	to Prior Learning	1	
Collaborating using technology	to Collaboration	1	
Collaboration	Collaboration	2	6
Communication rapport	Communication rapport	1	1
Control by technology	to Benefit of Technology	1	
Creative & Artistic skills	to Creativity	1	
Creativity	Creativity	1	2
Early adopter	Early adopter	1	4
Engage in hands on	to Group Interactive learning	1	
Facilitator	Facilitator	1	1
Fear	Fear	2	4
Feedback develop through moderating	to Feedback to students	1	
Feedback to students	Feedback to students	1	3
Fun	Fun	4	5
Group Dynamics	Group Dynamics	2	7
Group Individual issues	to Group Dynamics	4	
Group Interactive learning	Group Interactive learning	1	14
Group work	to Group Interactive learning	1	
Hands on learning	to Group Interactive learning	1	
Impact of leaders	Impact of leaders	2	2
Interactive groups	to Group Interactive learning	3	
Knowledge of students	to Learner types	1	
Kolb	Kolb	3	3
Lack of qualifications	Lack of qualifications	1	1
Leader	to Early Adopter	2	
Learn individually	to Group Individual issues	1	
Learner types	Learner types	1	4
Learning did happen	to Group Interactive learning	1	
Learning from each other	to Group Interactive learning	1	
Learning on technology	Learning on technology	1	1
Learning opportunities	Learning opportunities	1	1
Linkage workplace to theory	to Theory and Practice	1	
LTC supports reflection	LTC supports reflection	1	1
Make linkages theory to practice	to Theory and Practice	1	
Moderating self paced learning	Moderating self paced learning	1	2
Motivation	Motivation	1	3
Non judgmental support asking questions	Non judgmental support asking questions	1	1
Organisation Culture	Organisation Culture	1	1
Peer issues	Peer issues	2	4

Table 6.2.3a page 1– List of Learning Issues, with Counts, showing how
issues were grouped into Categories during the Axial Coding process

Learning Issue Description	Transferred to Category with Counts		
Peer pressure	to Peer issues	2	
Peer review	Peer review	2	2
Perceived benefits of technology	to Benefit of Technology	1	
Perceptions about collaborating with colleagues	to Collaboration	1	
Personal Satisfaction	Personal Satisfaction	1	1
Positive Staff attitudes	to Motivation	1	
Preparation	Preparation	3	4
Prior learning	Prior learning	3	6
Prior Preparation	to Prior Learning	1	
Pursuit of excellence	Pursuit of excellence	1	1
Reasons for poor uptake in technology	Reasons for poor uptake in technology	1	1
Reflection	Reflection	5	6
Relaxed Atmosphere	to Fun	1	
Relevant	Relevant	3	3
Research Informed	Research Informed	1	1
Role of Academic	Role of Academic	1	1
Role of staff development	Role of staff development	1	1
Role play into reflection	to Reflection	1	
Self Directed study	Self Directed study	1	1
Small Group Assignments	to Group Interactive learning	1	
Socio cultural issues	Socio cultural issues	2	2
Staff Collaboration integrated assessment	to Collaboration	1	
Staff development by ongoing doing	Staff development by ongoing doing	1	2
Staff learning from students	to Group Interactive learning	1	
Staff Motivation	to Motivation	1	
Staff new knowledge	Staff new knowledge	1	1
Staff preparation	to Preparation	1	
Staff Student learning together	to Group Interactive learning	1	
Staff student response	Staff student response	1	1
Student expectation	Student expectation	1	1
Student feedback	to Feedback to students	1	
Student interaction	to Group Interactive learning	1	
Student involvement	to Group Interactive learning	1	
Student Learning	Student Learning	1	1
Student Prior Reading	to Prior Learning	1	
Student types	to Learner types	1	
Teaching on your own	Teaching on your own	1	1
Teaching styles	Teaching styles	1	2
Technical support	Technical support	1	1
Technology needs	Technology needs	1	1
Technology supports group work	to Benefit of Technology	1	
Theory and practice	Theory and practice	4	6
Time	Time	6	6
Try something out	to Early Adopter	1	
Understanding not clear	Understanding not clear	1	1
Variety of learning	to Learner types	1	
Variety of Teaching methods	to Teaching styles	3	
Variety using technology	Variety using technology	1	1
Very individual approach	Very individual approach	1	1
Visual handouts	Visual handouts	1	1

Table 6.2.3a page 2 – List of Learning Issues, with Counts, showing how issues were grouped into Categories during the Axial Coding process

Learning Issue Description	Transferred to Category with Counts		
Wariness of IT	to Fear	1	
What students want	What students want	1	1
Work as individuals	Work as individuals	1	1
Work related	Work related	1	1
Perceived unique issue descriptions 104		104	146
	Perceived Categories		57

Table 6.2.3a page 3 – List of Learning Issues, with Counts, showing how
issues were grouped into Categories during the Axial Coding process.

The second step at level 2 of the analysis process was to copy the new, reduced list of categories with their counts to another section of the spreadsheet and repeat the constant comparative method of analysis of categories with their properties, combining the categories where similar properties pertained and refining the definition of the properties, see Table 6.2.3b pages 1 and 2. Because the issue of subjectivity does become more critical in the use of Axial Coding, this level of analysis was done with extreme care and the agreement of the other two co-raters was obtained through a meeting with them to discuss the steps and decisions made during the data mining process. By such repeated careful analysis each degree group of interview data was refined to a point where it was not perceived to be possible to benefit from any further reduction. In the case of Degree α, after three passes of the data, it was not possible to combine any more categories and the final list of categories was sorted into descending order of the number of categories, see Table 6.2.3c. In the case of data for Degree ε, one additional pass through the data was necessary to arrive at a 'saturation' point. This process was conducted independently on each degree group, and when completed, following further reflection on the names given to the categories, with their related properties, it was possible to standardise on the names used across all the degrees, as the properties were the same. The co-raters agreed with this final definition of the categories identified.

On completion of this level of the analysis I had the most highly populated categories identified for each degree group, and these were then taken back to the groups of staff for further clarity on the properties as the key

issues for discussion in the focus groups to generate data at level 3 for digital recording.

Tables 6.2.3d pages 1 to 4, using the 9 most frequently identified learning issue categories from Degree α, give an indication of the make-up of these most densely populated categories for that degree. Reflection on the Tables shows how learning issues were combined, based on similarities, and the brief description of the characteristics of the categories was developed in each case from the context of the individual learning issues. These characteristics are expanded upon in the section below on Focused Coding.

In addition to identifying the most highly populated categories for each degree I also accumulated the categories for all degrees and with a further pass through the data was able to combine the similar categories to identify those with the most highly populated in the data as a whole.

A complete list of all the categories, identified by the analysis at level 2, for the combined degrees, in descending order of the number of occurrences, is in Appendix 7.

Learning Issue Description	Transferred to Category with Counts		
Assessment	to Feedback to students	5	
Attitude to technology		1	4
Balance of Power		1	1
Benefit of technology		8	8
Collaboration		6	7
Communication rapport	to Collaboration	1	
Creativity		2	2
Early adopter		4	4
Facilitator		1	4
Fear		4	4
Feedback to students		3	8
Fun		5	5
Group Dynamics		7	10
Group Interactive learning		14	16
Impact of leaders		2	2
Kolb		3	3
Lack of qualifications		1	1
Learner types		4	4
Learning on technology		1	1
Learning opportunities		1	1
LTC supports reflection	to Reflection	1	
Moderating self paced learning	to Facilitator	2	
Motivation		3	3
Non judgmental support asking questions	to Facilitator	1	
Organisation Culture		1	1
Peer issues		4	4
Peer review		2	2
Personal Satisfaction		1	1
Preparation		4	4
Prior learning		6	6
Pursuit of excellence		1	1
Reasons for poor uptake in technology	to Attitudes to Technology	1	
Reflection		6	7
Relevant		3	3
Research Informed		1	1
Role of Academic		1	1
Role of staff development		1	1
Self Directed study	to Group Interactive learning	1	
Socio cultural issues	to Group Dynamics	2	
Staff development by ongoing doing		2	2
Staff new knowledge		1	1
Staff student response		1	1
Student expectation		1	1
Student Learning	to Group Interactive learning	1	1
Teaching on your own		1	
Teaching styles		2	2
Technical support	to Attitudes to Technology	1	
Technology needs	to Attitudes to Technology	1	
Theory and practice		6	7
Time		6	6

Table 6.2.3b page 1 –Categories, sorted alphabetically, with counts, to
continue the axial coding process

Learning Issue Description	Transferred to Category with Counts		
Understanding not clear		1	1
Variety using technology		1	1
Very individual approach		1	1
Visual handouts		1	1
What students want		1	1
Work as individuals	to Group Dynamics	1	
Work related	to Theory and Practice	1	
Grouped issues in categories 57		146	146
	Perceived Unique categories		44

Table 6.2.3b page 2 – Categories, sorted alphabetically, with counts, to
continue the axial coding process

List of Reduced No of Categories		3rd Grouping	
Group Interactive learning			16
Group Dynamics			10
Benefit of technology			8
Feedback to students			8
Collaboration			7
Reflection			7
Theory and practice			7
Prior learning			6
Time			6
Fun			5
Attitude to technology			4
Early adopter			4
Facilitator			4
Fear			4
Learner types			4
Peer issues			4
Preparation			4
Kolb			3
Motivation			3
Relevant			3
Creativity			2
Impact of leaders			2
Peer review			2
Staff development by ongoing doing			2
Teaching styles			2
Balance of Power			1
Lack of qualifications			1
Learning on technology			1
Learning opportunities			1
Organisation Culture			1
Personal Satisfaction			1
Pursuit of excellence			1
Research Informed			1
Role of Academic			1
Role of staff development			1
Staff new knowledge			1
Staff student response			1
Student expectation			1
Teaching on your own			1
Understanding not clear			1
Variety using technology			1
Very individual approach			1
Visual handouts			1
What students want			1
No of categories	44	No of learning issues	146

Table 6.2.3c –Categories, with counts, sorted in descending count

1 Group Interactive Learning

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,B,1,32	1 Group Interactive Learning	1	1	1	1	3
1,M,2,18	2 Engage in Hands on	1			1	1
1,H,8,18	3 Group Work	1	1		1	2
1,E,7,20	4 Hands on learning	1	1	1	1	3
1,B,2,11	5 Interactive Groups	3	1	1	1	3
1,E,6,11	6		1	1	1	3
1,B,1,18	7				1	1
1,H,10,40	8 Learning did happen	1			1	1
1,H,11,34	9 Learning from each other	1	1		1	2
1,B,7,22	10 Small Group Assignments	1	1	1	1	3
1,G,1,26	11 Staff learning from students	1	1	1	1	3
1,E,1,40	12 Staff student learning together	1	1		1	2
1,G,1,19	13 Student interaction	1	1		1	2
1,M,3,28	14 Student involvement	1	1			1
1,G,2,46	15 Self Directed Study	1	1		1	2
1,E,1,48	16 Student Learning	1	1			1
	Learning Issue Descriptions	16	13	6	14	33

6(37.5%) - 3/3 Co-raters, 5(31.25%) - 2/3 Co-raters, 5 (31.25%) - 1 Co-rater

Characteristics of the Category
Students interacting and involved, through group work, learning through self-directed study, engaged in 'hands on' activity, learning from each other, and staff learning from them.

2 Group Dynamics

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,G,1,47	1 Group Dynamics	1	1	1	1	3
1,E,4,16	2 Group dynamics, peer pressure	1	1	1	1	3
1,M,7,30	3 Group Individual Issues	1	1	1	1	3
1,B,6,21	4	1	1	1	1	3
1,B,6,40	5	1	1	1	1	3
1,H,12,15	6	1	1	1	1	3
1,H,11,43	7 Learn individually	1			1	1
1,G,6,45	8 Socio cultural issues	1	1	1	1	3
1,M,7,44	9	1	1	1	1	3
1,G,3,26	10 Work as individuals	1			1	1
	Learning Issue Descriptions	10	8	8	10	26

8(80%) - 3/3 Co-raters, 0(0%) - 2/3 Co-raters, 2(20%) - 1 Co-rater

Characteristics of the Category

What impacts students learning individually in a group dynamic, where there are socio cultural issues, peer pressure, and group/individual issues.

Table 6.2.3d page 1 – The Make-up of the most highly populated Categories – Degree α

3. Feedback to students

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,E,8,37	1 Feedback to students	1	1	1	1	3
1,G,2,10	2 Feedback develop through moderating	1	1			1
1,E,7,39	3 Student Feedback	1	1			1
1,E,1,28	4 Assessment	1	1		1	2
1,G,7,10	5 Assessment driving learning	1	1	1	1	3
1,E,3,1	6 Assessment feedback	1	1	1	1	3
1,E,8,1	7 Assessment strategies	1	1			1
1,G,4,2	8 Assignment feedback	1	1	1	1	3
	Learning Issue Descriptions	8	8	4	5	17

4(50%) - 3/3 Co-raters, 1(12.5%) - 2/3 co-raters, 3(37.5%) - 1 Co-rater

Assessment strategies that provide feedback to students through assignment feedback, and online moderating are used to drive learning.

4. Benefits of Technology (Category to be re-named Perceived Benefits of Technology)

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,M,4,1	1 Benefit of Technology	1	1	2		2
1,E,3,32	2	1			1	1
1,E,4,3	3	1		1		1
1,B,4,12	4 Affordances of Technology	1	1	1	1	3
1,B,3,1	5	1		1		1
1,H,5,6	6 Control by technology	1	1			1
1,M,3,1	7 Perceived benefits of Technology	1		1		1
1,E,3,42	8 Technology supports group work	1	1		1	2
	Learning Issues Descriptions	8	4	5	3	12

1(12.5%) - 3/3 Co-raters, 2(25%) - 2/3 Co-raters, 5(62.5%) - 1 Co-rater

Characteristics of the Category

The perceived benefit of technology ranges from standard use of email for communication in a network, aiding participation in group work, and supporting group learning, to using video of real world events to show in class and supporting students whose first language is not English

Table 6.2.3d page 2 – The Make-up of the most highly populated Categories – Degree α

5 Collaboration

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,B,4,17	1 Collaboration	1	1	1	1	3
1,M,5,6	2	1	1	1	1	3
1,M,4,28	3 Benefits from colleagues learning	1	1			1
1,B,4,45	4 Collaborating using technology	1		1		1
1,H,6,34	5 Perceptions about collaborating with colleagues	1	1	1	1	3
1,G,3,30	6 Staff collaboration integrated Assessment	1	1	1		2
1,M,1,31	7 Collaboration rapport	1	1		1	2
	Learning Issue Descriptions	7	6	5	4	15

3(43%) - 3/3 Co-raters, 2(28.5%) - 2/3 co-raters, 2(28.5%) - 1 Co-rater

Characteristics of the Category

Collaboration, using the assistance of technology, and dependent on the rapport between colleagues, has benefits of learning from colleagues through developing integrated assessments.

6 Reflection.

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,B,5,43	1 Reflection	1	1	1	1	3
1,M,7,39	2	1	1	1		2
1,G,6,8	3 Reflection on teaching	1	1	1	1	3
1,G,2,42	4 Reflection to develop participation	1	1	1		2
1,G,4,47	5 Reflective response	1	1	1		2
1,H,10,5	6 Role-play into reflection	1	1	1		2
1,M,8,2	7 LTC supports reflection	1	1			1
	Learning Issue Descriptions	7	7	6	2	15

2(28.5%) - 3/3 Co-raters, 4(57%) - 2/3 co-raters, 1(14.5%) - 1 Co-rater

Characteristics of the Category

The LTC supports members of staff to develop a reflective response on teaching, in order to understand how to develop participation by students, e.g. in how role-play can in turn encourage students to reflect

7 Theory and practice

Open Code / Learning Issue Description		Frequency / by Co-rater				Total
		No.	A1	A2	A3	
1,M,1,21	1 Theory and Practice	1	1			1
1,B,6,1	2 Theory to Practice	1	1	1	1	3
1,H,2,4	3	1	1	1		2
1,G,7,42	4	1		1	1	2
1,M,2,40	5 Linkage workplace to theory	1	1		1	2
1,M,1,41	6 Make Linkages theory to Practice	1		1	1	2
1,B,1,22	7 Work related	1	1			1

Table 6.2.3d page 3 – The Make-up of the most highly populated Categories – Degree α

| Learning Issue Descriptions | 7 | 5 | 4 | 4 | 13 |

2(28.5%) - 3/3 Co-raters, 4(57%) - 2/3 co-raters, 1(14.5%) - 1 Co-rater

<u>Characteristics of the Category</u>

To encourage student learning it helps to link learning in the workplace to theory taught, making the classes more relevant and interesting to students, particularly those studying part-time.

<u>8 Prior Learning</u>

Open Code / Learning Issue Description		Frequency / by Co-rater			Total
		No.	A1	A2	A3	
1,G,4,2	1 Prior learning	1	1	1	1	3
1,B,1,15	2	1	1	1		2
1,M,7,4	3 Prior knowledge	1	1			1
1,M,7,15	4 Case study building on prior Knowledge	1	1		1	2
1,H,11,17	Prior preparation	1	1	1		2
1,E,3,20	6 <u>Student prior reading</u>	1	1		1	2
	Learning Issue Descriptions	6	6	3	3	12

1(17%) - 3/3 Co-raters, 4(66%) - 2/3 co-raters, 1(17%) - 1 Co-rater

<u>Characteristics of the Category</u>

Building on students' prior knowledge by asking them to add to their knowledge through prior reading before coming to a case study, increases learning opportunities and potential in class

9 Time

Open Code / Learning Issue Description		Frequency / by Co-rater			Total
		No.	A1	A2	A3	
1,B,4,35	1 Time	1	1	1	1	3
1,B,4,50	2	1	1	1	1	3
1,H,5,39	3	1	1	1	1	3
1,G,3,7	4	1	1	1		2
1,M,4,17	5	1	1			1
1,M,3,14	6 <u>Time and team effort</u>	1	1			1
	Learning Issue Descriptions	6	6	4	3	13

3(50%) - 3/3 Co-raters, 1(17.2%) - 2/3 co-raters, 2(33.5%) - 1 Co-rater

<u>Characteristics of the Category</u>

Time - Finding time is an issue when trying to exploit online learning, authoring, translating material to a different delivery mode, trying to catch up if you don't have a technological background at the expense of creating materials

Table 6.2.3d page 4 – The Make-up of the most highly populated Categories – Degree α

List of Perceived unique categories	3rd Pass through data for Grouping
Group Interactive learning	16
Group Dynamics	10
Perceived potential of Technology	8
Feedback to students	8
Collaboration Benefits	7
Reflection	7
Theory to practice	7
Prior learning	6
Time	6

Table 6.2.4a Degree α - List of highest occurring categories

List of Perceived unique categories	3rd Pass through data for Grouping
Group Interactive learning	17
Perceived Potential of technology	15
Theory to practice	11
Time	9
Group/Individual issues	7
Learning Styles	7
Prior learning	7
Collaboration Benefits	6

Table 6.2.4b Degree β - List of highest occurring categories

List of Perceived unique categories	3rd Pass through data for Grouping
Group Interactive Learning	12
Perceived potential of technology	6
Feedback to Students	4
eModerating	4
Relevant to Students	4
Collaboration Benefits	3
Group/Individual issues	3
Learning Theories	3
Prior learning	3
Time	3

Table 6.2.4c Degree γ - List of highest occurring categories

List of Perceived unique categories	3rd Grouping
Collaboration Benefits	10
Perceived potential of Technology	8
Group Interactive Learning	8
eModerating	7
Theory to practice	6
Group/Individual issues	5
Learning Styles	5
Reflection	5
Prior Learning	4

Table 6.2.4d Degree δ - List of highest occurring categories

List of Perceived unique categories	4th Pass through data for Grouping
Perceived potential of technology	22
Group Interactive Learning	16
Theory to practice	13
Learning Styles	12
Group/Individual issues	11
Collaboration benefits	8
Prior learning	8
Time	8
Feedback to Students	6

Table 6.2.4e Degree ε - List of highest occurring categories

List of Perceived unique categories	3 further Passes through data for Grouping
Group Interactive Learning	69
Perceived potential of Technology	59
Theory to practice	37
Group/Individual issues	36
Collaboration Benefits	35
Learning Styles	29
Time	29
Prior Learning	28
Feedback to Students	22
Reflection	20
eModerating	19

Table 6.2.4f All Degrees List of highest occurring categories

6.2.4   Emergent Conceptual Categories

Tables 6.2.4a through 6.2.4f show the most highly populated categories for each degree and for the combined degrees. The descriptions used for the categories were reviewed and in these Tables have been adjusted to use a common name where the properties associated with, and developed for, the category during analysis of each individual degree indicated that the category was in fact the same. For example, 'Benefits of Technology' and 'Perceived potential of technology' were two descriptions that referred to the same properties.

The properties associated with these categories were not disclosed to the focus groups, but each degree group of staff members was presented with

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the list of the highest occurring categories in their own degree and with the highest occurring categories across all degrees, in order to focus the discussion on their understanding of what they perceived these descriptions to encompass.

6.2.5   Reflection on the process of Axial Coding

Before discussing the preparation for the focus groups, it is worthwhile pausing to give some reflection on the process of axial coding and on how the outcomes from that process might be used to give each degree some definition.

When choosing names for the categories, I was guided initially by the choice of names given to the individual learning issues that began to make up the category. Eventually, based on reflection on the questions when, where, why, how and with what consequences, there were learning issues that used descriptions which appeared to be quite different from the name used to describe the category into which the reflection suggested they should be grouped. The important issue was not so much the choice of the descriptive name used for the category, but the consistency of the property characteristics associated with the category. I have endeavoured to illustrate the content of a major category and also the provenance both in terms of semantic subordination and methodological process. Obviously there are issues of subjectivity associated with such decision-making, but I sought to minimise these by seeking the agreement of the co-raters with the outcomes of the process. While I was content to accept that I had been as rigorous and as consistent across all degrees as possible in the application of the process of

Axial Coding it was important to take the outcomes from this process back to the originators of the Phase 2 data to seek further clarification. Through the coding process I had tried to construct codes that defined the data, but they were my codes, constituting my view, and it was important to go back to the co-raters to see if the codes described what they thought was happening and was significant in the data.

Looking forward to how the outcomes of this axial coding process might be used, I was aware that the next stage of a grounded theory approach required that these categories needed to be inter-related. The issue was how best to approach the task of inter-relating the categories. The metaphor of an axis as a definition around which issues can be related suggested that if each degree could be defined in terms of an axis, then it might be possible to relate each one to the mean across all degrees and thus provide a basis upon which to structure the inter-relating of themes among the categories. By considering the axis as a thicker line, a major coding, or a super-coordinate coding term, that identifiable definition could represent each degree. Such a process seemed capable of both identifying super-ordinate issues and issues that are significant for particular reference groups and particular contexts. It would also be possible to compare the various axes. I will pick this idea up in section 6.3.

6.2.6   Preparation for and conducting of Focus Groups

To gain the further insight required regarding the views of the staff members who provided the individual and group interviews, which produced the data from which these most frequently raised categories that had been identified by the level 2 analysis, I arranged five focus groups, one for each

degree group. The focus groups were intended to offer opportunity for reflection by experienced professionals on the major issues that had emerged from the earlier work.

As I mentioned earlier, it was important to prepare thoroughly for these focus groups. Invitations were issued in writing, advising that the group would last for approximately one hour, (the actual durations are recorded in Table 5.5.4.) and confirmations were obtained by follow-up phone call or by email. Unfortunately, due to other unexpected commitments arising, two different staff members, one from each of two of the degree groups were unavailable just before those focus groups started.

I had decided in advance how I would introduce the topics around which the discussion should focus. For each degree group I would use the same process and environment, except for the discussion with Degree ε, which had to be conducted in a different location which prevented video recording with that group. I arranged in advance, to conduct all of the others in the telematics room, and the group would be welcomed with some light refreshments to encourage a relaxed atmosphere.

I had prepared some handouts, summary sheets of the categories, that were intended to contribute to keeping the focus on the key issues, that is, to discuss the most frequently raised categories for the particular degree group, and the most frequently raised issues across all the degrees. In some cases these were the same categories, but each group had some variation between their own most frequently mentioned categories and those of the combined degrees. I also had a briefing document that gave the same introduction to each group. A sample used with Degree α is in Appendix 8. This informed the

group of the intended agenda. It covered a welcome and brief introduction by the researcher, followed by an open but focused discussion on the categories populated by the learning issue descriptions that were identified by the co-raters as those most frequently raised categories from the transcribed text of their earlier interviews. I introduced each of the sessions by expressing my appreciation for their continued support and time. Using the summary sheets, based on the outcomes from the data studied, I explained what had come out of the analysis of their interview transcripts. I invited their open discussion on these learning issues, roughly planning 35% of the time to their individual degree issues, 35% to the overall issues from all degrees, 20% to what positive changes they could identify over the past year within the institution in relation to learning development using ICTs and the final 10% inviting their views on any other issues they regarded as relevant to the learning issues discussed.

At an appropriate time the discussion was broadened to the most frequently raised categories across all degrees. I then sought their responses to any learning they might identify as having occurred since the earlier interviews and finished each focus group by asking an open question inviting their response on any other issues they regarded as relevant.

The refreshments assisted in the creation of a relaxed atmosphere and were appreciated as the discussion progressed with various participants.

Refreshments were not possible for Degree ε and may have contributed to a shorter time taken by that focus group. Certainly the environment was not as comfortable as that available for Degrees α, β, γ, and δ.

The nature of the discussions was generally very supportive and relaxed. I did not detect in any group a negative influence during the

discussion. In fact, in one group in particular some very frank, open statements, regarding what they regarded as a crucial factor in improving staff development processes, were made by a staff member I would have least expected to do so, based on my impressions from earlier phases of the research. I was able to benefit from the experience of the telematics technician to prepare the set-up of, and then work the more sophisticated equipment. This meant I was able to concentrate completely on conducting the discussion with four of the degree groups. The technician reproduced the audio-video recording in digital format on DVD and the complete video recordings for these four degrees are on a second confidential DVD of the Data Library. In the fifth recording I used the Sony digital recorder mentioned earlier as used for the Phase 2 interviews. Although I had to be responsible for this recording there were no complications and I was able to give full attention to the group discussion. This is also available on the first Data Library DVD as 'Degree 5 2 050519'.msv in the Phase 3 folder. All the focus group data was collected and the focus groups run in the way described in 5.2.3 following the principles discussed in section 5.1.8.

These five recordings of the Focus Group discussions provided the data used for the constant comparative method at level 4 onwards, which I will develop in the next chapter, after I have explained how at level 3 of the analysis process, I used SPSS to represent the learning categories for each degree as a vector, thus enabling comparison of the cosine between the vectors. The associated cluster analysis also provided me with a more structured approach to the analysis from level 4 onwards.

To support the reader in understanding the analysis process at level 4, I have also made available the broad thrust of the five confidential video recordings in a suitably anonymised text format in WORD files on the first Data Library DVD. They are not however precise, word for word, transcriptions, like the Phase 2 data was, but they may facilitate better understanding of the process of focused coding carried out on the Focus Group data. I will comment on how selections of video material can be referenced, and how these relate to the corresponding text files when describing the process in 7.1

6.3   Level 3 - Establishing the Approach to the Analysis of the Focus
        Groups

6.3.1   Using SPSS for Vector and Cluster Analysis.

After reflecting on the outcomes from the Level 2 analysis, i.e. the most highly populated learning categories for each of the five degrees, and listening to the recordings of the focus groups, I realised that how I would approach the continuing analysis of the Phase 3 data, i.e. the recordings from the focus groups, could impact the results that would be obtained from any such analysis. As I mentioned earlier, the focus groups were intended to offer opportunity for reflection by experienced professionals on the major issues that had emerged from the earlier work. At this point in the analysis it was my hope to shift the analysis from a focus on the individual courses to the themes that went across the institution.

I am grateful to my supervisor for encouraging me to take a little detour at this point in the analysis, initially because it might be interesting to see what came out of the investigation, but eventually because it pointed the way to a more structured approach to the analysis. I refer to the detour as Level 3 of the analysis process.

The detour involved the use of a Vector to represent each degree, which in turn led me into an investigation of how the associated procedures of Cluster Analysis (Everitt et al. 2001 : chapter 1), might inform the inter-relating of the categories to identify themes in the focus group data. So, before describing the results of this detour let me explain briefly a few of the concepts used. I will not develop the theoretical underpinning beyond the minimum required to understand the basic concepts.

Cluster Analysis is a way of grouping cases of data based on the similarity of variables that explain the cases (Field 2000:1). In this study the variables are the range of identified learning categories and the cases are the five degrees. The central concept in cluster analysis is the relative distance (Everitt et al. 2001:39), in n-dimensional vector space (Moisl 2006:3). To understand how cluster analysis works with n dimensional variables I will address the concept in 3-dimensional space and show how the Euclidean distance can be calculated, before scaling it up to n-dimension space. Two points, a and b in 2-dimensional space, can be represented using the x and y axes of Euclidean geometry. Based on the Theorem of Pythagoras, the distance between two points, a and b, is the square root of the sum of x^2 and y^2
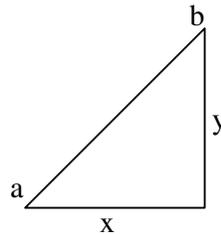
Moving to 3-dimensional space the distance between a and b is the square root of $x^2 + y^2 + z^2$
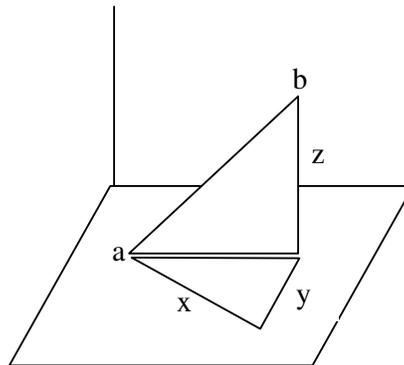
Expanding this pattern to n-dimensional vector space, the Euclidean distance between two vector points is the square root of the sum of the squares

of the Euclidean distance between the n categories. This particular algorithm is known as Ward's Method. The cluster membership is assessed by calculating the total sum of the squared deviations from the mean of the cluster. It is based on the criterion that it should produce the smallest possible increase in the error of the sum of the squares. Ward's Method is available within SPSS.

The detour consisted of transferring the necessary data parameters from the Excel spreadsheets used at Phase 2 of the data analysis into SPSS (Everitt et al. 2001:199), to conduct the cluster analysis and to generate the vector representations. SPSS also provided the calculation of the cosine of the angles between the vector for each degree and the vector representing the mean of all the degrees.

In 6.2.4, I described how I had identified, for each degree, a range of learning categories, populated with the number of occurrences and defined by the characteristics of each category. By sorting these categories into descending order of the number of occurrences, it was easy to identify the highest occurring categories. The categories that were those most frequently identified for each degree have already been referred to in Tables 6.2.4a through 6.2.4f. The standard software, SPSS for Windows, easily facilitated importation of the values for these top categories for all of the degrees from the Excel spreadsheets that were used to support the analysis at level 2. Based on reflection on the range of these top categories across the degrees, I initially selected the top ten categories across all degrees as a standard number that I would use to define a degree. I also expanded this range beyond the top ten but extending beyond ten revealed the reducing impact of those categories with a lower number of occurrences. They became very much less significant when

using the SPSS software to generate a vector to represent each degree and one for the overall 'mean' of all the degrees. To ensure that the software reported no 'missing values' in the input data provided, it was necessary however to include the actual value for all ten categories chosen when inputting the data for each degree, even where in any degree one of these values might have not have been in its top ten for that particular degree. In one case in Degree α, (Learning Styles), two cases in Degree β, (Feedback to students and Reflection), three cases in Degree γ, (Applying Theory to Practice, Learning Styles and Reflection), one case in Degree δ, (Feedback to students), and one case in Degree ε, (Reflection), the learning categories named in brackets had a value outside the top ten for that degree, although the category was in the top ten of the 'mean' for all degrees. These were of such small value that the vector for each degree was not significantly affected by including them. However, based on further reflection, I made some further refinements in the choice of learning categories for the following reasons.

Expanding the number to be used to twelve facilitated the inclusion of two additional categories, eModerating and Fun. This meant that each degree was now represented by its top twelve categories, which were also the top twelve of the mean, without having to include any lower categories to describe an individual degree. The categories and number of occurrences selected from the Excel spreadsheets for each of the degrees α, β, γ, δ, and ε, together with the mean values to represent all degrees are shown in Table 6.3.1a. There was still however another issue to be considered.

The number of occurrences of learning categories identified for each degree had been developed through reflection on the transcripts of the

individual interviews held at Phase 2. These interviews lasted for a variable amount of time. So it was reasonable to surmise that in a longer interview there was the possibility that more learning issues could be raised during the cumulative time taken for the interviews. So to bring some standardisation to the data values, I used the cumulative time for all the interviews on each degree as a foundation. These cumulative times varied from 1 hour 50 minutes 56 seconds to 2 hours 52 minutes 14 seconds because of the varied number of interviews on each degree in addition to the separate interview durations. Table 6.3.1b shows how the data in Table 6.3.1a was standardised to be used as input from the Phase 2 data into SPSS to calculate the Cosines and the Cluster Analysis of the degrees.

The clusters of categories identified by SPSS matched the pattern of the cosine of the angle between the vectors. The supporting tables 6.3.2a through 6.3.2d produced from SPSS are discussed below in the next two sections.

I argue below that those degrees that were clustered most closely together should be considered together in the analysis in that order, when conducting the analysis to inter-relate the categories into themes. Repeating this approach then to compare the next closest cluster and repeating the inter-relationship exercise provided a rationale for the approach to the analysis.

Unstandardised Data - showing the number of occurrences for each of the
top 12 learning categories

	Degree α	Degree β	Degree γ	Degree δ	Degree ε	Degree Mean
Group Interactive Learning	16	17	12	8	16	14
Perceived Benefits of Technology	8	15	6	8	22	12
Applying Theory to Practice	7	11	1	6	13	7
Group Individual Issues	10	7	3	5	11	7
Collaboration Benefits	7	6	3	10	8	7
Learning Styles	4	7	2	5	12	7
Time	6	9	3	3	8	6
Prior Learning	6	7	3	4	8	6
Feedback to Students	8	3	4	1	6	4
Reflection	7	3	1	5	4	4
eModerating	0	1	4	7	3	4
Fun	5	3	2	0	5	3

Figure 6.3.1a - The top 12 categories across the mean of all degrees, used as a
base to represent each degree, with the number of occurrences on each degree.
A zero means the category was not identified in the interviews for that degree.

Standardised data – using the total interview time, in seconds, for each degree as a basis for standardisation to 10000 seconds

Standard for each degree	Degree α	Degree β	Degree γ	Degree δ	Degree ε	Degree Mean
10000 secs	9650	7457	7693	6656	10334	8358
Group Interactive Learning	16.580	22.7974	15.599	12.019	15.483	16.750
Perceived Benefits of Technology	8.290	20.115	7.799	12.019	21.290	14.358
Applying Theory to Practice	7.254	14.751	1.300	9.014	12.580	8.375
Group Individual Issues	10.363	9.387	3.900	7.512	10.645	8.375
Collaboration Benefits	7.254	8.046	3.900	15.024	7.741	8.375
Learning Styles	4.145	9.387	2.600	7.512	11.612	8.376
Time	6.218	12.069	3.900	4.507	7.741	7.179
Prior Learning	6.218	9.387	3.900	6.010	7.741	7.179
Feedback to Students	8.290	4.023	5.200	1.502	5.806	4.786
Reflection	7.254	4.023	1.300	7.512	3.871	4.786
eModerating	0.000	1.341	5.200	10.517	2.903	4.786
Fun	5.181	4.023	2.600	0.000	4.838	3.589

Figure 6.3.1b – The standardised values for the top 12 categories used to represent each degree to inform SPSS to generate a Cluster Analysis, and a Vector for each degree and the Cosine of the angles between them.

Cluster Analysis using 10 Categories for 5 Degrees α, β, γ, δ, and ε

Case Processing Summary (a)

		Cases			
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
5	100.0	0	.0	5	100.0

a Ward Linkage

Proximity Matrix

	Squared Euclidean Distance				
Case	1	2	3	4	5
1	.000	136.000	195.000	166.000	319.000
2	136.000	.000	313.000	232.000	111.000
3	195.000	313.000	.000	133.000	668.000
4	166.000	232.000	133.000	.000	465.000
5	319.000	111.000	668.000	465.000	.000

This is a dissimilarity matrix

Ward Linkage

Agglomeration Schedule

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
1	2	5	55.500	0	0	4
2	3	4	122.000	0	0	3
3	1	3	220.167	0	2	4
4	1	2	547.600	3	1	0

Vertical Icicle

	Case								
Number of clusters	5		2		4		3		1
1	X	X	X	X	X	X	X	X	X
2	X	X	X		X	X	X	X	X
3	X	X	X		X	X	X		X
4	X	X	X		X		X		X

Dendrogram

```
H I E R A R C H I C A L   C L U S T E R   A N A L Y S I S


Dendrogram using Ward Method
                    Rescaled Distance Cluster Combine
C A S E     0         5        10        15        20        25
Label Num   +---------+---------+---------+---------+---------+
      2        ─┐
      5        ─┘ ┐
      3        ─┐ │
      4        ─┤ └─────────────────────────────────────────┐
      1        ─┘                                            │
```
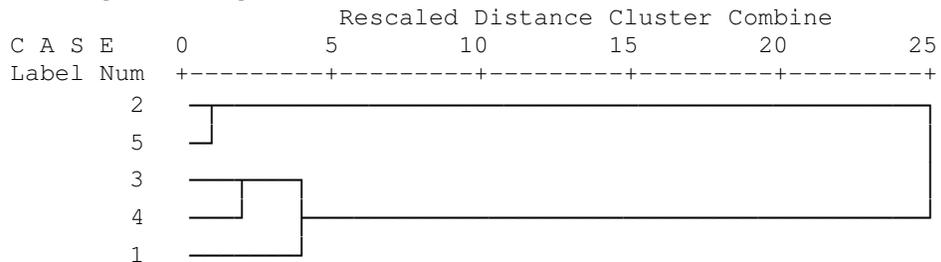
Table 6.3.2a – Cluster Analysis of the top ten learning categories, **unstandardised**, and used to represent each degree

Cluster Analysis using 12 Categories for 5 degrees α, β, γ, δ and ε

Case Processing Summary (a)

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
5	100.0	0	.0	5	100.0

a Ward Linkage

Proximity Matrix

	Squared Euclidean Distance				
Case	1	2	3	4	5
1	.000	339.827	181.514	304.204	285.416
2	339.827	.000	600.390	457.850	93.964
3	181.514	600.390	.000	343.177	497.476
4	304.204	457.850	343.177	.000	316.917
5	285.416	93.964	497.476	316.917	.000

This is a dissimilarity matrix

Ward Linkage

Agglomeration Schedule

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
1	2	5	46.982	0	0	4
2	1	3	137.739	0	0	3
3	1	4	323.280	2	0	4
4	1	2	684.147	3	1	0

Vertical Icicle

	Case								
Number of clusters	5		2		4		3		1
1	X	X	X	X	X	X	X	X	X
2	X	X	X		X	X	X	X	X
3	X	X	X		X		X	X	X
4	X	X	X		X		X		X

Dendrogram

```
H I E R A R C H I C A L   C L U S T E R    A N A L Y S I S


Dendrogram using Ward Method
                    Rescaled Distance Cluster Combine
C A S E    0         5        10        15        20        25
Label Num  +---------+---------+---------+---------+---------+
     2       ─┐
     5       ─┘
     1       ───────┐
     3       ───────┴──────┐
     4       ──────────────┘
```
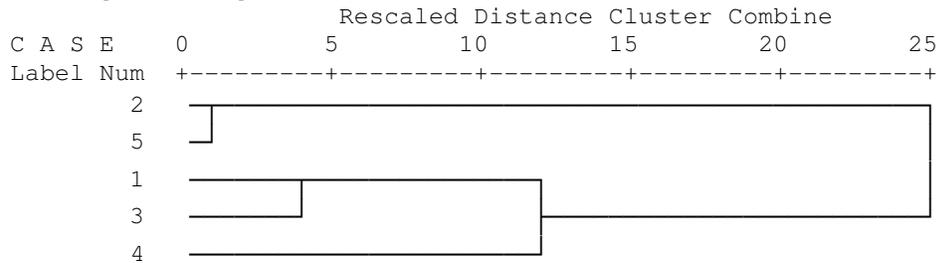
Table 6.3.2b **-** Cluster Analysis of the top twelve learning categories,
standardised, and used to represent each degree

**Proximities of the 5 Degrees and the Mean of all degrees using the top 10
unstandardised learning categories**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
N	Percent	N	Percent	N	Percent	
6	100.0%	0	.0%	6	100.0%	

Proximity Matrix

	Cosine of Vectors of Values					
	1	2	3	4	5	6
1	1.000	.924	.921	.896	.900	.955
2	.924	1.000	.901	.907	.975	.986
3	.921	.901	1.000	.797	.850	.920
4	.896	.907	.797	1.000	.916	.943
5	.900	.975	.850	.916	1.000	.978
6	.955	.986	.920	.943	.978	1.000

This is a similarity matrix

Table 6.3.2c. – Cosine of the angle between the Vectors used to represent each
degree with **unstandardised** data

**Proximities of the 5 degrees and the Mean of all degrees using the top 12
learning categories, and standardising them**

Case Processing Summary

	Cases					
	Valid		Missing		Total	
N	Percent	N	Percent	N	Percent	
6	100.0%	0	.0%	6	100.0%	

Proximity Matrix

	Cosine of Vectors of Values					
	1	2	3	4	5	6
1	1.000	.921	.892	.827	.899	.943
2	.921	1.000	.881	.859	.974	.978
3	.892	.881	1.000	.805	.843	.920
4	.827	.859	.805	1.000	.877	.922
5	.899	.974	.843	.877	1.000	.976
6	.943	.978	.920	.922	.976	1.000

This is a similarity matrix

Table 6.3.2d. - Cosine of the angle between the Vectors used to represent each
degree with the data **standardised**.

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6.3.2   Outcomes from the Cluster and Vector Analysis.

The tables supporting the discussion below are shown in Tables 6.3.2a through 6.3.2d. For clarity it should be noted that SPSS for Windows converted the alphabetic descriptions for each degree, α, β, γ, δ, and ε, into numeric descriptions, 1, 2, 3, 4, and 5 when processing the data. Hence Tables 6.3.2a through 6.3.2d use this numeric nomenclature.

The tables show initial results in 6.3.2a and 6.3.2c, using un-standardised data from Phase 2, and after further reflection considering how to standardise the data as a comparison, later results using standardised data in 6.3.2b and 6.3.2d.

From these tables I was able to make the following observations.

The cosine of the angle between any two vectors is a measure of the similarity between the vectors. Where the cosine equals 1.000 the vectors match, hence the cosine for each degree when compared to itself has this value, see Tables 6.3.2c and 6.3.2d.

The next value nearest to 1.000 is .986 (un-standardised) and .978 (standardised), which is the cosine of the angle between the vector representing Degree β and the vector representing the mean for all the degrees. Degree β showed most similarity to the mean of all the degrees. Continuing this descending value approach, Degree ε comes next in similarity. It is not surprising therefore that Degree β and Degree ε are also the degrees that have the nearest cluster of categories among the groups as conveyed by the dendrogram using Ward's Method, see Tables 6.3.2a and 6.3.2b.

When the two clusters, 2 and 5, representing Degree β and Degree ε respectively, are combined to form a common cluster, the new cluster is then labelled in the agglomeration schedule, Tables 6.3.2a and 6.3.2b, as a new 2. After this point it is not possible to relate the vector cosine proximity matrix, Tables 6.3.2c and 6.3.2d, directly with the cluster analysis, Tables 6.3.2a and 6.3.2b, because each clustering impacts on the definition of a new cluster for the combination. However it is obvious from 6.3.2c and 6.3.2d that the degrees show similarity to the mean in the following order, β, ε, α, δ and γ. What the cosine table shows is the relative similarity between the degrees.

The benefit of the cluster analysis is to illuminate the way the degrees are recognised as groups or clusters of categories, with characteristics, and the sequence of how they might be most accurately combined during the inter-relating of the characteristics of these categories. The closest clusters are indicated by the shortest squared Euclidean distance in Tables 6.3.2a and 6.3.2b. This was the (un-standardised 111.000), (standardised 93.964), distance Degree β and Degree ε. These are the first to be clustered together to form a new cluster. As I mentioned above, when the two most proximate Degrees, β and ε, were combined they represented a new cluster shown in the agglomeration schedule as a new cluster 2. That clustering impinges on the squared Euclidean distances for the next step of clustering.

At this point using the un-standardised data produces different results from the standardised data. An argument can be made in each case to explain the results because the principles of the argument are the same. I will apply the principles in two separate paragraphs.

Using the un-standardised data the next shortest distance, 133.000, between Degree γ and Degree δ is not affected by the combination of β and ε, so they are combined to form a new cluster, and identified as a new 3. Reference to the original distances in Table 6.3.2a suggests that, since the next shortest distance is 136.000, the next clustering would be between Degree α and Degree β. However the earlier clustering of β and ε impinged on β. So using Ward's method the SPSS software indicates that α is in fact now closer to the new 3, i.e. the earlier combination of the categories of Degree γ and Degree δ. So theoretically it is better to combine the categories of Degree α with the already combined γ and δ to conglomerate into a new 1. Finally this new combination is clustered with the earlier produced new 2, i.e. the earlier combination of the categories of Degrees β and ε.

Using the standardised data the next shortest distance, 181.514, between Degree α and Degree γ is not affected by the combination of β and ε, and indicates that they should be combined producing a new cluster 1. This new 1 is still closest to Degree δ, so they are combined to form a further new cluster 1. Finally this second new 1 and the new 2 are combined.

6.3.3   The contribution of the Vector and Cluster analysis to the analysis of the Focus Group data.

Having taken the informative detour to investigate the representation of each degree by a vector in n-dimensional space, and being significantly informed on that short journey, I can now return to the application of focused coding of the focus group recordings taking the outcomes of the cluster analysis and vector cosines as a guide for the order in which the inter-relating

of the degrees should proceed. I have noted that the degrees show similarity to the mean across all degrees in the decreasing proximity order of β, ε, α, δ and γ.

Depending on the use of either un-standardised or standardised data (Everitt et al. 2001:51), to inform SPSS, a slightly different order for the clustering of the categories is suggested. I argue that in principle it is better to standardise the data before use so that a common base is established for each degree. Obviously over a longer period of cumulative interview time, contributed to by the number of interviews with members of staff teaching on each degree, and the duration of individual interviews, the possibility of an increased number of learning issues being identified is higher. Therefore, as already mentioned above, to minimise the effect of this possibility, I considered it appropriate to establish a standard common base for the data. Converting the cumulative times to seconds they ranged from 7427 to 10334 so an obvious common base was 10000 seconds resulting in the standardised data in Table 6.3.1b. This resulted in no difference in the relative similarity of the degree vectors as represented by their cosines, see Tables 6.3.2c and 6.3.2d. It did however suggest a (slightly) different order, in the steps later in the process, to conduct the process of reflection on, and combination of, the learning categories of the degrees into themes across their range. For that reason I therefore took the guidance suggested by the order of clustering when using the standardised data, as the one likely to be more theoretically correct to inform the order in which I considered the data from the focus groups.

So, when considering the characteristics of the categories of the degrees, in the process of inter-relating them using focused coding, the order

of comparison suggested by the cluster analysis is first to consider β with ε, followed by separate integration of α with γ, then integrating Degree δ with the results from α with γ, before considering those results with the first ones that came from β with ε. This process for the application of focused coding is discussed in the next section.

CHAPTER 7

THE DATA ANALYSIS PROCESS

(LEVELS 4, 5, 6)

7.1   The Analysis Of The Focus Group Data

Level 4 - Focused Coding

This chapter continues the description of the analysis process by taking the guidelines suggested from the cluster analysis and vector cosines and applying them to the focus group Phase 3 data.

7.1.1   Introduction to the Process

As explained earlier, the process of axial coding was used to group the learning issue descriptions into the emergent conceptual categories for each degree, and for the combined degrees, thus enabling the identification of the most frequently occurring learning categories in each group. The most frequently occurring categories were then taken back to the focus groups where the discussions were digitally recorded in order to obtain further clarification regarding the characteristics of the categories. The next step was to analyse these new digital recordings, seeking themes that were embedded in the discussion of the categories. The process involved viewing and listening (except that in the case of Degree ε it was only possible to listen) to the recordings and making notes and memos in Word files as the process progressed.

This section records the process used for the development of the themes and seeks to provide an explanation of their content. There turned out to be two main themes, which I describe as Management issues and Staff Development and Training issues. The Management issues are grouped into six sub-themes and the Staff Development and Training issues are grouped into three sub-themes. These are referenced back to the original recorded data

in Tables 7.1.2a, 7.1.2b, 7.1.3a1, 7.1.3a2, 7.1.3b1 and 7.1.3b2, before being summarised in Tables 8.2a and 8.2b. I have referenced the themes and their sub-themes back to the original recorded data in order to be as transparent as possible. The references are made to the recorded data on the confidential DVD and in order to be helpful to other readers who cannot access the confidential DVD, there are references to the corresponding text summaries on the data library DVD, although these do not have the accuracy of text that would be provided by full transcriptions. They may be sufficient to assist the reader to follow the discussion.

Reflection on the issues in the five focus groups was conducted in the order suggested by the cluster analysis, as explained in the previous chapter in sections 6.3.2 and 6.3.3. Theoretically that allowed me to bring together, or cluster, the issues in a way that was principled. It meant that I was more likely to detect the relative importance of a theme as it was consolidated, from degree (cluster) to degree (cluster), into an institutional understanding. If I had taken the degrees in a more random order, or even considered them altogether in one broad analysis, there was the danger of identifying a theme with a small emphasis in a few degrees as having more importance when consolidated than it otherwise would have had. By grouping degrees in the order suggested and building up my understanding of the depth of the themes, I was able to obtain an understanding of the significance of each theme as an institutional issue.

In order to capture the process used for this level 4 analysis, I will give examples in 7.1.2 through 7.1.4 of some of the issues that informed identity of the themes, as they arose from the sequenced analysis of the discussions by the five degree focus groups.

During this period of reflective listening, note taking and memo writing were used to capture key characteristics of the discussion by each degree group. Extracts from the content of some of these memos and notes are provided in Appendix 9 and offered to enhance an understanding of the process. The notes in an anonymised form can also be located on the first data library DVD, in lieu of providing the actual confidential DVD video material. Part of the difficulty in deciding when to bring closure to the reflective process was to determine if I would be missing any key ingredient by not going through another pass of viewing and listening to the Focus Group recordings. I will comment more on this below. What I eventually did determine to do was to sort the memos, notes and any other 'informal' reflective material that I had produced, into sets of material associated with each degree. This material took various forms, including:

- Questions I was asking myself about some issue during the reflections.
- Questions and issues that had been raised by a participant during the recording
- Conclusions I noted had been made by participants
- Summary statements I made following a discussion by the group on a topic during the recording

Having the five sets of what appeared to me to be the key issues raised by each degree group, I began to use coloured highlighter pens to underscore the text I had created to identify themes in the material collected, using a different colour as a unique highlighter associated with a theme, the effect of which made a visual impression on me of the dominant themes in each degree. Across each degree I began to realise that the dominant themes were beginning to arise with a noted consistency.

It needs to be stressed that this whole process was not a linear one, where simply working through the recordings in the suggested order for each degree to identify the themes would somehow produce the results by consequential fallout, but rather it was a constantly reflective and comparative process, taking notes, re-visiting sections of the recordings, comparing similar contexts across the selected degrees and developing the process to draw conclusions. At this level, Level 4, the analysis moved from a focus on each degree to a focus on the common themes across the data set as a whole. It was also important to include the less dominant themes before completing the reflection, and I will comment on this aspect in 7.2 when I will seek to integrate the themes, at Level 5, and draw conclusions, before defining the resulting theory at Level 6 in 7.3.

Before discussing the level 4 analysis process, in order to facilitate reference to the recorded material held on the DVDs, I need to explain how the DVD's are structured. When they were originally recorded in the telematics laboratory there were a number of sub-files created on a DVD for each focus group. These had been recorded as '.VOB' files, which are not easily read on a range of computers using a Windows operating system. To make transfer from computer to computer as easy as possible, I had the DVD's re-burned in MPEG-4 format, thus enabling them to be read on most computers using the Windows 2000 or Windows XP operating system, through the reasonably common industry standard Quick Time Version 7 software, available as a free download from www.apple.com with the associated iTunes movie software.

Degree	α	β	γ	δ
Sub File Names	VTS_01_1 VTS_01_2	VTS_01_1 VTS_01_2 VTS_01_3	VTS_01_1 VTS_01_2	VTS_01_1 VTS_01_2 VTS_01_3
Quick Time File Names	degree1_part1 degree1_part2	degree2_part1 degree2_part2 degree2_part3	degree3_part1 degree3_part2	degree4_part1 degree4_part2 degree4_part3
Capacity	187 MB 169 MB	179 MB 182 MB 48.6 MB	188 MB 147 MB	182 MB 177 MB 63.3MB
Size of File (bytes)	196,795,024 178,015,198	188,032,901 191,700,262 50,989,056	197,315,623 154,326,614	191,647,596 186,169,173 69,580,136
File size on Disk (bytes)	196,796,416 196,016,256	188,033,024 191,700,992 50,989,380	197,316,608 154,327,040	191,647,747 186,169,344 69,580,800
Duration Time	29:13 28:18	29:13 29:01 07.45	29:13 22:52	29:12 29:00 10:52

Table 7.1.1a – DVD MPEG 4 Recordings of Focus Groups
Capacities for Degrees α, β, γ and δ

Degree	Voice File Name	Duration and Size	Text File Name	Size Words
ε	050519.msv	43:30 5141 KB	FG Reflective Notes 5	44KB 2628 words

Table 7.1.1b – Digital recording of Focus Group for Degree ε

The table in 7.1.1a shows the name, the size and the time length of each sub-file for the Degrees α, β, γ and δ. Table 7.1.1b quantifies the digital voice recording for degree ε. As a means of referring to specific clips of recording during the discussion of the analysis process, I will refer to the degree, the sub-file name, and the time location in minutes and seconds. Since the sub-file names created by the software when burning the DVDs are similar on each degree, it is important to include the degree in the reference.

During the continuous reflection on each DVD recording, or digital voice recording in the case of Degree ε, I constructed reasonably detailed notes of the content of the recordings, with 30-second time indicators, without going into the precise accuracy I used at Phase 2 when transcribing voice recording into text. These notes were useful as a guide during a further step, as part of the process using grounded theory methods, that of replaying the recordings in order to prompt ideas for memo writing, based on reflection on the interaction of the participants. The time slots, and initials of the members of staff speaking on the recordings, enabled the searching and finding of specific events quickly for further reflection as required. Since each of the recordings themselves lasted approximately an hour the actual time of listening, with repeated reflection, took considerably longer and were carried out over a large number of sittings.

7.1.2   Level 4 – Inter-relating Themes in Degree β and Degree ε

The process of constant reflection on the recorded data from the focus groups, resulting in an increasing number of memos and notes, was rather messy and consequently difficult to describe chronologically. During the

process additional depth was added to each sub-theme with each pass through the data. To simplify the discussion I can now work with the benefit of hindsight and refer to the emerging themes in the order that I eventually grouped them. As I have already said, the actual process was not as tidy as the grouped order might suggest because some of the themes were not so apparent until the process was more advanced and had been given some depth with increasing reflection.

The six sub-themes of the main theme of Management issues detected when analysing Degree β and ϵ are listed in Table 7.1.2a and the three sub themes of the Staff Development and Training issues are listed in Table 7.1.2b. To provide direct reference to the recordings on the confidential data library DVD, or to the corresponding summary notes on anonymised data library DVD, Tables 7.1.2a and 7.1.2b locate the identified themes to specific sections of the recorded data as examples. These nine sub themes are developed below.

Theme	D	File Name	Start		Finish	
			M	S	M	S
Learning through Networking-						
International (research, conferences)	β	VTS_01_1	13	00	14	20
Institute Group meeting for learning	β	VTS_01_2	00	30	02	00
	β	VTS_01_2	03	45	04	00
	β	VTS_01_2	08	46	09	13
	β	VTS_01_3	06	00	06	50
	ε	FG5 Notes	21	44	22	00
	ε	FG5 Notes	25	35	25	45
Senior academic mentoring a group	β	VTS_01_1	09	25	10	52
One to One support	β	VTS_01_1	21	15	22	48
	β	VTS_01_1	26	15	27	15
	ε	FG5 Notes	20	45	21	44
	ε	FG5 Notes	31	15	31	30
	ε	FG5 Notes	32	15	32	30
	ε	FG5 Notes	38	15	38	45
Communication about : Resources	β	VTS_01_2	28	27	29	01
	ε	FG5 Notes	40	18	41	04
Learning technology policy	β	VTS_01_3	04	30	05	30
	ε	FG5 Notes	29	48	30	42
Policy Leadership	β	VTS_01_3	03	03	03	45
	ε	FG5 Notes	34	58	35	50
Impacts of Timetabling – on staff	β	VTS_01_1	02	36	05	39
	ε	FG5 Notes	37	16	37	52
On Training	β	VTS_01_1	09	00	09	30
	ε	FG5 Notes	23	15	23	25
On planning	β	VTS_01_1	11	20	11	47
	β	VTS_01_1	25	15	25	28
	β	VTS_01_3	06	50	07	20
	ε	FG5 Notes	15	16	16	40
	ε	FG5 Notes	16	40	18	36
Staff Development – structure	β	VTS_01_1	15	00	16	00
	β	VTS_01_2	25	15	26	04
	ε	FG5 Notes	25	32	25	45
– needs Metrics	β	VTS_01_1	06	00	06	38
	β	VTS_01_1	10	32	11	50
	ε	FG5 Notes	14	48	15	22
	ε	FG5 Notes	17	10	17	56
	ε	FG5 Notes	18	25	18	37
Teaching Staff need affirmation	β	VTS_01_1	16	10	16	55
	ε	FG5 Notes	22	52	23	10
Management of change needs planning	β	VTS_01_1	03	58	04	15
	ε	FG5 Notes	41	04	41	52

Table 7.1.2a – **Management Themes** identified when comparing degrees β and ε, with references to the specific start and finish times of sections of the recorded focus group discussions

Theme	D	File Name	Start		Finish	
Appreciation of the LTC and LTT role	β	VTS_01_1	10	48	11	00
	β	VTS_01_1	26	40	26	50
	ε	FG5 Notes	22	15	22	53
Planning the courses provided						
Location of learning courses provided	β	VTS_01_1	19	00	19	15
	ε	FG5 Notes	21	44	22	15
	ε	FG5 Notes	23	00	23	16
Basis for planning of the courses	β	VTS_01_1	23	55	24	20
	ε	FG5 Notes	23	09	23	42
Focus of Staff Development Courses	β	VTS_01_1	19	15	19	30
	β	VTS_01_2	23	03	23	55
	ε	FG5 Notes	23	05	23	15
Content of the courses offered						
Planning input from academic staff	β	VTS_01_2	00	45	02	15
	ε	FG5 Notes	23	30	25	05
1-1 Model for ICT Training	β	VTS_01_2	24	40	25	05
	ε	FG5 Notes	23	35	23	45
Content Group Learning	β	VTS_01_2	16	00	17	00
	β	VTS_01_2	00	45	02	15
	ε	FG5 Notes	06	00	06	45
Assessment & Marking **	β	VTS_01_2	24	20	24	39
	ε	FG5 Notes	23	45	25	32
	ε	FG5 Notes	24	10	24	20
Selecting groups	β	VTS_01_2	22	35	22	48
Learning Theories / Styles	β	VTS_01_1	17	18	19	43
	β	VTS_01_2	18	08	18	24
	ε	FG5 Notes	00	55	05	10
	ε	FG5 Notes	10	08	10	55
Handling 'Legal' issues **	β	VTS_01_2	13	00	23	03
	ε	FG5 Notes	05	24	06	30
	ε	FG5 Notes	24	20	25	32
'Level' of Content ICT	β	VTS_01_1	22	00	22	48
	β	VTS_01_1	24	00	27	15
	ε	FG5 Notes	13	10	14	05
In general	β	VTS_01_3	00	35	01	55
	ε	FG5 Notes	22	32	23	05

Table 7.1.2b – **Staff Development and Training Themes** identified when comparing degrees β and ε, with references to the specific start and finish times of sections of the recorded focus group discussions

7.1.2.1 The themes relating to Management issues

7.1.2.1a   Learning through Networking.

This sub-theme had four components, ranging from one-to-one support, through the support a senior academic can give to a group of more junior members of staff, and cross-institution interaction between groups, to the role that international networking plays in staff development.

Academic members of staff on both degrees emphasised the importance of one-to-one support, from an experienced user to someone less experienced, when seeking to develop their understanding and use of ICTs. Even those who had a good level of confidence in the application of technology seemed to benefit significantly when they started using WebCT. The support of staff from the Learning and Teaching Centre (LTC) with pedagogical design, and from staff of the Learning Technology Team (LTT) with technical aspects, was crucial to provide even the early adopters with secure foundations on which to build their new course design. That support was very willingly given by the members of the LTC and LTT teams, since they had been established as support centres and this was exactly matching their objectives. However the early rush of support necessarily diminished as more and more demands were placed on the small capacity of the two units. In contrast members of staff who did not benefit from the earlier availability are now identifying this aspect of learning through One to One support as a key necessary component of learning through networking. Members of staff who did benefit from the early support have also noticed that the reduction, or even loss, of that support has stunted their continued development of the use of ICTs. In a number of cases they have stopped using what they had originally

developed. However those who had confidence to develop their own learning to the extent that they are now able to be the mentors in new One to One support networks are maintaining enthusiasm for continued development of new course design and delivery. What I identified as a key catalyst in the sub theme of Learning through Networking is the need for academic management to be proactive in planning for this support to be nurtured through specific one-to-one relationships at school or faculty level.

The second main component of the Learning through Networking sub-theme was to develop group integrated learning opportunities by networking across the institution. Good practice does exist in all faculties and those members of staff who had become involved in such cross-faculty networks appreciated the beneficial nature of such interaction. When I have discussed the integration of the findings from the other three degrees, I will develop further this sub-theme of Learning through Networking in relation to the academic management role.

Two other components were identified in this sub theme, but only noticed in the data from Degree β. These were the role that international networks can play in staff development through, for example, research and other academic conferences, and the role that a senior academic can play in mentoring a group of less experienced members of staff.

7.1.2.1b   The key role of Communication.

There were three components detected in this sub-theme, Communication of what resources are actually available, the need for clarity regarding the policy

of using learning technology, and the actual leadership of the implementation of such policy.

In the data from both degrees I detected a lack of knowledge among members of staff regarding what software and hardware was available for use with ICTs. In one case a member of staff, who wanted to take initiative to develop the use of ICTs, only heard from a colleague who had heard from one of the technical staff that the software desired for use on the degree was in fact already available in one of the computer laboratories. There seems to be a system of control over the purchase of such software but thereafter a serious lack of systems to communicate its availability and efficient application.

A significant amount of confusion was detected in what the policy was regarding the use of software that supported the application of ICTs. This confusion left staff unsure about what they were expected to use, and resulted in learning platforms being chosen on the basis of what was easiest to implement rather than on any pedagogical reasoning. The institute had invested in one platform, WebCT, but generally members of staff have found the software difficult to become practically proficient in its use and have turned to another platform that members of staff found easier to start with. However the limitations of this easier-to-implement platform prevented the development of sound pedagogical use of learning technology since it appears to have been used mainly as a vehicle to distribute lecture notes and facilitate communication to students.

What was really lacking was any clear leadership in the definition of policy regarding the use of learning technologies. Officially the LTC and the LTT had been established but whether or not they were used by members of

staff seemed to be left to the individual motivation or choice of the members of staff. There was no apparent management accountability for the development of new learning design and no apparent system of monitoring whether the expensive resources were actually being utilised effectively. Again I will develop this after I have considered the integration of the other three degrees.

7.1.2.1c   The impacts of Timetabling.

This core activity of management to arrange the academic year was mentioned in connection with three components, the impact on individual members of staff, the impact on their ability to take up the provision of training for the application of ICTs and the impact that planning of timetables has on personal development of members of staff.

All staff on the two degrees suggested that the pressure of time demands on their individual weekly academic activities impacted very strongly on their ability to engage in the development of new learning design with ICTs. In many cases there was a strong personal motivation to maintain currency with the affordances of the technology but members of staff felt constrained in their endeavours to do so. They were aware of the expectation of students regarding the application of technology and this increased the pressure on them to try to find time for development. The related impact of a perceived lack of one-to-one support as mentioned in 7.1.2.1 further discouraged them in moving into new development.

The members of staff felt powerless to overcome the impact of the weekly timetable on their availability to undertake the education and training

offered by the LTC and the LTT. I will comment later under the theme of Staff Development and Training on the impact of the location of the provision of the various courses, but note here that the short time span between lectures seemed to discourage the uptake of available courses because the location added travel time to the time required to attend courses.

There was an obvious lack of consideration at the planning stage of timetables regarding the key role that staff development and training could have if integrated into the design of the weekly timetables. This significant challenge to academic management was identified from the data and I will develop the implications later after I have recorded the emphasis from the other three degrees.

7.1.2.1d   The structure and metrics of Staff Development.

This sub-theme had two components, the structure of the Staff Development process in the institution and the need for clear metrics that would convey to members of staff the benefits and rewards that could accrue from their contribution to the teaching and learning programmes they delivered.

Some staff suggested that there should be a more formal approach to staff development because their experience had been that previous developmental opportunities had not benefited them in the longer term. For example after attending such an event there was no formal outcome measurement or continuing developmental follow-up. The establishment of a proper structure for staff development, including an on-going contribution through for example the development of a research paper or other measurable

outcome would be likely to improve the existing rather vague process. What appeared to be a real need was the identification and agreement of clear metrics to measure the process. Examples were given of relating a number of days for personal development to the number of years contributed to teaching and I noticed the enthusiasm from members of staff for this approach without associated demand that the metrics introduced should be weighted in their favour. The emphasis was more on the need for definition of some agreed metrics so that they could anticipate and plan for their personal development.

7.1.2.1e   Affirming teaching staff

This theme might be able to be integrated in the previous one of staff development as it is closely related to it. However at this stage of analysis I decided to keep it distinct, as it has a more regular expectation associated with it, for example during informal encounters with management, than just the formal feedback that might come through a more structured staff development review process or the award of formal recognition for teaching excellence. The impact of academic management expressing genuine appreciation for the effort that is involved in the design, development and delivery of learning programmes would go far beyond the effort required in the small gesture it is to do so.

7.1.2.1f   Planning the Management of Change.

The sixth sub-theme is particularly important since the institution, and indeed the wider academic and social environment is undergoing rapid change. Handling the changes cannot be left to chance, and demand of

academic management a serious engagement in understanding and then in the planning process so that positive benefits are achieved and negative influences minimised. Examples were given of expectations by academic members of staff that academic management engage seriously with the management of change so that the members of staff can make more meaningful contributions to developing their learning environments. Unless this is done the danger of simply repeating the same material year after year due to a lack of engagement with new possibilities because of time pressures seemed a possibility.

I detected all six sub-themes of the Management theme arising out of the analysis of the data from Degree β with Degree ϵ however one of the sub themes, Learning through Networking, did not have its entire component characteristics populated until the later analysis of Degrees α, γ and δ.

Before considering the contribution of the other three degrees to the Management theme I will discuss the themes from Degrees β and ϵ to the Staff Development and Training theme.

7.1.2.2 Themes relating to Staff Development and Training

The second main theme I identified was related to issues concerning Staff Development and Training. In this theme I detected from the data three sub-themes, which were related to the need for, and the provision of, courses in learning and teaching support. Associated with this, comments were made by the members of the focus groups regarding the role of the staff in the Learning and Teaching Centre and the Learning Technology Team, which I will address first. Later, when I integrate the data from the three other degrees

with that resulting from clustering Degree β and Degree ε I will refer to why I made a further adjustment to the structure of this theme.

7.1.2.2a   Appreciation of the role of the LTC and LTT

There was general appreciation of the role of the members of staff in both these units. Even where more critical comment was made about the content of programmes provided, there were no negative comments about the role that the staff in the two units played since their establishment at about the time this piece of research was started. Relationships developed by these members of staff were warm and supportive to the academic community. In a number of cases where the discussion was focused on the content of programmes provided, the members of the focus groups stressed that they were not wishing any negativity to be aligned to the staff in the LTC and LTT as they had always been more than generous in their support of members of staff during the developmental phases of new programmes using ICTs.

7.1.2.2b   Planning the learning courses provided.

This sub-theme had three components, the location of the courses offered, the basis for planning the content of those courses, and, what the courses should focus on.

Most members of staff found that, where courses were offered in the distant building where the LTC and LTT centres were located, their opportunities to attend courses in the programmes that attracted their interest were hampered due to the time constraint of getting there and back between lecture commitments. There was no easily accessible public transport

available, little parking facilities and the time constraints of the available courses motivated decisions against attending when the needs of the students were also taken into consideration. Where courses were offered on site in various faculties there was a greater incentive to attend, although the constraints of the weekly timetable still applied. The members of staff on both degrees preferred that the courses should be located in the same building where the school was based. In some cases this was referred to as the faculty building because all schools in the faculty shared the same building. The reason for this preference was convenience and time constraints, which became an issue if the course was elsewhere.

The basis for planning the training courses' schedule mainly required input from the school so that content was relevant and focused on the needs of the programmes being offered. All of the members of staff who contributed on this issue believe that they should have an important say in preparation of the course structure and delivery. By so doing the content would be more likely to meet real needs and the issues discussed in the learning environment could be applied directly to related courses. This did not reflect on the staff from the LTC and LTT, but it was recognised that more generic courses were too general and therefore less useful than specifically focused ones.

When commenting on the focus of such courses the range varied from a course that was specifically tailored to the team on a specific degree to a slightly broader focus identified with the needs of the school.

7.1.2.2c   Content of courses offered.

Later when I integrate the themes from the three other degrees I will opt to combine this sub-theme with the previous theme of planning the learning courses offered, because they are very closely connected. However I will describe it separately here, as that is how it was processed.

There were seven characteristics reflected in the components of the sub theme. The first one is the link with the previous sub-theme, namely that academic members of staff want to have an input into the planning and focus of courses offered to them for personal development. That is what motivated me to join the sub-themes later in the analysis.

In terms of content for such programmes the following five elements were noted as desirable.

Because of the importance of the One to One model for learning through networking mentioned above, this model would be an important element in the training to use ICTs. Whether it is simple problem solving to enable progress to a new learning level or the opportunity to discuss the theoretical framework underpinning a new design, the One to One model was seen as desirable.

In terms of the content of programmes designed for staff development, a more thorough understanding of the learning theories related to group learning was deemed to be important.

Associated with group learning, members of staff were struggling to know how best to assess, and award marks in a group context to the individual participants. They thought that a more detailed understanding of the issues surrounding this important formative learning context would be very helpful.

Almost all staff had difficulties with the selection of the groups in the first instance. In some cases this was handled randomly because of the numbers of students on some degrees. In other cases self-selection was adopted. Others tried to identify the learning styles of students and create a balance across the groups through the selection process. By designing the course content to include this topic in order to work through the issues would be helpful.

Further understanding of different learning theories and learning styles would compensate for the relatively low understanding of many staff in this important aspect of pedagogy. Some members of staff had attended some courses dealing with the topic but all would appreciate a refresher course.

Finally, in the content of a course there should be some time devoted to related legal issues surrounding the award of marks as there seemed to be fears expressed of the increasing tendency of students to submit appeals against examination and assessment decisions and the implications for staff of not being able to defend their marking schemes.

I also detected, in the third element of the content of a course some comments about the level of content offered in courses that had been offered through the LTC and LTT to date. In both degree groups, staff generally thought that the level of content and the pace of delivery on courses dealing with ICTs should be lower and slower respectively. In general terms the level of content on courses other than those associated with ICTs was considered to be good.

Theme	D	File Name	Start		Finish	
Learning through Networking-						
International (research, conferences)	α	VTS_01_1	11	20	12	00
	α	VTS_01_1	28	00	28	52
	α	VTS_01_2	16	36	16	50
	γ	VTS_01_2	12	15	12	30
	δ	VTS_01_1	05	27	05	40
	δ	VTS_01_1	08	07	08	50
	δ	VTS_01_3	10	07	10	45
Institute Group meeting for learning	α	VTS_01_1	06	25	07	45
	α	VTS_01_1	09	35	09	50
	γ	VTS_01_1	06	40	07	35
	γ	VTS_01_1	12	08	13	35
	γ	VTS_01_1	20	25	20	38
	δ	VTS_01_1	25	30	25	40
Senior Academic mentor to a Group	α	VTS_01_2	19	15	19	59
One to One support	α	VTS_01_1	05	56	06	15
	α	VTS_01_1	18	10	18	32
	γ	VTS_01_1	10	08	10	45
	α	VTS_01_2	18	38	19	10
	γ	VTS_01_1	18	48	19	02
	γ	VTS_01_2	05	00	05	10
	δ	VTS_01_1	02	50	03	20
	δ	VTS_01_1	05	10	05	18
	δ	VTS_01_1	08	24	09	18
Communication about : Resources	α	VTS_01_1	12	20	13	04
	α	VTS_01_2	23	12	23	58
	γ	VTS_01_1	11	09	11	13
	γ	VTS_01_2	10	33	11	23
	δ	VTS_01_3	06	50	08	34
Learning technology policy	α	VTS_01_1	10	10	10	22
	α	VTS_01_1	16	15	16	20
	γ	VTS_01_1	19	18	19	48
	δ	VTS_01_3	02	26	03	22
	δ	VTS_01_3	07	39	08	25
Policy Leadership	α	VTS_01_1	08	10	08	35
	γ	VTS_01_1	13	44	13	50
	γ	VTS_01_2	04	00	05	00
	γ	VTS_01_2	18	15	18	32
	δ	VTS_01_1	15	30	16	35
	δ	VTS_01_2	12	54	13	45

Table 7.1.3a1 – **Management Themes** identified when comparing degrees α and γ, and then degree δ, with references to the specific start and finish times of sections of the recorded focus group discussions

Theme	D	File Name	Start		Finish	
Impacts of Timetabling – on staff	α	VTS_01_1	04	10	05	00
	α	VTS_01_1	09	15	09	20
	α	VTS_01_2	11	45	11	55
	γ	VTS_01_1	12	00	12	12
	γ	VTS_01_1	24	40	24	52
	γ	VTS_01_2	11	55	12	15
	δ	VTS_01_1	14	30	14	45
On Training	α	VTS_01_1	13	35	13	55
	α	VTS_01_1	18	45	18	55
	γ	VTS_01_1	09	35	10	08
	γ	VTS_01_1	15	15	15	31
	δ	VTS_01_1	04	30	05	10
On planning	α	VTS_01_1	04	30	05	05
	α	VTS_01_1	10	35	11	02
	α	VTS_01_1	14	15	15	15
	γ	VTS_01_1	06	40	07	04
	γ	VTS_01_1	09	10	09	35
	γ	VTS_01_1	15	55	16	10
	δ	VTS_01_1	04	30	05	10
Staff Development – structure	α	VTS_01_1	19	09	19	57
	γ	VTS_01_2	02	55	03	40
	δ	VTS_01_2	26	24	28	20
– needs Metrics	α	VTS_01_1	13	55	14	35
	α	VTS_01_2	15	05	15	15
	α	VTS_01_2	25	20	25	55
	γ	VTS_01_2	15	05	16	25
	γ	VTS_01_2	17	00	17	48
	δ	VTS_01_2	27	25	28	20
	δ	VTS_01_3	00	03	00	30
Teaching Staff need affirmation	α	VTS_01_2	18	00	18	30
	γ	VTS_01_2	01	24	02	18
	γ	VTS_01_2	13	56	14	19
	δ	VTS_01_3	00	30	01	15
Management of change needs planning	α	VTS_01_1	20	18	21	39
	α	VTS_01_2	20	30	21	26
	α	VTS_01_2	21	30	23	58
	γ	VTS_01_1	11	13	11	27
	γ	VTS_01_2	00	25	01	24
	γ	VTS_01_2	12	00	13	03
	γ	VTS_01_2	20	38	21	15
	γ	VTS_01_2	21	30	21	58
	δ	VTS_01_1	15	40	16	05
	δ	VTS_01_3	03	30	04	45

Table 7.1.3a2 – **Management Themes** identified when comparing degrees α and γ, and then degree δ, with references to the specific start and finish times of sections of the recorded focus group discussions

7.1.3   Inter-relating themes in Degrees α, γ, and Degree δ.

In this section I will refrain from repeating the similar findings already identified above when considering the inter-relating of Degree α, with Degree γ, followed by consideration of the resulting cluster with Degree δ. Instead I will note additional supports to the identification of the themes.

7.1.3 1 The Management Themes.

Earlier I had noted that there did not appear to be any reference in Degree ε to two components of the Learning through Networking sub-theme. I was tempted not to include those components since they did not appear in both degrees. However when bringing the remaining three degrees into consideration I found that the component associated with the learning through international networking did come from the data in both Degree α and γ. When it was identified also in Degree δ, I decided that it should remain as a sub theme. That however required an answer to the question why it had not appeared in the discussion with the focus group for Degree ε. On reflection the membership of that degree focus group was more focused on what had happened over the previous year since they had embarked on the institution's pilot introduction of WebCT. The year had been very hectic and intense in terms of new design, development and delivery, with additional meetings called by the school concerned to monitor development of the pilot study. Many of the members of staff were extremely busy and I recall noting, from my journal, after the group discussion with that group for Phase 2 data collection that the busy atmosphere transferred into the expressions from the group during the discussion. Some of the individual members of staff in that

group are personally research active, so I assume that the lack of mention of learning through international networking may be attributed to their focused busy-ness.

The other component of the sub-theme, Learning through Networking, of the Management theme that was not mentioned by members of staff from Degree ε was the potential to be gained from the role of a senior academic mentoring a group of less experienced staff. This was made very clearly by the members of Degree α, but not mentioned by those on either Degree γ or Degree δ. Although mentioned by a minority of focus groups I have decided to retain it because of the clarity and emphasis with which it was mentioned in Degrees α and β.

The other themes were detected across all groups thus increasing the depth of the theme when these were integrated. Examples are given in Tables 7.1.3.a1, and 7.1.3.a2.

7.1.3.2 The Staff Development and Training Issues

All of the components of all the sub themes related to Degrees β and ε, discussed above for this theme, were detected in the data from the remaining three degrees. The examples are available in the references in the tables and I do not need to discuss the detail again. However it is worth commenting on why I merged the three sub-themes into two by grouping the two components of the original third sub-theme with the first sub-theme. It may be helpful to refer to Tables 7.1.3.b1 and 7.1.3b2 to compare them with the original groupings in Table 7.1.2b.

Following further reflective analysis on these degrees it seemed a better fit to have just two themes, one related to the appreciation of the LTC and LTT and one related to the Courses offered by them. Since members of staff linked constructive critical comment regarding the level of the courses offered by the LTC and LTT together with positive appreciation of staff who offered the courses, I decided to present them as one sub-theme with these components. The other sub-theme was about the provision of courses and had components about their location, focus, who should contribute to their planning, and suggested content and supports to their delivery.

The tables reflect the edited 'final version' of the themes and may imply a more tidy identification of the themes than was actually the case during their identity and development. At this stage of describing the identified themes I have the advantage of hindsight on the messy and lengthy process of reflection, memo writing and note taking, much of which was conducted on handwritten pages before the tidy-up process of editing took place. I have endeavoured to capture a summary of the themes in the right hand column of the edited reflective notes on each degree. It is difficult to provide all of the sometimes hand-written memos developed during this lengthy process, but I have provided some examples in Appendix 9 to maintain the effort to be transparent about the process and to give some indication of the depth of definition behind the development of the themes.

Theme	D	File Name	Start		Finish	
Appreciation of the LTC and LTT role	α	VTS_01_2	15	35	16	25
	γ	VTS_01_1	05	48	05	58
	γ	VTS_01_1	13	50	13	55
	γ	VTS_01_2	10	00	10	13
	δ	VTS_01_1	07	45	07	50
	δ	VTS_01_2	24	59	25	28
'Level' of Content ICT	α	VTS_01_1	10	15	10	50
	α	VTS_01_2	24	15	24	40
	γ	VTS_01_1	06	00	06	30
	γ	VTS_01_1	14	15	15	00
	δ	VTS_01_1	07	50	08	05
In general	α	VTS_01_1	10	33	10	50
	γ	VTS_01_1	19	48	20	05
	γ	VTS_01_1	20	06	20	15
	γ	VTS_01_2	09	55	10	12
	δ	VTS_01_2	25	00	25	30
Planning the Courses Provided						
Location of learning courses provided	α	VTS_01_1	13	05	13	28
	α	VTS_01_1	19	15	19	25
	γ	VTS_01_1	14	05	14	15
	γ	VTS_01_1	15	24	15	30
	δ	VTS_01_1	07	40	07	55
	δ	VTS_01_1	09	57	10	10
Basis for planning of the courses	α	VTS_01_1	19	14	19	57
	γ	VTS_01_1	20	48	20	55
	δ	VTS_01_2	04	50	05	05
Focus of Staff Development Courses	α	VTS_01_1	19	30	19	58
	α	VTS_01_2	24	10	25	12
	γ	VTS_01_1	16	10	17	10
	γ	VTS_01_1	20	47	20	55
	γ	VTS_01_2	04	50	05	05
	γ	VTS_01_2	19	30	19	53
	δ	VTS_01_2	04	55	05	30
Supporting the courses offered						
1-1 Model for ICT Training	α	VTS_01_2	18	36	19	10
	γ	VTS_01_1	10	08	10	40
	δ	VTS_01_2	21	35	22	30
Content of the courses offered						
Group Learning	α	VTS_01_1	01	17	01	21
	γ	VTS_01_1	05	15	05	48
	γ	VTS_01_2	07	30	09	30
	δ	VTS_01_1	20	26	22	15
	δ	VTS-01_2	04	50	05	00

Table 7.1.3b1 – Staff Development and Training Themes identified when comparing degrees α and γ, and then degree δ, with references to the specific start and finish times of sections of the recorded focus group discussions

Theme	D	File Name	Start		Finish	
Assessment & Marking **	α	VTS_01_2	00	13	01	45
	α	VTS_01_2	02	02	03	40
	α	VTS_01_2	07	40	08	53
	α	VTS_01_2	08	55	10	40
	γ	VTS_01_1	17	29	17	32
	γ	VTS_01_2	08	05	08	17
	δ	VTS_01_1	11	10	11	37
	δ	VTS_01_1	22	58	23	48
Selecting groups	α	VTS_01_2	01	52	01	55
	α	VTS_01_2	03	50	04	58
	δ	VTS_01_1	20	30	22	58
	δ	VTS_01_1	23	48	28	37
Learning Theories / Styles	α	VTS_01_1	23	40	24	20
	α	VTS_01_2	05	02	05	50
	γ	VTS_01_1	15	45	15	55
	γ	VTS_01_1	17	11	18	30
	γ	VTS_01_1	25	11	25	50
	γ	VTS_01_1	26	26	27	30
	γ	VTS_01_2	04	50	05	00
	δ	VTS_01_1	17	37	19	20
	δ	VTS_01_3	08	35	09	25
Handling 'Legal' issues **	α	VTS_01_2	00	31	00	45
	γ	VTS_01_1	20	59	21	50
	γ	VTS_01_1	27	41	28	20
	γ	VTS_01_1	28	59	29	13
	γ	VTS_01_2	00	00	00	15
(IR issues)	δ	VTS_01_2	12	20	12	52

Table 7.1.3b2 – **Staff Development and Training Themes** identified when comparing degrees α and γ, and then degree δ, with references to the specific start and finish times of sections of the recorded focus group discussions

7.1.4   Interpreting Themes across Degrees β, ε with Degrees α, γ, δ

Having identified the consistency of the themes between the grouped Degrees β and ε with those of the grouped Degrees α, γ and δ I reflected further on how to interpret these themes.

The sub-themes of the second theme, Staff Development and Training, seemed to suggest quite practical improvements that could be forwarded to the LTC and LTT for consideration and implementation regarding courses related to the use of ICTs. However these alone didn't seem sufficient to deal with more substantial theoretical issues that might underpin deeper long term change and improvement with staff development processes of the institution overall. Most of those suggestions I associated with the technical skills training approach, which earlier I had distinguished from the development associated with education. So I spent some time writing further memos and notes particularly associated with the Management issues in the first theme.

It seemed to me that the data suggested that group interactive learning through a range of networking relationships was at the heart of any possible theory underpinning improvement of the educational aspects of staff development. The more I reflected on the theme and the characteristics of the components populating it, the more I was drawn to the role of academic management in group integrated learning. Group integrated learning is often associated with the development of students and academic teaching staff working together in a collaborative environment and developing new learning with each other. The missing link seemed to be that academic managers could also learn together from each other through group integrated learning environments. So I began to conclude that such learning among academic

management may be the catalyst for a significant leap forward at an institutional level. I allowed this concept to guide further reflection on the themes and the data as a whole.

I then began to theorise that if academic management at all levels in the institution could meet in suitable networking groups, bringing their learning from international networks, sharing new learning at an institutional level with like-minded colleagues and developing their enthusiasm for leadership in their role regarding the exploitation of the affordances of ICTs, there was the potential for long-term strategic change.

There could be a regular forum for academic management on this key theme of the role of management in leading through change arising from the introduction of ICTs, with a focus for the forum on the components making up the sub themes, where the understanding of academic managers could be extended by new learning about the key issues that underpin a theoretical understanding of staff development, improvement of the planning process to facilitate staff development as part of the timetabling, the importance of a strategic policy decision about ICTs, and how to communicate that policy to ensure successful implementation.

Before attempting a definition of the theory arising from the analytical reflection of the Phase 3 data, I now had to try to interpret the themes and to reflect on how they arose from the categories that had been identified at Phase 2 to inform the focus groups. The next section seeks to explore these issues.

	Phase 3 Focus Group Key Issues	
Phase 2 Key Learning Issues	From Ph 2	Emergent Issues
Dominant		
Group Interactive Learning	·······▶	For Academic Management
Perceived Benefits of Technology	──────▶	Need for Policy leadership
Applying Theory to Practice	·······▶	For Academic Management
Group / Individual Issues	·······▶	As content of courses
Collaboration Benefits	·······▶	Role of networks
Learning Styles	·······▶	As content of courses
Time	·······▶	Timetabling impact
Prior Learning		
Feedback to Students	·······▶	Assessment & Marks
Reflection	·······▶	Role of networks
eModerating		
Fun	·······▶	Only noted in degree ε
		◀Staff need affirmation
		◀1-1 technical support needed
		◀S D structure and metrics
		◀1-1 technical support needed
		◀Appreciation of role of LTC
		◀Need for Policy leadership
Subordinate		
(In)Equality of access		
Class size		
eLearning Pedagogy		
Facilitator		
Flexibility		
Impact of Fear, Need for Trust		
Learning strategies		
Locus of Power		
Motivated Staff		x
Peer issues		
Preparation		
Relevant to Students		
Research Informed		
Role of early adopter		x
Staff attitude to technology		
Staff Development is key		x
Student motivation		
Teaching Language		
Technical support needed		x
Outliers		
Impact of LTC		x
WebCT is stronger		x
All other outlier learning issues		

Table 7.2 – Dominant, Subordinate and Outlier categories from Phase 2 and how they emerged at analysis of Phase 3 data.

7.2   Level 5 – Interpreting Themes across all the Data.

Reflection on the outcomes of the Phase 2 analysis of the individual and group interview data led me to select the top twelve categories that were allocated the highest number of occurrences across the degrees. These twelve categories I designated as dominant learning categories. Using these dominant learning categories I sought further clarity on them through the focus group discussions. The use of coloured highlighter markers to underscore on the notes and memos themes emerging from the focus group data, when following the process suggested by the cluster analysis, helped me to identify common themes across the five degrees.

There were however other categories arising out of the Phase 2 data that were not in the highest occurring categories but had been noted as occurring more than once. These I termed as sub-ordinate categories. Then there were the categories where the learning description occurred only once for a degree in the Phase 2 data. These I designated as outliers, or minimal, or 'negative' cases, as they have been referred to in the grounded theory terminology. In keeping with the accepted procedures of a grounded theory approach I wanted to investigate whether these issues could be encapsulated into any theory that might arise when seeking to generate such theory during Level 5 and 6 of the Data Analysis Process.

Any resultant theory should also accommodate an explanation of these learning issues as they were part of the data and I will endeavour to do so in the sections below. Table 7.2 captures the essence of the discussion and will be useful to refer to over this section.

7.2.1 The Dominant Themes

Nine of the twelve dominant categories from Phase 2 can be traced through the process into themes that were identified during the analysis at Level 4. Since there was some change in the description used as the categories were merged into themes I have used a dotted arrow to reflect this in Table 7.2.

Group interactive learning became focused as a key challenge and opportunity for academic management to develop new learning through appropriate networks, both at an institutional level, by collaborating with management colleagues, and also bringing to the learning environment their learning from international networks. The establishment and implementation of such groups among academic management could be viewed as management benefiting from applying theory to practice.

These networking groups could provide opportunities for focused reflection on the key learning issues that, if managed well, through the changes that are implied as ICTs are increasingly introduced to more courses, could bring a deeper understanding of and effective long-term change in the improvement of staff development processes. The focus of these reflective learning forums would include deepening academic management's understanding of the theories underpinning group integrated learning, collaboration on the relationship between, and the impact of, the management task of the timetabling of courses, and the integration into that process of strategic planning for staff development, bearing in mind the constrictions that

members of staff felt regarding the time available to them for a focus on their personal development.

The other three dominant key learning issues from Phase 2 were not so clearly traceable into the identified themes at Level 4. The role of prior learning was primarily characterised by prior learning among students and it is not surprising that it did not surface as a key staff development issue. No doubt it does remain an important learning issue for students, and may need to receive more focused attention by academic staff as the introduction of the use of ICTs continues. Seeing learning as an exciting and creative fun experience was noted as a deliberate teaching and learning strategy used by one member of staff in Degree ε, but it was not noticeable among the other degree groups, and eModerating also did not develop noticeably in any focus group. This may be because the introduction of the use of ICTs is still in its infancy across the institution and has not yet impacted members of staff as part of their learning and assessment strategies, compounded perhaps by the relatively low level of awareness of related learning theories associated with their introduction. These three categories were located at the lower end of the top twelve occurrences.

The characteristics of one dominant category, 'perceived benefits of technology' were not really associated with the emergent theme '1-1 technical support needed', although the key issues of the category were mentioned across a number of the degree groups. It did not fit in any other theme so I decided to leave it as a key issue that came from Phase 2, and have indicated it in Table 7.2 with a solid arrow. The lack of integration of this category into a key theme at Level 4 may also reflect the need for a specific policy initiative in the development and leadership of a more planned approach to the

introduction to the use of ICTs, rather than leaving the development to take place according to the interest, initiative and involvement as members of staff see fit to adopt.

7.2.2   The Sub-ordinate themes.

To identify the sub-ordinate categories I referred back to the worksheet developed earlier at Phase 2, named 'No of Learning Issues' showing the unique lists of categories for each degree, held on the Excel spreadsheets, called Degree *n* Occurrences Learning Issues. These had been sorted into ascending alphabetic order of the learning description, within descending order of the number of occurrences.

Where a category was not within the top twelve selected as dominant, but also had more than one occurrence in any degree, I designated it as a sub-ordinate category. Then, following reflection on the characteristics of these sub-ordinates, I was able to relate some of them to the themes that had been identified at level 4.

Four sub-ordinate categories could be traced as related to the emergent theme issues from the focus group data analysis. The very strong emphasis of the need for, and role of, a motivational and supportive contribution to other colleagues in a One to One network was a key theme detected in all the focus groups. The sub-ordinate category, the role of the early adopter, had characteristics closely related to the sort of colleague who could take initiative in the One to One network relationship and there were a number of examples of how this was already happening. So I moved it from being a sub-ordinate category to include it in the dominant emerging issue '1-1 technical support

needed'. Also included in this same emerging issue among the themes was the sub-ordinate category 'technical support needed'. The fourth sub-ordinate category, 'staff development is key', was clearly related to the emergent issues making up the theme of staff development structure and the need for the definition of suitable metrics, so I integrated it accordingly.

7.2.3   The Outliers from Phase 2 data.

In reviewing the list of learning categories in each degree that were only identified with one occurrence, I noted the ones that were related to the themes that had emerged at Level 4 analysis. Two categories were noted, 'the impact of the LTC' and 'WebCT is stronger'. I integrated the impact of the LTC into the theme called Appreciation of the LTC. The comment regarding WebCT was a common issue in all focus groups as members of staff grappled with the confusion in relation to what was policy in the institution. I therefore integrated this issue into the theme called 'the need for policy leadership' in this crucial area.

All other outlier categories did not relate to the emerging themes from Level 4 analysis so I retained them in the category of Outliers

7.2.4   Conclusions

The argument for using grounded theory methods is that theory is grounded in the data and by applying a constant comparative method the theory emerges from the data. An argument against a grounded theory method such as I have tried to apply is that the researcher and co-raters' interpretation begins early in the process and therefore casts doubt on the confidence that

theory is totally grounded in the data. I have endeavoured to retain the awareness of the dangers of my subjectivity and have argued earlier on this issue, but to draw some conclusions at this stage before seeking to define theory, I refer again to the co-raters undertaking an independent analytical role, to the consistency of their identity of learning issues, to the inter-rater reliability results, to further input from the interviewees who created the data, and to the effort taken to show transparency of processes used. I admit that it is naive to think that preconceived beliefs and perspectives have not been brought to bear, but the corollary is that being an insider regarding this research also brought benefits that I have stated earlier. Others have grappled with the subjectivity issue and argue that prolonged engagement in the field supported by the sort of activities referred to above, a process known as 'member checking' (Lincoln & Guba 1985:219), at least seeks to minimise the impact of subjectivity.

So having arrived at the Level 5 with recognisable dominant themes emerging from the analysis of the Phase 3 focus group data, and supplemented with supportive sub-ordinate categories from Phase 2 that could be merged into the identified dominant themes, the next level I faced was how to interpret these emerging themes in a way that would inform a definition of theory arising from the research.

I have already identified two main themes, Management Issues, and Staff Development and Training Issues. In trying to interpret them I recognise the dependence of successful Staff Development and Training processes, in terms of achieving specific learning outcomes which will have a long term impact, upon good management processes that will not only facilitate the

practical success of the training processes but plan for and drive the processes proactively. I was therefore drawn to focus attention on the theoretical underpinning of these management themes and issues. This I will explain in the next section at Level 6, defining theory before discussing the findings.

7.3   Level- 6 – Defining Theory

The introduction of ICTs increasingly into the learning environment creates change in various ways and that change needs to be managed. Academic management needs to take ownership of their role to manage the change but may not have achieved the necessary learning to undertake that task effectively. A key issue among the emerging themes is the need to apply theory to practice. One way to respond to this challenge, suggested by the data analysis, is to focus the learning required by academic management through meeting regularly in a group learning context.

I am attracted therefore to the theoretical proposition that academic managers need to participate in a group learning environment to develop their understanding of that environment and to develop their learning about the key issues suggested by the outcomes from this research. Examples of such focal content would be investigation of the learning theories underpinning the use of ICTs to enable them later to develop and drive policy related to the increasing use of ICTs. Changes are so rapid in the technology area that academic managers need to be involved with and informed by the latest research in the field. Otherwise they are unable to develop and implement effective policy. They can be helped to do so by involvement in international networks, sharing

learning developed thereby with internal institutional networks, and leading, inspiring and mentoring sub-ordinate early adopters, who in turn can be effective one to one encouragers among their teaching colleagues.

Academic management also need to take strategic ownership of the timetabling process to incorporate staff development planning as a key component of the planning and to ensure that local school and course needs are a focal part of the planning of the content of staff development courses in a location that is convenient and therefore efficient in the use of staff time.

It seems contradictory to accept that research suggests that it is important to integrate theory and practice and fail to do so in relation to academic management. Perhaps the weakness in existing staff development processes is that the integration of theory and practice is only applied to the academic teaching members of staff, but as they are in less powerful positions to implement effective change, such as planning for staff development in their weekly timetable schedules, long-term change is not achieved. Changing the culture to integrate theory with practice for academic managers may be the catalyst to achieve long- term effective change.

CHAPTER 8

DISCUSSION ON THE FINDINGS

8.1   <u>Reflection on the Process Used</u>

Strauss and Corbin argued (Strauss & Corbin 1998:13) that grounded theory strategies need not be rigid or prescriptive. Charmaz also argued for this (Charmaz 1994:513) and developed the position that a focus on meaning while using a grounded theory approach furthers, rather than limits, interpretive understanding. Having sought to apply a principled approach to the Level I Analysis of the data collected, and using a focus on meaning, identified the highest occurring learning issues for each degree and across all degrees, the guidelines of a grounded theory approach were used to group these learning issues into categories at Level 2. The involvement of the co-raters both in the independent identity of the learning issues at Level 1, and in verifying and agreeing the resulting Learning Categories at Level 2, contributed to minimising the subjective involvement of the researcher. It was an important step also to take the findings from Level 2 back to the members of staff involved in the creation of the data. The focus groups offered opportunity for reflection by experienced professionals on the major issues that had emerged from the earlier work. At this point in the analysis I wanted to shift the analysis from a focus on the individual courses to the themes that went across the institution. Being further aware of the implications that how I would approach the analysis of the focus group data would impinge on the findings, a more theoretical approach was sought through Cluster Analysis and Vector cosines at Level 3. So I sought to build explanatory frameworks that would specify relationships among the characteristics, resulting in the themes identified at Level 4. In doing so I sought to move the analytic process toward the development, refinement and interrelation of the themes at Level 5. Using

the guidelines suggested by the Cluster Analysis, by repetitive listening to and observing the recorded data from the Focus Groups, reflecting on the associated notes and sorting the related memos developed through summary notes of perceived key moments, pondering the phrases and expressions used by, and interactions between the participants I was, despite being somewhat apprehensive, surprised at the consistency with which the same phenomena were arising across all the degrees. On reflection my apprehension arose from the tentatively held framework and supportive methodology chosen for the research. I would argue that rather than my close involvement contributing subjectively to the eventual identity of these phenomena, the opposite was more likely as I genuinely did not expect what was eventually identified. According to Charmaz, in the past most major statements of grounded theory methods have

> minimised what numerous critics (see, for example Atkinson, Coffey, & Delamont, 2003; Bryant, 2002, 2003; Coffey Holbrook, & Atkinson, 1996; Silverman, 2000) find lacking: interpretive, constructionist inquiry (Charmaz 2005a:508)

In an effort to respond and so seek not to minimise the comments from those with a critical view of grounded theory, I have tried to demonstrate clearly, and with transparency, the process I have used to respond to the challenge for rigour in applying analysis using a grounded theory approach. This effort was applied at each of the 6 Levels that defined the process by describing what I have done and giving examples and a reasoned case for why I have chosen to make the decisions that I have made. To be as clear as possible, I have worked from a constructivist viewpoint when applying these grounded theory methods within which I recognise that I am not a neutral

observer, but an involved viewer of the data, which I participated in creating through the interview process, and with which I am continuing to interact in the ensuing analysis phases. I have used methods associated with grounded theory as a tool to help me process the data. Most of the criticism referred to above seems to be focused primarily at the objectivist/positivist assumptions associated with the Glaser position, which I also question. It seems to me necessary to respond to these criticisms constructively rather than maintain an untenable position of ignoring the key arguments of those seeking, in a continuum of development, to give grounded theory methods a theoretical rigour and reconceptualisation that is the product of continued insight and thoughtful development.

What I have tried to do is to adopt Turner's approach to the qualitative data that promotes the development of theoretical accounts which conform closely to the situations being observed, so that the theory is likely to be intelligible to and usable by those in the situations observed, and is open to comment and correction by them (Turner 1983):334.

The feeling I experienced when I noted the commonality of the findings across the five degree groups, as detailed below in the next section, was a mixture of relief and excitement since it appeared to me, based on my experience as a senior manager of the institution, that indeed the findings when subjected to theoretical elaboration and implemented, were very likely to be judged adequate to advance the improvement of staff development processes with respect to the evaluative criteria of an enhanced learning environment, which would be more student-centred, and that such an

environment would be championed by contented, informed staff, motivated to use ICTs as a part of a blend of learning.

Having taken the approach I did, I am encouraged by Turner's affirmation that using grounded theory directs the researcher immediately to the creative core of the research process and facilitates the direct application of both the intellect and the imagination to the demanding process of interpreting qualitative research data (Turner 1983:335). It is worth noting that the quality of the final product arising from this kind of work is more directly dependent upon the quality of the research worker's understanding of the phenomena under observation than is the case with many other approaches to research.

While openly acknowledging the need to be vigilant with regard to the impact of subjectivity in qualitative research, I would argue that, as with many similar projects in related fields, while I am an insider in the field studying a topic that has motivated my interest as a manager within the environment of the research, there have also been benefits of studying this topic using the support of colleagues that I know well. I will give some specific examples below.

My knowledge of the institution, with experience of the culture and organisational dynamics, gave me a pre-understanding that contributed to the supportive atmosphere that was created when conducting the range of interviews and built confidence among my colleagues that fostered honesty and courage to try to speak about personal matters in a frank and open way. It would be naïve to think that my preconceived beliefs and perspectives would not be brought to bear on the data, but I have tried to counterbalance the tendency to be over–influenced in this way by retaining a conscious awareness

of the danger. This was particularly important in the danger of assuming too much so that in the interviews I might not probe as much as perhaps an outsider might have had to. I did however consciously seek to encourage participants to develop and probe issues even if I did have some insight. What I wanted was their views. On the positive side I was able to have access to colleagues and situations without having to overcome some of the suspicions and barriers that might confront external researchers. During the research I was not fulfilling my normal organisational membership and management role since, fortunately, I was able to be seconded to a temporary cross faculty job in learning development that gave me some independence from my normal management role with involved colleagues.

I mentioned above that I would give some examples of benefits of being an insider. Two instances of positive change that I noted in my journal during this period are examples of the benefits that ensued. One colleague, who openly had expressed dread of using technology during the early PBL session in Phase 1, later during Phase 2 personally initiated regular one to one learning sessions with me for IT learning, with tutorial sessions that addressed personal opportunity to re-enforce the theoretical issues and training guidance to overcome the application of the technology to specific learning needs. This initiative was introduced by an expressed confidence that this member of staff could work better with me in that way. I suspect there may have been some rationalisation in the motive for making this request, as it reduced the possibility of being identified publicly when learning new material at a slower rate than other colleagues who had more foundational learning to build upon. However the important point is that such an initiative was undertaken because

there was a personal trust underpinning the request, and that trust was there because I was an involved researcher. This 'networking' pattern is one that was raised by a number of other members of staff during the Phase 3 Focus Groups. Other specific instances of the One to One networking pattern mentioned in the recordings of the focus groups are referenced in Tables 7.1.2a and 7.1.3a1. Another colleague contacted me to express thanks for how the invitation to become involved in the interviews had significantly motivated a new personal interest in learning theories. I noted that this supported one of the findings in the literature that to involve staff directly in the research has additional learning benefits. However again it was the contribution to the sense of 'team' building that interested me, as I noted the high level of satisfaction with which the comment was conveyed and the awareness that the member of staff had gained of personal development.

I mentioned earlier that there was evidence in the Phase 3 focus group data that my involvement in the research as a manager did not inhibit my academic colleagues from expressing their views with openness and honesty. Some specific examples of this sort of frankness and courage are recorded in degrees α, γ and δ on the confidential DVD at 'α, VTS_01_2, 18.00–18.30', 'γ, VTS_01_2, 01.24–02.18', 'γ, VTS_01_2, 13.56-14.19', and 'δ, VTS_01_3, 00.30-01.15' and on the open Data library DVD in file FG1 Notes at VTS_01_2, 18.00-18.30, FG3 Notes at VTS_01_2, 01.24–02.18 and 13.56-14.19, and FG4 Notes at VTS_01_3, 00.30-01.15.

Phenomena identified	Degree Group				
Key Area of Focus	β	ε	α	γ	δ
Management					
[seen as catalyst for a 'leap' forward]					
Need for Group Learning on:					
Role of Networks - International	Yes	-	Yes	Yes	Yes
Institutional	Yes	Yes	Yes	Yes	Yes
Senior to New staff	Yes	-	Yes	-	-
One to One	Yes	Yes	Yes	Yes	Yes
Communication re - Resources	Yes	Yes	Yes	Yes	Yes
Policy formation	Yes	Yes	Yes	Yes	Yes
Policy leadership	Yes	Yes	Yes	Yes	Yes
Time-tabling - Effects on Staff	Yes	Yes	Yes	Yes	Yes
Effects on Training *	Yes	Yes	Yes	Yes	Yes
Planning	Yes	Yes	Yes	Yes	Yes
Staff Development - Structure	Yes	Yes	Yes	Yes	Yes
Metrics	Yes	Yes	Yes	Yes	Yes
Staff affirmation	Yes	Yes	Yes	Yes	Yes
Change Management	Yes	Yes	Yes	Yes	-
* see below re Training					

Table 8.2a – The Management aspects of the theory

Phenomena identified	Degree Group				
Key Area of Focus	β	ε	α	γ	δ
Staff Development and Training					
Appreciation of the role of the LTC	Yes	Yes	Yes	Yes	Yes
Location of Courses *	School	School	School	School	Faculty
Basis for Planning of Schedule *	School	School	School	School	Mang.
Focus of Staff Development Courses	Team	Course	Degree	School	School
Input from Staff	Yes	Yes	Yes	Yes	Yes
1-1 Model for ICT training	Yes	Yes	Yes	Yes	Yes
Content - Group Learning	Yes	Yes	Yes	Yes	Yes
Assessment & 'Marks'**	Yes	Yes	Yes	Yes	Yes
Selection of Groups	Yes	-	Yes	-	Yes
Learning Theories	Yes	Yes	Yes	Yes	Yes
Handling 'Legal' issues [** marks]	Yes	Yes	Yes	Yes	'IR'
'Level' of content - ICT	Lower	Lower	Lower	Online	Lower
in general	Good	Good	Higher	Higher	Good
* See above re Management					

Table 8.2b – The Staff Development and Training aspects of the theory

8.2   The Commonality across the Degree Groups

Whereas my expectations regarding the outcomes from the analysis process anticipated the identity of specific learning theories and issues with a more specific learning focus, the surprise was the very obvious consistency with which the themes were common across each of the degree groups. During the Level 3 and Level 4 analysis I had moved from a degree focus on categories to a common identity of themes. However I was quite surprised when taking these themes back to reflection across the data for each degree group how much commonality across the degrees there was regarding the content of the themes. In order to capture this commonality the Tables 8.2a and 8.2b express the summary of the analysis.

The relatively little reference by members of staff during the focus groups, in spite of encouragement to do so, to their understanding of pedagogical awareness and the learning theories that might underpin their delivery meant that part of the original intention of the research was not achieved. The requests for specific new learning opportunities to be provided on pedagogical issues in the content of future courses offered in schools and faculties by the LTC was however a start in that direction. How this aspect of the original goals of the research might still be achieved is suggested below in the way forward in chapter 9.

8.2.1   The Management Aspects of the Findings

Academic Management was identified as a key catalyst to make a significant leap forward in the creation of an enhanced learning environment. Issues relating to Group Learning had been identified as a key category from

Phase 2 data for further exploration. There may be a tendency to apply learning theory to learning with an 'academic' focus but another tendency to ignore the learning that academic management needs to embrace to play their crucial part in the enhancement of the overall learning environment. Data from all the Focus Groups in Phase 3 seem to suggest that there are very significant benefits to be gained for the institution from using a Group Learning approach for Academic Managers to discuss and learn from some of the key issues related to improving staff development processes. I believe that the data suggests that management needs to reflect together in groups, and thus learn about and respond in planning for how much impact the role of networking can play in meeting the development needs of academic teaching staff. The importance of these networks ranges from the influence of noting international good practice, through maximising inter-faculty co-operation with ideas and resources. In two cases specific mention was made of the key role senior academics can play when paired with a new member of staff or when facilitating a group of academic staff in learning development. The most beneficial 'network' recommended by all groups is the one to one support, using an experienced user to advise others, required to maintain progress with using the development and application of ICT software. I have noted above how this specific 'network' was personally experienced during the research.

There was consistent recognition of a lack of awareness by academic staff of what ICT resources were available, influenced perhaps by unclear management policy regarding the introduction and application of ICT and its effective implementation. A change in this 'lack of leadership', expressed through 'leave staff to their own initiatives', would be appreciated by

academic teaching staff. It appears to be acceptable that academic management is required to approve expensive purchases of ICT hardware and software but not essential to be accountable for communicating what is therefore available and functional. There appears to be no effective implementation of, or sometimes even the existence of, a clear policy in the use of ICTs. The default of leaving it to the adoption of some academic staff by choice is apparent with little focused performance management in place.

A serious impediment to utilising available training in the use of ICTs is the weekly teaching 'timetable', which appears to be planned without the additional parameter of accommodating staff development opportunities. When planning these, consideration needs to be given to the 'space' required by academic staff to acquire new learning. Related issues in planning of ICT courses for staff development expand on this below.

Individual academic staff members appreciate affirmation, or notice lack of it expressed by apparent insensitivity on issues like timetables, but a key ingredient suggested from the focus groups is the lack of any significant structure for staff development. The details mentioned issues like reasonable metrics for matching training and development privileges, or hours credited for training, with the number of hours committed to teaching duties, rather than again leaving it to staff to try to find spare time. Such was the rapid pace of change in specific disciplines that unless managers were learning and understanding how to manage this change, its impact on staff development needs would be significantly neglected.

Regular networking across faculty disciplines between academic managers through using planned group learning encounters could begin to

address these shortfalls in the management of the staff development process. The content of such group learning opportunities could be focused very clearly on key institutional issues affecting learning development and staff development.

8.2.2   The Staff Development / Training Aspects

In the second main section, regarding the planning and the content of a programme that would address staff development and training, all groups were very positive in praising the current role played by the LTC staff. Every group sought to emphasise their appreciation of this valuable support, and the staff who provide the teaching resource.

However there is consistent recognition that the location of courses provided needs to be within the faculty or school environment to facilitate attendance. The planning of all courses needs to have specific input from the school and the focus needs to be on issues related to the delivery of an academic course or programme by an academic team. Staff input into the development of courses is regarded as essential.

Each group identified the one-to-one model, noted above in the Management section, as an essential network provision to support specific ICT applications development. The academic staff members who had made most use of ICTs to enhance their learning and teaching progressed mainly through a one to one supportive relationship with a colleague who had technological expertise. A model of learning and development where an academic specialist and a technology specialist worked together in development of the ICT application held out most promise of relevant end product delivery.

The key content where academic staff members require most help is related to group learning, ranging from understanding the theoretical underpinning group learning to practical help with selection of groups, assessing and marking such group work, and including help with the possible legal challenges that can arise from applying certain marking schemes.

These findings are discussed further in 8.4 in relation to other work in the field bearing in mind that the methodological argument is not an absolute one but is rather a pragmatic one relating to the data set in the context in which the work is being conducted.

8.3   Evaluating the Theory using proposed criteria

Before relating the findings to other work on the field, I need to return briefly to the suggestion made by Babchuk that resulting theory should fit the data set by being an explanation of the properties of the themes and the relationships between them.

I believe that the theory I have outlined in 7.3 does fit the data set, explains the properties of the two themes and expresses the relationships between them, the first theme dealing with management issues and the second theme dealing with staff development and training issues. They are related through the application of theory to practice in that academic management needs to practice the practical theme of group integrated learning, the focus of which should be on the key issues identified in the second theme for the content of such group learning. They are also related through the desired outcomes from the meetings of academic managers in these group-learning

contexts. One key desirable outcome is the new learning by academic managers about issues that will enable them to plan research-informed staff development policy and manage the timetables of individual members of staff in such a way as to promote staff development improvements, which is the second key outcome. The theory that academic managers can exploit various networking opportunities to assist their new learning also fits the expressed opinions and expectations of academic members of staff about their longing for management to deliver clear policy, and implementation of strategies for improved staff development procedures. The theory explains why, where, how and when academic management should develop their learning with the consequence that academic members of staff will in turn be able to benefit from improved staff development processes.

So I am comfortable with the belief that the theory does fit the data set. Where there are apparent contradictions or tensions expressed by the informants through the data they can be understood as pleas to academic management to implement the theory so that the shortfalls identified by staff as apparent contradictions to the theory can be corrected.

8.4   Relating the Findings to other work in the field

To provide some order to this consideration of the findings with other work in the field, it will be structured around the two main themes identified in the emerging theory, namely management issues pertinent to institutional change, and the related staff development and training issues. In doing so it will address issues identified in three of the four themes that were used to

summarise the findings of the literature at the end of chapter 2, namely learning and teaching, change in technology, and institutional change as they impinge on staff development. The other theme from chapter 2, methodology and methods will be discussed separately in the next chapter during a retrospective analysis of the research because the outcomes from reflection on that theme provide suggestions for the way forward with the research.

8.4.1   Institutional Change and Management Issues.

Rather than keep repeating the findings from the research when focusing on similar work and conclusions, what follows in this section should be read with those findings providing the backcloth to this related work in the field.

According to Fullan, it is abundantly clear that one of the keys to successful educational change is improvement of relationships – precisely the focus of group development (Fullan 2001:4). He also argues that in-service education and ongoing staff development explicitly directed at change has failed because it is ad hoc, discontinuous and unconnected to any plan for change that addresses issues like the what of change and the how of change. He believes that the infrastructure, by which he means the next layer above whatever unit is being focused upon, is weak, unhelpful and working at cross purposes, whereas the key words are coherence, connectedness, synergy, alignment and capacity for continuous improvement (Fullan 2001:15,18,19). The conclusions from this work when implemented should directly respond to these weaknesses identified by Fullan.

Networks and collaboratives, for example, can increase leaders' capacities to see wider and further, provided they also contribute to leaders' clarity and coherence of system purpose and dynamics. Leaders at system level need to engage with other levels so that policies and strategies are shaped and re-shaped and the emerging picture constantly communicated and critiqued. When it comes to sustainability, each level above you helps or hinders, it is rarely neutral. Fullan calls for pluralized leadership with teams of people creating and driving a clear coherent strategy with plenty of two-way communication (Fullan 2005:44,65,67). Small scale collaboration involves the attitude and capacity to form productive mentoring and peer relationship, team building and the like. On a larger scale it consists of the ability to work in organisations that form cross institutional partnerships. This very closely reflects the conclusion from this work that a range of networks that connect academic management at different levels would contribute to improving staff development processes.

Participatory site-based management is the answer, however Fullan cautions that it is possible to collaborate to do the wrong things as well as the right things and collaboration does not equate with unquestioning agreement (Fullan 2000:34). He also sees a danger of exchanging beliefs and opinions rather than quality knowledge (Fullan 2005:19). This needs to be borne in mind when developing groups to collaborate at the various levels. Knight, Tait and Yorke agree that there is a need to encourage collegiality and participation by getting managers to engage with the development of their colleagues, but recognise that there are power relationships within activity systems. Their caution is that there is a danger of concentrating on changing the individuals in

the system without attending to the rules (Knight et al. 2006:332,336). Fullan agrees that change will always fail unless we find ways of developing infrastructure and processes that engage teachers in developing new understanding (Fullan 2001:37). I will develop this further below as it has connections with the pedagogical issues that I will cover in the second main theme.

Related to the pedagogical issues, however, on the management theme is the need on the academic management side to ensure 'space' for reflective discussion in regular departmental meetings, as can be planned for through the annual planning process often required these days (Blackwell & Blackmore 2003:123), encouraging and supporting innovation and modelling behaviour as suggested for a communities of practice approach. Heads of departments need to be trained to lead learning and not just have provision made for a form of management training (Knight 2002:240). Middlehurst is in agreement that heads of institutions should provide a model of development both by being themselves engaged in it, and also setting up structures and systems wherein development can take place in all areas. The assumption that those who reach the pinnacle of their organisation no longer require further training and development is a dangerously complacent one in an environment that is constantly changing. I agree with Middlehurst that the simple four phase model which summarises some of the roles for institutional managers (Kotter 1990) follows a fairly traditional approach and is too simple and too rational to capture the untidy and conflicting pressures that currently impinge on universities (Middlehurst 1995:101,102). We need a model that is more

oriented to learners than to managers. We are after all managing a learning organisation.

Mumford et al. suggest three types of learning process for developing directors, namely informal managerial, that is accidental learning that occurs naturally within the managerial activities, integrated managerial, that is opportunistic processes where natural managerial activities are structured to make available learning opportunities, and formal management development, that is planned activities that take place away from normal managerial activities (Mumford et al. 1987) . To these I would add a fourth, formal integrated managerial development which I would define as semi-structured use of the affordances of e-learning opportunities during the normal managerial activities to exploit collaboration on common management challenges.

Based on practical experience, Newton asserts the need for managers to pay close attention to the pre-occupations of staff when change initiatives are being planned and management needs to secure the linkage with the higher level of institutional strategy. He notes that for academics this suggests increased tension between the *local* level of department and the *corporate* requirement that teaching and learning should meet institutional targets and external requirements (Newton 2003:431,433). Lisewski also cautions about the complications that can arise when a strategic approach has to be received and translated into 'local' academic cultures on the 'ground' (Lisewski 2004:184). The issues of locally based priorities in schools and departments may produce a 'contested space' where policy confronts the reality of practice on the ground. However I suggest that this tension may be reduced by better

communication and collaboration, through exploiting affordances in the technology, between institutional managers at the different levels. For 'collaborative' educators, the values of community are seen as offering an alternative to more individualistic approaches, and these values are reflected in group work and its application to 'team development' (Hodgson & Reynolds 2005:15), which when integrated with the technology raises the concept of networked learning which I will also develop further below when dealing with the technology aspects.

Trowler et al. have identified that more holistic and structuralist theories of change are also seen in change strategies, that go beyond the level of the university to the discipline such as those adopted by the LTSN. They believe that change strategies need to be holistic and oriented to the discipline. However, while there have been interventions at the level of the individual, the micro level, and at the level of the university or of the disciplines, the macro level, there has been remarkably little discussion of appropriate strategies at the meso level, which in universities is the department or school (Trowler et al. 2005:434,435). They note that it is not yet clear if the UK initiative of Centres for Excellence in Teaching and Learning (CETLs) aimed at this level will yield benefits for academic communities of practice, resting as it does on the notion of excellence, rather than that of change. However an informal survey of educational development units for a conference of the UK Staff and Educational Development Association showed that some had switched the bulk of their activities from formal event provision to working collaboratively with academic departments (Knight et al. 2006:334), perhaps a reflection of the expectation that academic departments would engage with those who

could add value through their expertise in pedagogy and related professional understandings.

Sometimes the school in this institution in Ireland has management responsibility for a number of disciplines, but they have common management challenges and sub-groups at discipline level could function, coming together to collaborate at a school level to define policy such as for example might improve staff development processes. Blackmore and Blackwell suggest that a leader in academic practice will be engaged with the 'centre' of the university, and committed to the attainment of institutional objectives, but will be able to articulate a reasoned alternative view about the processes that will achieve them and an ability to critique the objectives if necessary (Blackmore & Blackwell 2006:384). To develop learning by management on these matters I suggest that group discussion on the related topics could be supported by using technology in a formal integrated managerial development as I described above.

My argument is that staff development processes in this institution would be improved by academic management learning together in groups that would consider issues related to how the introduction of ICTs impinge on, and what impact their introduction makes on learning and on staff development needs. I argue that academic managers need to take responsibility for staff development, seek to understand it in the context of using learning technologies and develop a clear policy and plan to implement the policy, which would be a direct response to issues raised above by the range of colleagues working in the field.

The development of such groups for academic management needs further thought and investigation because the challenges are not unlike those facing course developers as they seek to engage with the issues of learning online. Some of the points suggested by McAlpine et al. in five themes to be considered when designing online courses may point the way forward as a focus for further reflection by academic management, namely discussion around open-ended, real world problems, group problem-solving, developing a learning community, and the role of a facilitator for the academic management discussion online (McAlpine et al. 2004:158,160).

Sharpe et al. in discussing the evaluation of the implementation of a university e-learning strategy seem to go beyond the mere incremental increase in numbers using the software to include examples of effective use, building community to support innovators, and tackling real educational issues rather than hypothetical ones (Sharpe et al. 2006:144,149). They have identified specific activities that were successful, but noted that this was likely to be due to some elements of effective interventions: contextualisation, community and teachers' beliefs, rather than the activities *per se*, noting specifically that it was helpful to ask schools to write their own strategies. Most of the above resonates well with the findings from this work.

8.4.1.1 Learning in various networks as a way forward.

Much of the above section refers to academic managers networking across the institution, and that presupposes those cross-institutional encounters with colleagues being enriched through the learning that they have benefited from in their personal international networks through conferences, meetings

and research. In this section I want to concentrate the focus on working in groups within the meso level, that is, within the school or department.

Knight et al. while investigating the professional learning of teachers in higher education (Knight et al. 2006:331) interpreted their data to conclude that the common practice of education and professional development units of asking teachers what they want and then meeting these needs is a wise one. The conclusion from the data collected and analysed in this study was that across the groups of academic staff teaching on the five degree programmes investigated, there was a common agreement that the preferred source to be used to inform designers about courses for staff development is the group of academic staff within the school or department. Knight et al. note that there are some indicators that there is a preference for learning in departments and 'learning teams' rather than in event-based education and professional development (Knight et al. 2006:332,336). That trend is also noted in the argument that to engage large numbers of academics, any approach must seek to ensure that ownership, not only of content but also of pedagogy, continues to lie directly within academic departments (Salmon 2005:205). A similar focus for learning development within the school or in one case the faculty, was suggested in the data from this work but there was also the recognition of the good work done by the LTC staff. Engagement with those capable and qualified staff in the delivery of staff development courses located within the school, and designed with direct input from academic staff in the school seems to concur with Knight et al.

In this institution it is the support role of technical and other support staff, who happen to report centrally, that makes possible socially distributed

learning and discussion within a departmental context, sometimes introducing new technology for trial as a catalyst for new ideas in learning and teaching (Blackwell & Blackmore 2003:9). Localised models are, not surprisingly, thought to do better on ownership and impact, but perhaps centrally oriented approaches produce more cohesion when trying to implement corporate policy (Blackwell & Blackmore 2003:126). Perhaps it is the combination of involving the LTC and LTT staff who report centrally, with delivery of school-informed courses offered in the school environment that will obtain the best of both approaches.

Brew agrees that staff development should be a community activity, but taking problems out of the workplace in the hope of solving them in a course for an individual rather than assisting a department, unit or team to tackle it together does little for the community (Brew 1995:16).

Goodyear et al. define networked learning (Goodyear et al. 2004:1), as learning in which information and communications technology (ICT) is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources. Such an approach enables participants to extend and develop their understanding and capabilities in ways that are important to them. De Laat et al. have undertaken a wide-ranging survey of the networked learning literature and tried to identify emerging themes from this work (de Laat et al. 2006). Their conclusions would again be useful for discussion among academic managers as they have indicated where the main research effort might be directed in order to bring some coherence to the fragmented field, which is a relatively new field of research endeavour. The conclusions also provide a

focus of the theoretical principles that underpin the networked learning approach and discussion of these would inform new learning for academic managers using networked learning as a support platform. For the record it should be noted that this is referred to as Computer Supported Collaborative Learning (CSCL) in the USA.

Earlier it was indicated that networked learning practitioners do not fully understand the relationship between their educational designs and their outcome (Jones et al. 2000:19). A response to this need that provides a pedagogical framework for process support in networked learning (Levy 2006:229), which has four over-arching interconnected developmental processes associated with learning to learn, gives a reasoned introduction to many of the pedagogical and practical issues related to networked learning: Use of this pedagogical framework would respond to Ravenscroft's argument that familiarity with and active participation in the discourse about particular theories and the role of theory in e-learning is the best way to influence e-learning design (Ravenscroft 2003a:12), which is surely a key role for academic management.

Regarding the one-to-one network, Fullan suggests that people tend to learn best from peers, fellow travellers who are further down the road (Fullan 2005:18), which seems to match the data from this work in the valuable role of the early adopter supporting colleagues within the school or department to take further steps in using learning and teaching technology.

The novice to expert model (Dreyfus & Dreyfus 1988:35,36) is based on skill acquisition and initially the novice is 'rule-bound' and decisions tend to be tentative. Pill has detected however that while it is natural to progress

beyond the need to think deeply about every action, the need to 'know why' and to be able to articulate to oneself and others why a course of action is being undertaken is not emphasised by the novice to expert model (Pill 2005:187).

8.4.1.2 Policy Issues and Communication when using ICTs.

One of the findings from this study is that policy on the use of ICTs needs to be clear and that it has to also be clearly communicated in order to encourage academic staff to embrace change to include technology in the learning environment. So what are the emerging issues that might suggest priorities that need to be clarified regarding policy in this area?

In the UK, the Joint Information Systems Committee (JISC) is funding an e-learning programme under four related strands, e-learning and pedagogy, technical frameworks and tools, innovation, and distributed e-learning. Beetham, in her role as a consultant to the JISC on their e-learning programme recognises that despite the research focus on practice, it remains the case that most practitioners encounter e-learning in relation to the various technologies for learning that are available to them and are seeking information that will allow them to make meaningful decisions about what technologies to use and how (Beetham 2005:81,85). But who makes the decisions about what technologies to use and how? I argue that academic managers, who are responsible for these decisions, need support to learn what the key issues are affecting their decision making. A key question for them to grapple with is also posed by Beetham, namely how are the findings of research in e-learning to be communicated and embedded into the various communities of practice

involved. I suggest that engagement in new learning by discussing these issues in groups would be invaluable to academic decision makers, as surely it falls within their remit to ensure that communication about policy regarding the use of technology is clear and is also clearly communicated (Beetham 2005:88,89).

Salmon notes that after the hype from the turn of the century has died away, only VLEs, principally Blackboard and WebCT in the UK [who have combined since her article was published] and lecturer support systems, especially PowerPoint have been widely employed (Salmon 2005:203). The difficulty of embedding e-learning into everyday practice includes uncertain leadership and Salmon offers an e-learning and pedagogical innovation strategic framework with which she has had experience for critique and exploration by others (Salmon 2005:210-215). Perhaps again some of the uncertainty could be eased through engagement and subsequent leadership by academic management in learning through discussion of these difficult issues.

To embed e-learning practices effectively, strategic change is required. Practices change constantly, but without joined-up technical and pedagogical support, alongside an appropriate award scheme as Blackwell and Blackmore argue (Blackwell & Blackmore 2003:151), the change will be undirected or even misdirected. That sense of lack of direction seems to be what has emerged from the data in this study and a plea that the uncertainty should be replaced by clarity. The introduction of appropriate metrics for reward was also noted in the data for this work.

The introduction of technology changes roles and practices (Beetham & Bailey 2002), and unless development work takes these deep-rooted shifts

into account it will inevitably lead to conflicts and inconsistencies within the activity being undertaken (Kuutti 1996). This raises the whole concept of contradictions and conflicts in systems, which is the focus of application of activity theory to identify and resolve conflicts in connected systems and sub-systems. I will discuss this in more detail below as a suggested way forward for this research, and cover it in more detail in the next chapter, when I reflect on the methodology that has been used.

To round off this section on ICT some comments about new media are appropriate. Kirkwood and Price contend that it is essential for teachers and decision-makers in higher education to develop a better understanding of the issues surrounding the use of ICT, so that innovations are not driven by technology (Kirkwood & Price 2005:270). New products such as Lyceum, Horizonwimba, and Dreamweaver offer audio, video and text as synchronous groupware communication tools to support multi-way interactions between tutors and students. Having personally experienced interaction in testing some of these products, it does appear that the technology is driving the innovation because involvement in trying out some of these learning and teaching offerings identifies questions raised by academic learning providers that have not been addressed by the suppliers of the technologies. See also the plea to develop understanding of how traditional research approaches might transfer to networked environments in the growing interest in 'virtual' or 'on-line' ethnography (Jones 2004:90). I found the issues identified by Kirkwood and Price as those needing to be addressed by those involved in designing and implementing the use of ICT for teaching and learning in the early twenty-first century to be most helpful (Kirkwood & Price 2005:270), and again these

would usefully inform group discussion of the issues by academic management.

8.4.2   Staff Development and Training Issues

In this section the focus is on the practical issues related to course content and delivery that will support staff development where suggestions identified from the data of this work are compared with other work in the field.

8.4.2.1 The role of a Staff Development Unit

Earlier in this work I noted the uncertainty among staff of the LTC about how to provide the support they wished to deliver across the institution. The nature of academic work is changing rapidly (Blackmore & Blackwell 2006:373), with moves towards professionalism taking place against a background of fragmentation. In the same work (Blackmore & Blackwell 2003:377), tension was detected in the roles of heads of academic development as they mediate between the 'realities' of institutional life and beliefs and values of the faculty. This tension was influenced by the little time allocated to personal development which resulted in development coming through ways in which academic staff work, underlying the social and informal nature of learning. Given the respect for the LTC suggested by the data from this research, I would suggest that more emphasis needs to be put into planning for how the LTC contributes to institutional development. The unclear role of the LTC needs to be given clarity and support. There is respect for and recognition of the quality of work provided by the staff of the LTC but

additional to these interpreted results from this data, Blackmore and Blackwell suggest that academic development leadership needs to be wider than engaging in pedagogic research to embrace an understanding of research, teaching, management consultancy and a range of other aspects of academic work and how they do and might relate , including the variability of faculty roles (Blackmore & Blackwell 2003:379). Where I agree with them is to bring socially distributed learning into explicit discussion at departmental level as I mentioned above.

8.4.2.2 Course Planning and Pedagogical Content

Suggestions for course content to be informed by direct input from academic teaching staff relevant to their school needs was a common feature across the data collected from all degree programmes. The suggested content related mainly to group learning needs, both theoretical underpinning and practical help with selection for and assessment of group work. It was clear also that the courses should be offered within the school environment. I recognise that the suggestions for course content may reflect the culture and needs of this institution at this point in its development of learning and teaching, so rather than look for similar findings in other work in the field this section will focus more on the pedagogical issues related to introducing ICTs into the learning environment.

I mentioned earlier that Ravenscroft suggests that a productive way forward for the development of e-learning design that accounts for the necessary relationships between cognitive changes, dialogue processes and the communities or contexts for learning is through a socio-cultural framework for

cognitive change (Ravenscroft 2003a:13). He suggests that there is a need to investigate and examine e-learning communities to develop a better conceptualisation of how and why they operate successfully, paying particular attention to motivational, empathic and social issues. Some of these contextual issues surfaced from the data in this work too as academic staff mentioned the need for metrics that would relate staff development course time to their actual teaching hours, and that initiatives taken were noticed by academic management and appreciated in tangible ways. This would seem to agree with the concept of participants needing to move from outsiders to insiders in relation to community before they can actively participate and engage in meaningful discourses (Wegerif 1998:1,14) .

Knight et al. stress the significance of non-formal learning and the ways in which it can be promoted and enhanced within the activity systems within which teachers in higher education work (Knight et al. 2006:319,321). Some of the activity systems he has in mind are in the same disciplines as the academic staff who contributed to the data for this research. Non-formal learning includes events such as workshops, away days, seminars and conferences and is as dependent upon the workplace context as on the educational content. In fact in relation to academic managers, research shows that managers identify job experiences as the main source of learning (Mintzberg 2004:203). I question however how some of the research reported can be substantiated, for example (Livingstone 2001), cited in (Knight et al. 2006:322), claims that nearly all Canadian adults (over 95%) are involved in some form of informal learning, although I note in the same article the report of Open University studies that show a large number of teachers in higher

education reporting on their professional formation in ways that emphasise non-formal learning (Knight et al. 2006:326). Sharpe's question about how professionals learn and develop (Sharpe 2004:132), is at the heart of educational developers' work and Knight et al. claim that it can only count as good practice when it is based on research informed answers to it. I want to nod agreement of course with that somewhat absolute claim because it agrees with the suggestion, based on the data from this work that academic managers should get involved with relevant research of this field to better inform their management of staff development processes.

In a phenomenographic analysis of academics' ways of approaching their growth and development as a university teacher, Åkerlind noted key ontological differences between the studies of teachers' views of teaching, in terms of what different researchers mean by a view, conception or way of understanding teaching (Åkerlind 2007:22). The studies that had been conducted from a phenomenological perspective, emphasising the experiential relationship between the teacher and the phenomenon, tended to be grouped in an inclusiveness hierarchy, whereas those that had been conducted from a more cognitive perspective, reflecting different beliefs about teaching, position the different views of teaching that emerge from the study as independent. This would suggest that the impact of the ontological position of the researcher on the research analysis does influence the interpretation of the results. What is helpful, and could be used by academic managers when undertaking some collaborative learning on the topic of staff development, is Åkerlind's proposal of a model for mapping associated constraints on academics' potential for developing as a teacher (Åkerlind 2007:33,34). This

relates the structural components of academics' experience of teaching development with developmental strategies associated with different developmental intentions. Her assertion is that a vital consideration in teaching development is academics' understanding of what teaching and developing as a teachers can mean under varying circumstances, and she argues that to be effective, development support must be tailored to individual academics' intentions and understanding with regard to teaching and teaching development.

To conclude this section on course planning and pedagogical issues it is worth mentioning that leadership in academic development is also about facilitating social or group learning, often at an organisational level, beyond the individual focus of many staff developers (Blackmore & Blackwell 2006:381). At an organisational level that means going beyond just improving existing programmes, or 'single loop learning', to challenge assumptions behind existing practice, or 'double loop learning', and to even engage with systemic change, or 'triple loop learning' of the sort Fullan has in mind when he talks about system thinkers in action. He believes that you cannot be a system thinker in action if you don't know what the action looks like and feels like. Learning by doing has never been so thoughtful and so challenging (Fullan 2005:x). However universities are remarkably un-theoretical about their own practice (Blackmore & Blackwell 2006:382).

8.5   Theory arising from the research

At the end of a chapter that has sought to highlight some of the related work in the field of staff development, when seeking to exploit the affordances of learning technologies to support learning and teaching, I want to re-focus on the theory that has been grounded in the phenomena in the data from this specific research, before considering in the last chapter some reflection on the methodology chosen and the methods used that enabled the theory to be identified.

In summary this theory can be stated as follows:

There was a knowledge gap detected among academic managers that needs to be filled regarding the relationship between academic management planning and staff development for learning and teaching.

The creation of a learning culture, supported through a variety of networks, of new learning communities between academic management and academic teaching staff, focused on understanding the use of ICTs, would enhance staff development.

Planning for development and change in the understanding and experience of academic management through group learning regarding the use of ICTs would contribute significantly to growth and change of knowledge delivery in using ICTs among academic teaching staff in developing their learning environments

CHAPTER 9

CONCLUSIONS, RETROSPECTIVE ANALYSIS

AND THE WAY FORWARD

9.1   Overview

Since this work began, such is the rapid pace of change in the external technological environment and in society affecting the continuing internal systemic change in the institution, that some reflection is useful to try to map the way forward to continue the thrust of the research.

In this chapter I will reflect how the influences that initially drove the research are continuing to do so, but also how the key drivers have changed and are continuing to change. Having undertaken the work it is possible to reflect on the process and the outcomes of it to inform how further research might be conducted to better guide the evolving change process that is underway. This reflective process includes consideration of the theoretical framework and the related methodology used for the research, how the goals of the work and the actual outcomes from the use of the framework and methodology relate to other conceptual frameworks with their related methodologies. I will set that out in the next two sections before developing some concluding comments that are intended to facilitate the way forward so that specific targets are identifiable to maintain the valuable relationship between research and practice.

9.2   Staff Development – Continuing Changes

There have been some significant developments in the context of the research since the work commenced that impact on the issues that drove the formation of the research question I set out in the first chapter. These can be

considered in two key areas, although there are others. First, those related to the continuing developments and affordances in the available technology and the wider global influences affecting the management and performance in the higher education sector, and second, the impact of additional national constraints driven by further agreements at national level within the framework of social partnership that has been at the heart of the Irish economy in recent years and is now impacting the key role of staff development within the higher education sector as a whole and the institution in particular.

9.2.1   Continuing changes in technology and the related global environment.

In recent years the relentless march of change continues in the market driven provision of technology and therefore also in the expectation of what new possibilities can be created for communication and co-operation between international academic providers. I referred in the last chapter, for example, to audio, video and text synchronous groupware communications tools. Significant advances in the provision of bandwidth and the increased competitiveness in the related infrastructure to support it have made possible new ventures in the design and delivery of academic co-operation. The provision of courses and the access to them, using personal ipods for example, have allowed students to participate in very flexible learning and teaching environments. MPEG files offer so much more extended capacity that enable previous restrictions on the representation of such knowledge and learning opportunities to be increasingly overcome, resulting in new student expectations, based on their personal lifestyle choices and possibilities, continuously increasing in demand. The increasing globalisation (Becher &

Trowler 2001:2-4), of education has also raised new possibilities and challenges. The sheer movement of students from a growing range of cultures, and for a variety of different reasons has developed a sense that globalisation of education needs specific management. Partnerships at strategic levels will increasingly impact what, and how, academic institutions deliver through learning and teaching, using and exploiting their knowledge assets. This institution has steadily developed and become involved in a number of international learning partnerships. That also impacts on academic members of staff not just in terms of location but also in terms of their ability and their related personal development to match such delivery. It suggests that Massy's prediction that the changes that universities have weathered over the centuries and which did not upend their basic technology will no longer be sustained under the advances of information technology.

Earlier I referred to the Higher Education Academy and the LTSN as a support network in the UK. This has now been extended through the Higher Education Funding Council for England (HEFCE) by the establishment of the Centres for Excellence in Teaching and Learning (CETL). This initiative has two main aims: to reward excellent teaching practice, and to further invest in that practice so that CETLs funding delivers substantial benefits to students, teachers and institutions. Funding of CETLs will total £315 million over five years from 2005-06 to 2009-10. Each CETL will receive recurrent funding, ranging from £200,000 to £500,000 per annum for five years, and a capital sum ranging from £0.8 million to £2 million. This initiative represents HEFCE's largest ever single funding initiative in teaching and learning. The CETLs are well distributed geographically, reach across all the main subject

areas and involve many aspects of student learning. While such funding is not accessible in an Irish context similar funded initiatives have been put in place in Ireland which I will discuss as national drivers in the next section.

9.2.2   National and Institutional drivers on institutional performance.

The higher education sector in Ireland has been considerably stirred in the past few years by a number of challenges. In response, as a member of the European University Association (EUA), the institution has, in common with others in the sector, successfully undergone a quality review of its academic processes that involved an international team of reviewers with wide experience of the higher education sector. Those reviews have been made public, outcomes that are by themselves a driver for change although a comparative analysis is not one of the stated objectives.

The Irish government has also raised the performance of the economy from a production-of-goods oriented focus to one of knowledge-production. The drive to advance the recently named fourth level sector by increasing the funds available for research and the associated increase of doctoral level graduates has contributed to a demand for efficiency in processes, increased expectation of academic performance by academic staff, and in return for salary increases agreed at national level and based on benchmarks, the introduction of a performance management and development system. This means that each member of staff will have a personal development plan agreed with line management right up to the senior level. The content of such plans will require improvements in the related staff development processes.

Some of the physical and time oriented restrictions identified in this research have been related to the sheer distance of the location of the LTC from all the faculty sites. As I write a public announcement has just been released to name the chairman of the authority appointed by the government to oversee the development of a single site location for the institution. While such projects have a long time span, nevertheless the momentum and motivation for change is encouraged to increase as such major projects become integrated into the daily life of the institution.

Based on the term set by law a new governing body has just recently been appointed, with the cascading changes to membership of the various academic sub-committees of the related statutory body of the academic council. The drive in recent years to be inclusive of the student body in membership of sub-committees at all levels of the institution has been matched by a corresponding professionalism and quality enhancement in the organisation of the Students' Union which has also begun to make an impact at the level of delivery of courses by academic members of staff, and the related management performance of those charged with their delivery. This will impact on better engagement with pedagogical content knowledge by academic teaching staff as issues of learning and teaching delivery are focused in programme committee agendas. I will discuss this particular aspect more below. The recent appointment of a new president of the institution is proving to be supportive of this ongoing drive for change, resulting in a restructuring of work activity right across the institution.

A senior academic management forum, consisting of the president, faculty heads and their immediate deputies and senior staff, including staff

from human resources, finance and the LTC has been called to meet to collaborate with a particular focus being given to change management. This is a welcome change since the majority of those who have been given a formal development remit in universities appear to have teaching as their main, or more often sole focus of attention (Blackwell & Blackmore 2003:xiii). The frequency of meetings has increased to once a month, and having already been called upon to participate, I anticipate shortly being asked to participate more directly in this process, when a focus will be specifically related to how this research contributes to the development of the learning and understanding of this academic management forum. That in itself may be the start of implementing the findings of the research by applying theory to practice, and involving senior academic management in reflection related to their task of improving staff development processes.

Hopefully that will contribute to minimising the negative aspects of managerialism (Becher & Trowler 2001:10) such as viewing academic teaching staff as exchangeable deliverers of learning outcomes rather than subject specialists with unique contributions to make. By enabling 'slack time' for learning and thinking, managers may be able to build a trust and low blame culture that will contribute to building a shared pedagogical repertoire across faculties instead of relying on bad 'common sense' event-driven models of continuing professional development (Knight 2002:239,240).

9.3   Retrospective Analysis Of The Research

In the earlier chapter on developing a theoretical framework for the research, I referred to the stability and usefulness of the triangular model relating teacher, pupil and knowledge. In order to make it more flexible to include how that knowledge could be represented during the teaching and learning process, I extended the framework model to a tetrahedron, which was intended to be helpful in trying to capture the pedagogical and theoretical relationships between staff and student and the representation of the knowledge that was being exchanged between them.

Having reflected on the outcomes from the analysis process and noted the limited expression of pedagogical awareness by the academic teaching staff who participated in the data collection processes, though they may well have un-verbalised tacit knowledge as discussed earlier, and having been informed by the related literature and the use of a grounded theory approach that led to the identification of theory, I want now to argue a case for how I would propose to move the research forward. The additional expectation, as outlined in the previous section, now placed on the academic management of the institution to support, implement and deliver new work practices requires a dynamic theoretical framework that incorporates an action based methodology.

Shortly after I had commenced the research, I did become aware of Activity Theory (Engeström 2000:960-969) but at the time considered that the tetrahedral framework would enable the research to progress. Activity theory is a philosophy and cross-disciplinary framework for studying different forms of human activity. Jonassen recognises two analytical elements to it. First it is

a form of socio-cultural analysis, enabling human activity embedded in a social mix of people and artefacts to be analysed. Secondly it is form of socio-historical analysis that enables the analysis of human activity with respect to how it has evolved over time as it distributed among individuals and their cultures (Jonassen 2000:97). It primarily is a descriptive tool rather than a prescriptive theory and care must be taken in generalising the descriptive lenses of activity theory (Jonassen 2000:110). Early in this research I was not intending to analyse the systems of the institution but to give more attention to the understanding teachers had of their learning and teaching needs based on listening to them reflecting on their teaching.

By taking a grounded theory approach for the analysis of the data I have been able to identify some key informants that can now be taken forward into a more dynamic model that will focus on the redesign of existing work practices in the institution. I am currently considering with some colleagues in the institution how activity theory might usefully fulfil this development of the work. My reflection has included consideration of the tetrahedron framework and I will discuss how this is related to existing learning theory before introducing the argument for using activity theory as a next step.

9.3.1   Tetrahedron Framework and Pedagogical content knowledge.

Shulman introduced the concept of pedagogical content knowledge (Shulman 1987:8) as one of the seven elements of the teacher's professional knowledge base to relate specific knowledge of the discipline to knowledge about how to teach the discipline. What he had in mind included ways of representing and formulating the subject so that it made sense to the student. It

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included an understanding of what makes learning the subject easy or difficult for the student. The misconceptions or preconceptions that introduce confusion for the student can be reflected upon by the teacher using pedagogical content knowledge in order to identify alternative teaching and learning strategies that will relate to the learning needs of the student. In using such strategies the students, as individual students each with different learning requirements, can be helped to learn material in a way that achieves the desired goal of deeper understanding of the subject.

The tetrahedron sought to capture these concepts. I argued that each of the four elements in the learning context, the teacher, the student, the body of knowledge and the representation of that knowledge could be conceived as being located at the four nodes of the tetrahedron and they were related to each other by learning theories, as conveyed by the edges of the tetrahedron. I still believe that this framework is useful and it has served the research well as an introduction to an intended more longitudinal study. This first phase only gathered data from the 'teacher' or staff side of the tetrahedron, seeking to understand why and 'how' the teacher represented the knowledge of the subject in the practice of teaching. Different data could be collected by observation or reflection-in-practice rather than, as was the case here with reflection-on-practice. The next intention, to gather data from the 'student' side, and then to try to relate the results from each side of the tetrahedron would require a longitudinal study. McShane sees such qualitative, longitudinal, case-study-based enquiries as desirable into the professional lives and subjective experiences of online lecturers (McShane 2004:5) and I suggest that to relate the teacher's conceptions of teaching, and changes in

understanding of their subject matter (Trigwell et al. 2005:262), to student learning would likewise require a longitudinal study. It is worth noting that those claims reported by Trigwell et al. make no mention of student learning as part of the research process, though Trigwell himself does recognise that academic development conducted from a conception that includes both a narrow conception of teaching, and the improvement of teaching as the focus, is less likely to result in the improvement of student learning (Trigwell 2003:28). It is essential to include the learning needs of the student to have an informed pedagogical content knowledge and such longitudinal studies as mentioned above though demanding but would be informative and I believe useful.

The student side of the tetrahedron is important for another reason. Apart from the strategic plan of the institute envisioning a move to student-centred learning, higher education in general is grappling with changes in its teaching and learning and also in its research structures to cope with the changing requirements of a 'Mode 2 society' (Nowotny et al. 2001:115), where there is a high degree of uncertainty, no clear-cut direction but many competing ideas, theories and methods, and no one in overall charge. In such a society students are not simply apprentices in the community, rather they participate as equal partners (Brew 2003:167), and certainly they expect technology to be part of their learning environment. Surely that also demands a response from the teacher to improve pedagogical content knowledge.

I mentioned earlier how Goodnough enhanced her pedagogical content knowledge through a self study of problem based learning which she modelled on five distinct yet interrelated components: orientations to teaching,

knowledge of curriculum, knowledge of student understanding, knowledge of assessment and knowledge of instructional strategies (Magnusson et al. 1999). Such studies would contribute to individual lecturers learning about their pedagogical content knowledge and that could be adopted as part of a strategy to support staff development. The additional concept identified by Koehler and Mishra et al. of pedagogical technological content knowledge could also be investigated using Goodnough's approach. Although describing a different staff development approach, the grounding assumption that good teachers constantly seek to learn from their students (Ross & Pittman 1995:53) is a reasonable one to adopt as motivation to improve pedagogical content knowledge.

However, when the affordances of the technology are part of the learning in this area of pedagogical [technological] content knowledge, other considerations are required. What is required is a re-conceptualisation of academic practices (Land 2002:22) given that learning technologists are involved in the core work of collaborative curriculum development (Oliver & Trigwell et al. 2005:20).

Mishra, as someone who has attempted with Koehler to integrate teachers in higher education with learning technologists, has also with Peruski used activity theory to provide a framework within which to study the collaborative activities of academic staff with members of different activity systems that had different goals, tools, divisions of labour and accountabilities (Peruski & Mishra 2004:37). I am attracted to this approach as a framework to study how to improve the systemic processes of staff development for the

reasons below working in parallel with the second phase of the existing study which has a more pedagogical emphasis.

There are multiple activity systems involved in helping academic staff to develop and teach their courses. There are also multi levels within the university where these systems are worked out daily, see Figure 9.3. For example, at a strategic policy level senior academic managers play a very different role from the detailed operational level of academic staff development activities. In between these two levels the middle level academic managers are expected to implement institutional policy on a day to day basis, working with their academic teaching staff colleagues. Yet each of the levels, and the activity systems functioning within them at each level, do interact with each other in that certain outputs from a level above impact on the next lower level. It is this multiple interactivity that needs understanding in order to improve academic staff development processes strategically.

I will introduce the concepts of activity theory below.

Activity systems at different levels of the institution.

Instruments

Subject   **Object**   **Outcome**

(senior
management)

Strategic
Policy

Rules   **Community**   **Division of Labour**

Instruments

Subject   **Object**   **Outcome**

(middle
management)

Management
Planning

Rules   **Community**   **Division of Labour**

Instruments

Better educational practice

Subject   **Object**   **Outcome**

(Specialist in
education dev.)

Improvement
in student
learning

Rules   **Community**   **Division of Labour**

Figure 9.3 – Using activity theory to integrate policy development,
management planning and staff development processes

9.3.2   The application of activity theory.

The outcome anticipated from an activity theory model reflects the way the subject applies rules in relation to instruments available when considering, within an involved community, the division of labour that affects the object. The outcome will be different at various levels of the institution, as indicated in Figure 9.3, and these outcomes can be taken from one level of study, for example at strategic institutional policy level, into a lower level, at managerial planning and further into operational level that would integrate the systemic changes required to respond to this rapidly changing dynamic environment of staff development in response to the external drivers of change that are impacting it. The constraint on using the activity theory model will be that it will require a reasonable time for the various relationships that exist between the strategic, managerial and operational levels, and within each level to be defined before being tested by in-depth analysis as it is monitored, measured and considered in a practical and realistic way during which the time frame of change continues to move forward.

Knight et al. view professional learning of teachers in higher education as systemic (Knight et al. 2006:320) and stress the significance of non-formal learning and the ways in which it can be promoted and enhanced within the activity systems within which teachers in higher education work. In the operational level activity system at the bottom of Figure 9.3, the subject is a specialist in educational development whose object is to stimulate better educational practice in others. The outcome should be improvement in the student learning experience. Various tools or instruments are being used by different colleagues involved in the community, each with different tasks to be

performed, as the labour is shared in the environment in which the activity is taking place. In practice there are going to be mismatches between these different elements of the system, but by developing relationships of trust and co-operation within the activity these can be identified and solutions proposed to improve the integration of the activities.

At each level of the organisation the subjects, rules, instruments, and division of labour can be identified among the community with the objective of achieving the desired outcome.

As a result of applying activity theory to enhance and promote the activities within which the Open University staff were operating, Knight et al. identified twelve implications for international practice (Knight et al. 2006:336,337).

Another application has used a combination of phenomenography and activity theory where the concepts from activity theory were used to enlarge the scope of phenomenography to encompass the content of the learning as well as its context (Berglund 2004:65). This example helps to identify different phases of group learning.

So I believe the application of activity theory could help to continually improve staff development systemic processes in the institution by identifying where the conflicts are at present hindering their development.

9.4   Prospects For The Way Forward

The use of an activity theory approach is attractive because it involves some of the key findings of this research being integrated. New group integrated learning will be required by the groups of people at the various

levels of the institution who make up the constituency of 'subject' at the various levels, i.e. the senior management, the middle management and the academic teaching members of staff. New affirmative relationships between and among these groups will most likely be required, which in light of the findings of this research may be beneficial to contributing to the important change in the culture of the organisation. The 'community' involved in the work activity is likely to become more inclusive as the 'division of labour' becomes more integrated. A new awareness is likely to be developed about the very essence of how the time of the members of staff at the various levels is used in carrying out new and changing work practices. This will hopefully identify new 'instruments' that may be able to be employed to help understand better how the relationship between the 'subject' and 'object' can be exploited to produce new 'outcomes'. Appreciation of how the various sub-systems that make up the institution can work through a collaborative communication process should make an important contribution to motivation and attitude at the various levels because policy making will become more informed. In addition management practices are more likely to be sensitive and aware of the demands on members of staff, and, members of staff in turn may become more motivated because they feel appreciated and believe they are making a significant contribution to a policy driven strategic change that they have been involved in helping to develop. I look forward to such developments with anticipation.

Bibliography

Åkerlind, G. S. (2007). Constraints on academics' potential for developing as a teacher. <u>Studies in Higher Education</u> 32 (1): pp. 21-37.

Alsop, G., Tompsett, C. (2006). Making sense of 'pure' phenomenograpgy in information and communication technology in education. <u>ALT-J, Research in Learning Technology</u> 14 (3): pp. 241-259.

Andresen, L. W. (1996). The work of academic development: Occupational identity, standards of practice, and virtues of association. <u>The International Journal for Academic Development</u> 1: pp. 38-49.

Andresen, L. W. (2000). Teaching Development in Higher Education as a Scholarly Practice: a reply to Rowland et al. 'Turning Academics into Teachers?' <u>Teaching in Higher Education</u> 5 (1): pp. 23-31.

Ashton, J., Newman, L. (2006). An unfinished symphony: 21st century teacher education using knowledge creating heutagogies. <u>British Journal of Educational Technology</u> 37 (6): pp. 825-840.

Ashworth, P. D. (2003). Philosophical Approaches to academic development in Eggins, H., Macdonald, R., (eds.) <u>The Scholarship of Academic Development</u>. Buckingham: The Society for Research into Higher Education & Open University Press.

Babchuk, W. A. (1997). Glaser or Strauss?: Grounded Theory and Adult Education. Retrieved 22 March 2004, from http://www.anrecs.msu.edu/research/gradpr96.htm.

Bandura, A. (1977). <u>Social Learning Theory</u>. Englewood Cliffs NJ/London: Prentice Hall.

Bangura, A. K. (2005). Ubuntugogy: An African educational paradigm that transcends pedagogy, andragogy, ergonogy and heutagogy. <u>Journal of Third World Studies</u> 22 (2): pp. 13-54.

Barrows, H. S., Kelson, A. M. (1999). <u>Problem-Based Learning: A Total Approach to Education</u>. Southern Illinois University School of Medicine, Department of Medical Education - MC 9622.

Beaty, L., Cousin, G. (2003). An action-research approach to Strategic Development: a Case Study in Eggins, H., Macdonald, R., (eds.) <u>The Scholarship of Academic Development</u>. Buckingham: The Society for Research into Higher Education & Open University Press.

Becher, T., Trowler, P. R. (1989). <u>Academic tribes and territories : Intellectual enquiry and the cultures of disciplines</u>. Buckingham: The Society for Research into Higher Education & Open University Press.

Becher, T., Trowler, P. R. (2001). <u>Academic tribes and territories : Intellectual enquiry and the culture of disciplines</u>. Philadelphia, PA: The Society for Research into Higher Education & Open University Press.

Bednar, A., Cunningham, D.J., Duffy, T., Perry, D. (1995). Theory in Practice: How do we link? in Anglin G., (ed.) <u>Instructional Technology: Past, present, and future</u>. Englewood, CO: Libraries Unlimited.

Beetham, H. (2005). e-Learning research: emerging issues? <u>ALT-J, Research in Learning Technology</u> 13 (1): pp. 81-89.

Beetham, H., Bailey, P. (2002). Personal development for organisational change in MacDonald, R., and Wisdom J., (eds.) <u>Academic and educational development : research, evaluation and changing practice in higher education</u>. London: Kogan Page.

Belton, R. J. (2002). Words of art project. Retrieved 12 April 2007, from http://web.ubc.ca/okanagan/creative/links/glossary.html.

Bereiter, C. (1999). Education and Mind in the Knowledge Age. Retrieved 28 March 2007, from http://www.observetory.com/carlbereiter/.

Bereiter, C. (2002). <u>Education and Mind in the Knowledge Age</u>. Mahwah, NJ: Lawrence Erlbaum Associates.

Berglund, A. (2004). A framework to study learning in a complex learning environment. <u>ALT-J, Research in Learning Technology</u> 12 (1): pp. 65-79.

Black, G. (2001). A comparison of traditional, online and hybrid methods of course delivery. International Conference on Teaching online in Higher Education. Indiana University-Purdue University Fort Wayne. pp. 4.

Blackmore, P., Blackwell, R. (2003). Academic roles and relationships in Blackwell, R., Blackmore P., (eds.) <u>Towards strategic staff development in higher education</u>. Maidenhead: The Society for Research into Higher Education & Open University Press.

Blackmore, P., Blackwell, R. (2006). Strategic leadership in academic development. <u>Studies in Higher Education</u> 31 (3): pp. 373-387.

Blackwell, R., Blackmore, P., (eds.) (2003). <u>Towards Strategic Staff Development in Higher Education</u>. SRHE and Open University Press Imprint. Maidenhead/Philadelphia: The Society for Research into Higher Education & Open University Press, McGraw-Hill Education.

Bonk, C. J., Cunningham, D.J. (1998). Searching for learner-centred, constructivist, and sociocultural components of collaborative educational learning tools in Bonk, C. J., King, K. S., (eds.) <u>Electronic</u>

Collaborators: learner-centred technologies for literacy, apprenticeship and discourse. Mahwah, NJ: L. Erlbuam Associates.

Bourner, T., O'Hara, S., and France, L. (2000). Practitioner-centred research in Bourner, T., Katz, T., and Watson D., (eds.) Directions in Professional Higher Education. Buckingham: The Society for Research into Higher Education & Open University Press.

Bowden, J. A., Walsh, E. (2000). Phenomenography. Melbourne: RMIT University Press.

Bowman, M. (1994). Using Video in Research. Spotlights from the Scottish Council for Research in Education 451-3 Retrieved 1 December 2005 from http://www.scre.ac.uk/spotlight/spotlight45.html.

Brew, A., (ed.) (1995). Directions in Staff Development. SRHE and Open University Press Imprint. Buckingham: The Society for Research into Higher Education & Open University Press.

Brew, A. (2002). The changing face of academic development. The International Journal for Academic Development 7 (1): pp. 5,6.

Brew, A. (2003). The future of research and scholarship in academic development in Towards strategic staff development. R. Blackwell, P. Blackmore, (Eds.). Maidenhead/Philadelphia: The Society for Research into Higher Education & Open University Press, McGraw-Hill Education.

Britain, S., Liber, O. (2004). A Framework for the Pedagogical Evaluation of eLearning Environments. Bolton: Bolton Institute of Higher Education.

Brown, S. A., McIntyre, D. (1993). Making sense of teaching. Buckingham: Open University Press.

Bruer, J. T. (1993). Schools for Thought: A Science of Learning in the Classroom. Cambridge, Mass.: MIT Press.

Bruner, J. S. (1996). The Culture of Education. Cambridge, MA: Harvard University Press.

Cannon, R. (2001). Pedagogy: a point of view. Teaching in Higher Education 6 (3): pp. 415-419.

Capper, J. (2001). The emerging market for online learning: insights from the corporate sector. European Journal of Education 36 (2): pp. 237-245.

Carr, A. A., Jonassen, D.H., Litzinger, M.E., Marra, R.M. (1998). Good ideas to forment educational revolution: The role of systematic change in advancing situated learning, constructivism, and feminist pedagogy. Educational Technology 38 (1): pp. 5-15.

Charmaz, K. (1994). Grounded Theory in Denzin, N. K., Lincoln, Y. S., (eds.) Handbook of Qualitative Research. London: Sage.

Charmaz, K. (2005a). Grounded Theory in the 21st century in Denzin, N. K., Lincoln, Y. S., (eds.) Sage Handbook of Qualitative Research. Thousand Oaks, CA/London: Sage Publications.

Charmaz, K. (2005b). Grounded Theory: methods for the 21st Century. London: Sage.

Charmaz, K. (2006). Constructing Grounded Theory - A Practical Guide Through Qualitative Analysis. London/Thousand Oaks/New Delhi: Sage Publications.

Cole, C. L. (1996). Bringing together video technology, research, and practice: A review of Practical Guide to using Video in the Behavioural Sciences. Journal of Applied Behavioural Sciences 29 (4): pp. 591-592.

Conner, M. L. (2004). Andragogy and pedagogy. Ageless Learner, 1997-2004. Retrieved 4 April 2007, from http://www.agelesslearner.com/intros/andragogy.html.

Conole, G. (2002). The evolving landscape of learning technology. ALT-J, Research in Learning Technology 10 (3): pp. 4-18.

Conole, G. (2005). Reflecting on the current status and focus of e-learning research. ALT-J, Research in Learning Technology 13 (3): pp. 171-172.

Conole, G., Dyke, M., Oliver, M., Seale, J. (2004a). Mapping pedagogy and tools for effective learning design. Computers & Education 43: pp. 17-33.

Conole, G., Dyke, M., Oliver, M., Seale, J. (2003). Theoretical perspectives and dialogue in e-learning research - Mapping pedagogy and tools for effective learning design. CAL '03. Belfast.

Conole, G., Dyke, M. (2004b). What are the affordances of information and communication technologies? ALT-J, Research in Learning Technology 12 (2): pp. 113-124.

Console, G., Dyke, M., Oliver, M., Seale, J. (2004). Mapping pedagogy and tools for effective learning design. Computers & Education 43: pp. 17-33.

Coughlan, R. (2004). From the challenge to the response BITE Project Conference Proceedings. Adastral Park. pp. 1-15.

Daly, P. (2006). The Pedagogical Challenges Facing French Business Schools in the Implementation of E-learning Initiatives. <u>International Journal of Teaching and Learning in Higher Education.</u> 18 (2): pp. 89-96.

Davidson, L. (2002). Digital Recording Advice for Research Interviews. Retrieved 1 December 2005, from http://davidson.cba.hawaii.edu/digitalrecording.html.

de Laat, M., Lally, V., Simons, R., Wenger, E. (2006). A selective analysis of empirical findings in networked learning research in higher education: Questing for coherence. <u>Educational Research Review</u> (1): pp. 99-111.

Dewey, J. (2003). <u>Democracy and education</u> Boston: IndyPublish.com.

Dey, I. (1993). <u>Qualitative data analysis: a user friendly guide for social scientists</u>. London: Routledge.

DIT (2006). Modularised Programme Registration. Retrieved 1 March 2007, from http://www.dit.ie/DIT/students/induction/registrations/modularisation/.

Draffan, E. A., Rainger, P. (2006). A model for the identification of challenges to blended learning. <u>ALT-J, Research in Learning Technology</u> 14 (1): pp. 55-67.

Dreyfus, H. L., Dreyfus, S. E. (1988). <u>Mind over machine : the power of human intuition and expertise in the era of the computer</u>. New York: Free Press.

Duffy, T. M., Cunningham, D. J. (1997). Constructivism: Implications for the Design and Delivery of Instruction in Jonassen D., (ed.) <u>Handbook of Research in Education, Communication, and Technology.</u> New York: Macmillan.

Dziuban, C. D., Hartman, J. L., Moskal, P. D. (2004). Blended learning. Educause Centre for Applied Research Bulletin 2004 7, pp. 1-12 Retrieved 23 April 2004 from http://www.educause.edu/LibraryDetailPage/666?ID=ERB0407.

EC Publication (2003). E-learning: Better e-learning for Europe. Luxembourg: Office for Official Publications of the European Commission. (NC-52-03-207-EN-C).

Eggins, H., Macdonald, R., (eds.) (2003). <u>The Scholarship of Academic Development</u>. SRHE and Open University Press Imprint. Buckingham England/Philadelphia, PA: The Society for Research into Higher Education & Open University Press.

Engeström, Y. (1999). Activity theory and individual and social transformation in Engeström, Y., Miettinen, R., Punamäki-Gitai, R-L.,

(eds.) <u>Perspectives on activity theory</u>. Learning in doing: social, cognitive and computational perspectives. Cambridge: Cambridge University Press. Selected contributions from the 2nd International Congress for research on Activity Theory, held in 1990 in Lahti, Finland.

Engeström, Y. (2000). Activity Theory as a framework for analyzing and redesigning work. <u>Ergonomics</u> 43 (7): pp. 960-974.

Eraut, M. R., Furner, J., Maillardet, F., Miller, C., Stedman, S. D., Ali, A., Blackman, C. (2004) Learning in the Professional Workplace: Relationships between learning factors and context factors. San Deigo: American Educational Research Association.

Eraut, M. (1994). <u>Developing Professional Knowledge and Competence</u>. London/Washington D.C.: Falmer Press.

Evensen, D. H., Hmelo, C. E., (eds.) (2000). <u>Problem-Based Learning, A Research Perspective on Learning Interactions.</u> New Jersey/London: Lawrence ErlBaum Associates.

Everitt, B. S., Landau, S., Leese, M. (2001). <u>Cluster analysis</u>. London: Arnold.

Field, A. (2000). Cluster Analysis. Retrieved 1 March 2006, from www.sussex.ac.uk/Users/andyf/teaching/pg/clusterlecture.pdf.

Flanagan, J. (1954). The critical incident technique. <u>Psychological Bulletin</u> 51 (4): pp. 327-358.

Fraser, K. (2001). Australasian academic developers' conceptions of the profession. <u>The International Journal for Academic Development</u> 6 (1): pp. 54-64.

Fullan, M. G. (1982). <u>The Meaning of Educational Change</u>. New York: Teachers College Press.

Fullan, M. G. (1993). <u>Change Forces - Probing the Depths of Educational Reform</u>. London/New York: Falmer Press.

Fullan, M. G. (1998). The Three Stories of Educational Reform. Paper submitted to <u>Kappan</u> December 1998.

Fullan, M. G. (2000). <u>Change forces : probing the depth of educational reform</u>. London: Falmer Press.

Fullan, M. G. (2001). <u>The New Meaning of Educational Change</u>. London: Routledge Falmer.

Fullan, M. G. (2005). <u>Leadership and Sustainability: System Thinkers in Action</u>. Thousand Oaks, CA: Corwin Press/Ontario Principals' Council, Sage.

Fullan, M. G., & Stiegelbauer, S. (1991). <u>The New Meaning of Educational Change</u>. New York: Teachers College Press.

Gagné, R. M. & Medsker, K. L. (1996). <u>The Conditions of Learning Training Applications</u>. Fort Worth: Harcourt Brace College Publishers.

Garman, N. B. (1994). Beyond the reflective practitioner and toward discursive practice. <u>Teaching and Teachers work</u> 2 (4): pp. 1-7.

Garten, E. D. (2000). Providing intellectual resources through technology to transnational virtual universities: good practice and lessons learned from world-class examples. <u>Higher Education in Europe</u> XXV (3): pp. 361-371.

Gibbs, A. (1997). Focus Groups. University of Surrey.

Gibbs, G. (1995). Changing Lecturers' Conceptions of Teaching and Learning Through Action Research in Brew, A., (ed) <u>Directions in staff development</u>. Buckingham/Milton Keynes: Society for Research into Higher Education & Open University Press.

Gibson, J. J. (1979). <u>The ecological approach to visual perception</u>. Boston MA.: Houghton Mifflin.

Gijselaers, W. H., Ed. (1996). <u>Connecting Problem-Based Practices with Education Theory</u>. New Directions for Teaching and Learning. San Francisco: Jossey-Bass Publishers.

Gilbert, N. (2002). Tools for Digital Audio Recording in Qualitative Research. University of Surrey.

Glaser, B. G. (1978). <u>Theoretical Sensitivity</u>. Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992). <u>Basics of Grounded Theory Analysis</u>. Mill Valley, CA: Sociological Press.

Glaser, B. G. (2002). Constructivist Grounded Theory? Volume 3 Number 3 Retrieved 26 November 2004, from http://www.qualitative-research.net/fqs-texte/3-02/3-02glaser-e.htm.

Glaser, B. G., Strauss, A. L. (1967). <u>The Discovery of Grounded Theory : Strategies for Qualitative Research</u>. Hawthorne, N.Y.: Aldine de Gruyter.

Glaser, R. (1991). The Maturing of the Relationship between the Science of Learning and Cognition and Educational Practice. <u>Learning and Instruction</u> 1 (2): pp. 129-144.

Goodnough, K. (2006). Enhancing pedagogical content knowledge through self study: an exploration of problem-based learning. <u>Teaching in Higher Education</u> 11 (3): pp. 301-318.

Goodyear, P. (2001). Effective networked learning in higher education: notes and guidelines. Retrieved 7 March 2007, from http://csalt.lancs.ac.uk/jisc/guidelines_final.doc.

Goodyear, P., Banks, S., Hodgson, S. McConnell, D. (eds.) (2004). <u>Advances in research on networked learning</u>. Dordrecht: Klewer Academic Publishers.

Gosling, D. (2003). Philosophical Approaches to Academic Development in Eggins, H., Macdonald, R. (eds.) <u>The Scholarship of Academic Development</u>. Buckingham: The Society for Research into Higher Education & Open University Press.

Habermas, J. (1987). <u>The philosophical discourse of modernity: twelve lectures</u>. Cambridge, Mass: MIT Press.

Habermas, J. (1993). Modernity versus Postmodernity in Natoli, J., Hutcheon, L. (eds.) <u>A Postmodern reader</u>. Albany, New York: State University of New York Press.

Haig, B. D. (1995). Grounded Theory as Scientific Method. Retrieved 15 April 2005, from http://www.ed.uiuc.edu/EPS/PES-yearbook/95_docs/haig.html.

Handa, M. L. (1986). Peace Paradigm: transcending Liberal and Marxian Paradigms. International Symposium on Science, Technology and Development. New Delhi: Mimeographed at O.I.S.E., University of Toronto, Canada (1986).

Hargreaves, A. (1994). <u>Changing teachers, changing times: teachers' work and culture in the postmodern age</u>. London: Continuum.

Harland, T. (2003a). Vygotsky's Zone of Proximal Development and Problem-based Learning: linking a theoretical concept with practice through action research. <u>Teaching in Higher Education</u> 8 (2): pp. 263-272.

Harland, T., Staniforth, D. (2003b). Academic Development as Academic Work. <u>The International Journal for Academic Development</u> 8 (1/2): pp. 25-35.

Harrison, C., Pead, D, Sheard, M (2006). 'P, and not-P and possibly Q': literacy teachers learning from digital representations of the classroom,

in Reinking, D., McKenna, M., Labbo, L. D., & Kieffer, R., (eds.) Handbook of Literacy and Technology: Transformations in a post-typographic world (second edition), Mahwah, NJ: Erlbaum.

Hase, S., Kenyon, C. (2007). From Andragogy to Heutagogy. Retrieved 2 April 2007, from http://ultibase.rmit.edu.au/Articles/dec00/hase2.htm.

HEA (2006). Academic Year, Duration of Studies. Retrieved 1 March 2007, from http://www.hea.ie/index.cfm/page/sub/id/501.

Heinze, A. (2004). Blended Learning: response to pressures on Higher Education. SRHE postgraduate Student Conference. University of Salford, Manchester.

Hickman, L.A., Alexander,T.M. (1998). The Essential Dewey - Volume 1 Pragmatism, Education, Democracy, Bloomington/Indianapolis: Indiana University Press.

Hodgson, V., Reynolds, M. (2005). Concensus, difference and 'multiple communities' in networked learning. Studies in Higher Education 30 (1): pp. 11-24.

Hollingsworth, H. (2005). Learning about teaching and teaching about learning: Using video data for research and professional development. Retrieved 1 December 2005, from http://www.acer.edu.au/workshops/documents/HilaryHollingsworth.pdf.

Houssaye, J. (1994). La Pedagogie: une encyclopedie pour aujourdhui. Paris: ESF Editeur.

Huyssen, A. (1993). Mapping the Postmodern, in Natoli, J., Hutcheon, L., (eds.) A Postmodern reader. Albany, New York: State University of New York Press.

Jenkins, A. (1999). Turning academics into teachers: A response from a 'non academic' unit. Teaching in Higher Education 4: pp. 281-284.

Jonassen, D. H. (2000). Revisiting activity theory as a framework for designing student-centred learning environments in Jonassen, D., Land, S. M., (eds.) Theoretical foundations of learning environments. Mahwah, NJ: Lawrence Erlbaum Associates.

Jones, C. (2004). Networks and learning: communities, practices and the metaphor of networks. ALT-J, Research in Learning Technology 12 (1): pp. 81-93.

Jones, C., Asensio, M., Goodyear P. (2000). Networked learning in higher education : practitioners' perspectives. ALT-J, Research in Learning Technology 8 (2): pp. 18-28.

Joyes, G., and Frize, P. (2005). Valuing Individual Differences Within Learning: From Face-to-Face to Online Experience <u>International Journal of Teaching and Learning in Higher Education.</u> 17 (1): pp. 33-41.

Kansanen, P. (1995). The Deutsche Didactik. <u>Journal of Curriculum Studies</u> 27 (4): pp. 347-352.

Kansanen, P. (1999). The Deutsche Didaktik and the American research on Teaching. <u>TNTEE Publications</u> 2 (1): pp. 21-35.

Keating, T., Evans, E. (2001). Three computers in the back of the classroom: Pre-service teachers' conceptions of technology integration. Seattle: American Educational Research Association.

Kemmis, S., McTaggart, R. (1988). <u>The action research planner</u>. Victoria: Deakin University.

Kiley, M. (2000). Leap: Problem Based Learning. Retrieved 5 December 2003, from http://www.adelaide.edu.au/ltdu/leap/leapinto/prob_based_lrng.pdf.

Kiley, M., Mullins, G.; Peterson, R.; Rogers, T. (2002). LEAP into Problem Based Learning. Retrieved 29 April 2002, from http://www.adelaide.edu.au/clpd/materia/leap/leapinto/prob_based_lrng.pdf.

Kinach, B. M. (1995). Grounded Theory as Scientific Method: Haig-Inspired Reflections on Educational Research Methodology. Retrieved 15 April 2005, from http://www.ed.uiuc.edu/EPS/PES-yearbook/95_docs/kinach.html.

Kirkwood, A., Price, L. (2005). Learners and learning in the twenty-first century: what do we know about students' attitudes towards and experiences of information and communication technologies that will help us design courses? <u>Studies in Higher Education</u> 30 (3): pp. 257-274.

Kitzinger, J. (1994). The methodology of focus groups: the importance of interaction between research participants. <u>Sociology of Health</u> 16 (1): pp. 103-121.

Knight, P. (2002). A systemic approach to professional development: learning as practice. <u>Teacher and Teacher Education</u> 18: pp. 229-241.

Knight, P., Tait, J., and Yorke, M., (2006). The professional learning of teachers in higher education. <u>Studies in Higher Education</u> 31 (3): pp. 319-339.

Knowles, M. S. (1984). <u>Andragogy in Action: Applying Modern Principles in Adult Learning</u>. San Francisco, CA/London: Jossey-Bass.

Knowles, M. S. (1990). <u>The Adult Learner: A Neglected Species</u>. Houston, TX: Gulf Publishing Company.

Koehler, M. J., Mishra P.A., Hershey,K., Peruski, L. (2004). With a little Help from Your Students: A New Model for Faculty Development and Online Course Design. <u>Journal of Technology and Teacher Education</u> 12 (1): pp. 25-55.

Kotter, J. P. (1990). <u>A force for change : how leadership differs from management</u>. New York: Free Press.

Kuhn, T. S. (1979). <u>The Essential Tension: Selected Studies in Scientific Tradition and Change.</u> Chicago, IL: University of Chicago Press.

Kuhn, T. S. (1996). <u>The Structure of Scientific Revolutions</u>. Chicago, IL.: University of Chicago Press.

Kuutti, K. (1996). Activity theory as a potential framework for human-computer interaction research, in Nardi, B. A., (ed.) <u>Context and consciousness : activity theory and human - computer interaction</u>. Cambridge, MA: MIT Press.

Kvale, S. (1996). <u>Inter Views: An introduction to qualitative research interviewing</u>. Thousand Oaks, CA: Sage.

Lamon, M., Reeve, R., Caswell, B. (1999). Finding Theory in Practice: Collaborative Networks for Professional Learning, Montreal:American Educational Research Association.

Land, R. (2001). Agency, context and change in academic development. <u>The International Journal for Academic Development</u> 6 (1): pp. 4-20.

Land, R. (2002). Orientations to educational development. <u>Educational Developments</u> 1 (2): pp. 19-23.

Laurillard, D. (2002). <u>Rethinking university teaching: a conversational framework for the effective use of learning technologies</u>. London/New York: RoutledgeFalmer.

Lave, J., and Wegner, E. (1991). <u>Situated learning. Legitimate Peripheral Participation</u>. Cambridge/New York: Cambridge University Press.

Levy, P. (2006). 'Living' theory: a pedagogical framework for process support in networked learning. <u>ALT-J, Research in Learning Technology</u> 14 (3): pp. 225-240.

Lincoln, Y. S., Guba, E. G. (1985). <u>Naturalistic Enquiry</u>. Beverly Hills, CA: Sage.

Lisewski, B. (2004). Implementing a learning technology strategy: top-down strategy meets bottom-up culture. <u>ALT-J, Research in Learning Technology</u> 12 (2): pp. 175-188.

Lisewski, B., Joyce, P. (2003). Examining the five-stage e-moderating model: designed and emergent practice in the learning technology profession. <u>ALT-J, Research in Learning Technology</u> 11 (1): pp. 55-66.

Litkowski, K. (1991). Using Structured Interviewing Techniques. United States General Accounting Office, Program Evaluation and Methodology Division. 104

Livingstone, D. W. (2001). <u>Adults' informal learning : definitions, findings, gaps and future research</u>. Toronto: Centre for the Study of Education and Work, Ontario Institute for Studies in Education.

LTSN (2002). Evaluation of the Centre's Activities for the LTSN Executive Annual Report 2002 'Evidence of Success'. Retrieved 19 May 2005, from <u>http://www.health.heacademy.ac.uk/aboutus/aboutus/AnnualReport0102/evaluation</u>.

LTSN (2004). Learning and Teaching Support Network. Retrieved 14th July 2004, from <u>http://www.ltsn.ac.uk/home.asp</u>.

Lyon, D. (1995). The roots of the information society idea, in Heap, N., Thomas, R., Einon, G., Mackay, R. & H. (eds.) <u>Information technology and society: a reader</u>. London: Sage.

Lyotard, J.-F. (1991). <u>Phenomenology / Jean-Francois Lyotard; translated by Brian Beakley; foreword by Gayle L. Ormiston</u>. Albany: State University of New York Press.

Mackenzie, N., Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. <u>Issues in Educational Research</u> 16 (2): pp. 193-205.

Magnusson, S., Krajcik, J., Borko, H. (1999). Nature, sources and development of pedagogical content knowledge, in Gess-Newsome, J., Lederman, N. G. (eds.) <u>Examining pedagogical content knowledge</u>. Dordrecht: Kluwer Academic Publishers.

Marton, F. (1981). Phenomenography - describing conceptions of the world around us. <u>Instructional Science</u> 10 (2): pp. 177-200.

Mason, R. (1999). IET's masters in open and distance education: what have we learned? Retrieved 28 March 2004, from <u>http://iet.open.ac.uk/pp/r.d.mason/downloads/MAEval.PDF</u>.

Massy, W. F. (1997). Life on the Wired Campus: How Information Technology will shape Institutional Futures. Publication 6-02 Retrieved 14th October 2003, from http://www.stanford.edu/group/ncpi/researchers/about.shtml.

McAlpine, I., Koppi, T., McLean, J., Pearson, E. (2004). Course developers as students: a designer perspective of the experience of learning online. ALT-J, Research in Learning Technology 12 (2): pp. 147-162.

McLean, M. (2006). Pedagogy and the University, Critical Theory and Practice. London, New York: Continuum International Publishing Group.

McNamara, C. (1999). General Guidelines for Conducting Interviews. Retrieved 1 December 2005, from http://www.managementhelp.org/evaluatn/intrview.htm.

McNay, I. (1995). From collegial academy to corporate enterprise; the changing cultures of universities, in T. Schuller (ed.) The Changing University? Buckingham: The Society for Research into Higher Education & Open University Press.

McNiff, J. (2006). All you need to know about action research. London/Thousand Oaks, California: Sage.

McShane, K. (2004). Integrating face-to-face and online teaching: academics' role concept and teaching choices. Teaching in Higher Education 9 (1): pp. 3-16.

Merton, R. K., Kendal, P.L. (1946). The Focused Interview. American Journal of Sociology 51: pp. 541-557.

Middlehurst, R. (1995). Top Training: Development for Institutional Managers, in Angela Brew (ed.) Directions in staff development. Buckingham: The Society for Research into Higher Education & Open University Press.

Mintzberg, H. (2004). Managers not MBA's. San Francisco, CA: Berrett-Koehler.

Mishra, P., & Koehler, M. J. (2002). With a Little Help from Your Students: A new Model for Faculty Development and Online Course Design. New Orleans: American Educational Research Association.

Mishra, P., Koehler, M. J., Yahya, K. (2004). Content, Pedagogy, and Technology: testing a Model of Technology Integration. San Diego: American Educational Research Association.

Moisl, H. (2006). Corpus Linguistics - Lecture 9, Cluster Analysis. Retrieved 1 March 2006, from http://www.staff.ncl.ac.uk/hermann.moisl/sel259/lecture9.htm.

Moon, J. A. (1999). Reflection in learning and professional development: theory and practice. London: Routledge Falmer.

Morgan, D. L. (1997). Focus Groups as Qualitative Research. London: Sage.

Mumford, A., Robinson, G., Stradling, D. (1987). Developing Directors : the learning processes. Sheffield: Manpower Services Commission.

Murray, I., Savin-Baden, M. (2000). Staff Development in Problem-based Learning. Teaching in Higher Education 5 (1): pp. 107-126.

Newton, J. (2003). Implementing an Institution-wide Learning and Teaching Strategy: lessons in managing change. Studies in Higher Education 28 (4): pp. 427-441.

Nixon, J. (1996). Professional identity and the restructuring of higher education. Studies in Higher Education 21 (1): pp. 5-16.

Nowotny, H., Scott, P., Gibbons, M. (2001). Re-thinking Science : knowledge and the public in an age of uncertainty. Cambridge: Polity Press.

NQAI (2007). National Qualifications Framework. Retrieved 28 February 2007, from http://www.nqai.ie/en/.

Oblinger, D. G., Oblinger, J. L. (2005). Educating the Net Generation. an Educause eBook.

Oliver, M., Trigwell, K. (2005). Can 'Blended Learning' Be Redeemed? E-Learning 2 (1): pp. 17-26.

Papert, S. (1980). Mindstorms: children, computers and powerful ideas. Brighton: Harvester.

Partington, G. (2001). Qualitative research interviews: Identifying problems in technique. Issues in Educational Research 11 (2): pp. 32-44.

Paterson, M., Higgs, J. (2005). Using Hermeneutics as a qualitative research approach in professional practice. The Qualitative Report 10 (2), pp. 339-357 Retrieved 12 April 2007 from http://www.nova.edu/ssss/QR/QR10-2/paterson.pdf

Patton, M. (2002). Qualitative Research and Evaluation Methods. Thousand Oaks, CA: Sage Publications.

Pea, R. D. (1997). Practices of distributed intelligence and designs for education, in Salomon, G., (ed.) Distributed cognitions: psychological

and educational considerations. Cambridge/New York: Cambridge University Press.

Pearsall, J. (ed.) (1999). The concise Oxford Dictionary. New York: Oxford University Press Inc.,.

Pepin, B. (1998). Curriculum, cultural traditions and pedagogy: understanding the work of teachers in England, France and Germany European Conference for Educational Research Symposium 'Social, political and cultural context of curriculum renewal in Europe'. University of Ljubljana, Slovenia.

Pepin, B. (1999). Existing models of knowledge in teaching: developing an understanding of the Anglo/American, the French and the German scene. TNTEE Publications 2 (1): pp. 49-66.

Peruski, L., Mishra, P. (2004). Webs of activity in online course design and teaching. ALT-J, Research in Learning Technology 12 (1): pp. 37-49.

Phipps, R., Merisotis, J. (2000). Quality on the Line - Benchmarks for success in internet-based distance education. The Institute for Higher Education Policy.

Piaget, J. (1978). The development of thought: equilibration of cognitive structures. Oxford: Blackwell.

Piantanida, M. T. C., Grubs, R. (2002). Claiming Grounded Theory for Practice-based Dissertation Research - A Think Piece. 2002 Conference on Interdisciplinary Qualitative Studies. Athens, Georgia.

Pill, A. (2005). Models of professional development in the education and practice of new teachers in higher education. Teaching in Higher Education 10 (2): pp. 175-188.

Polanyi, M. (1983). The tacit dimension. New York: Doubleday.

Popper, K. R. (1979). Objective knowledge: an evolutionary approach. Oxford: Clarendon Press.

Preece, J. (2000). Online communities: designing usability, supporting sociability. Chichester, England/New York: John Wiley.

Prus, R. C. (1995). Symbolic Interaction and Ethnographic Research: Intersubjectivity and the study of Human Lived Experience. Albany New York: SUNY Press.

Ravenscroft, A. (2003a). From conditioning to learning communities: implications of fifty years of research in e-learning interaction design. ALT-J, Research in Learning Technology 11 (3): pp. 4-18.

Ravenscroft, A., Hutchinson, A., Baur, E. and Bradley, C. (2003b). 'MOCCA framework: maxims for developing online communities and communication using affordances'. LTRI Technical Report.

Rew, L., Bechtel, D., Sapp, A. (1993). Self as an instrument in qualitative research. Nursing Research 16: pp. 300-301.

Ross, B., Pittman, J. (1995). Encouraging Reflective Practice through Distance Education, in Brew, A., (ed.) Directions in staff development. Buckingham: The Society for Research into Higher Education & Open University Press.

Salmon, G. (2003). E-moderating: the key to teaching and learning online. London/New York: RoutledgeFalmer.

Salmon, G. (2005). Flying not flapping: a strategic framework for e-learning and pedagogical innovation in higher education institutions. ALT-J, Research in Learning Technology 13 (3): pp. 201-218.

Savery, J. R., Duffy, T. M. (1995). Problem Based Learning: An instructional model and its constructivist framework, in Wilson, B. (ed.) Constructivist Learning Environments: Case Studies in Instructional Design.

Savin-Baden, M. (2000). Understanding and utilising problem-based learning strategically in higher education. 8th Improving Students Learning Symposium, 'Improving Student Learning Strategically'. UMIST, Manchester UK.

Scardamalia, M., Bereiter, C. (1996). Adaptation and Understanding: A case for new cultures of schooling. Mahwah, NJ: Lawrence Erlbaum Associates.

Schön, D. (1987). Educating the reflective practitioner. San Francisco: Jossey-Bass.

Schreurs, J. P. (2005). Qualitative research: group discussions or depth interviews. Retrieved 9 December 2005, from http://www.icaruresearch.nl/kwalitatiefonderzoek_UK.html.

Seely-Brown, J., and Duguid, P. (2002). The social life of information. Boston: Harvard Business School Press.

Sharpe, R. (2004). How do professionals learn and develop? Implications for staff and educational developers, in Baume, D., Kahn, P. (eds.) Enhancing staff and educational development. London: Routledge Falmer.

Sharpe, R., Benfield, G., Francis, R. (2006). Implementing a university e-learning strategy: levers for change within academic schools. <u>ALT-J, Research in Learning Technology</u> 14 (2): pp. 135-151.

Shulman, L. S. (1987). Knowledge and Teaching: Foundations of the New Reform. <u>Harvard Educational Review</u> 57 (1): pp. 1-22.

Sire, J. W. (2004). <u>Naming the elephant: worldview as a concept</u>. Downers Grove, IL: InterVarsity Press.

Skinner, B. F. (1954). The science of learning and the art of teaching. <u>Harvard Educational Review</u> 24 (1): pp. 86-97.

Smith, H. J. (2004). The impact of staff development programmes and activities, in Baume, D., Kahn, P. (eds.) <u>Enhancing staff and educational development</u>. London: Routledge Falmer

Smith, H. W. (1981). <u>Strategies of Social Research</u>. Englewood Cliffs: Prentice Hall.

Somekh, B. (1998). Supporting Information and Communication Technology Innovations in Higher Education. <u>Journal of Information Technology for Teacher Education</u> 7 (1): pp. 11-32.

Somekh, B. (2001). Methodological Issues in Identifying and Describing the Way Knowledge is Constructed with and without Information and Communications Technology. <u>Journal of Information Technology for Teacher Education</u> 10 (1&2): pp. 157-177.

Somekh, B., Whitty, G., Coveney, R. (1997). IT and the Politics of Institutional Change, in Somekh, B., Davis, N. (eds.) <u>Using IT effectively in Teaching and Learning</u>. London: Routledge.

Spiro, R. J., Feltovich, P. J., Jacobson, M. I., Coulson, R. L. (1991). Cognitive Flexibility, Constructivism, and Hypertext: Random Access Instruction for Advanced Knowledge Acquisition in Ill Structured Domains. <u>Educational Technology & Society</u> 31 (5): pp. 24-33.

Stierer, B., Antoniou, M. (2004). Are there distinctive methodologies for pedagogic research in higher education? <u>Teaching in Higher Education</u> 9 (3): pp. 275-285.

Strauss, A. L., Corbin, J. (1990). <u>Basics of Qualitative Research: Grounded Theory Procedures and Techniques</u>. Newbury Park, CA: Sage.

Strauss, A. L., and Corbin, J. (1994). Grounded Theory Methodology: An Overview, in Denzin, N. K., Lincoln, Y. S (eds.) <u>Handbook of Qualitative Research</u>. Thousand Oaks, CA: Sage

Strauss, A. L., and Corbin, J. (1998). <u>Basics of Qualitative Research: Techniques and Procedures for developing Grounded Theory</u> Thousand Oaks, CA: Sage.

Svensson, L. (1997). Theoretical foundations of phenomenography. <u>Higher Education Research and Development</u> 16 (2): pp. 159-171.

Tillema, H., and Kremer-Hayon, L. (2005). Facing Dilemmas: teacher-educators' ways of constructing a pedagogy of teacher education. <u>Teaching in Higher Education</u> 10 (2): pp. 203-217.

Trekk Team (2005). StartUp - Study Skills - Group Discussion. Retrieved 8 December 2005, from http://startup.curtin.edu.au/study/group.html.

Trigwell, K. (2003). A Relational Approach Model for Academic Development, in Blackwell, R., Blackmore, P. (eds.) <u>Towards Strategic Staff Development</u>. Maidenhead/Philadelphia: The Society for Research into Higher Education & Open University Press, McGraw-Hill Education.

Trigwell, K., Prosser, M., Martin, E., Ramsden, P. (2005). University teachers' experiences of change in their understanding of the subject matter they have taught. <u>Teaching in Higher Education</u> 10 (2): pp. 251-264.

Trowler, P., Fanghanel, J., Wareham, T. (2005). Freeing the chi of change: the Higher Education Academy and enhancing teaching and learning in higher education. <u>Studies in Higher Education</u> 30 (4): pp. 427-444.

Turner, B. A. (1983). The Use of Grounded Theory for the qualitative analysis of Organisational Behaviour. <u>Journal of Management Studies</u> 20 (3): pp. 333-348.

UBHT (2002). Questionnaires in Research. Retrieved 1 December 2005, from http://www.ubht.nhs.uk/R&D/RDSU/Statistical%20Tutorials/Questionnaires%20in%20research.pdf.

UCD (2006). Modularisation & Semesterisation. Retrieved 1 March 2007, from http://www.ucd.ie/modularisation.htm.

Vygotsky, L. S. (1978). <u>Mind in society: the development of higher psychological processes</u>. Cambridge Mass./London: Harvard UP.

Warren Piper, D. (1994). The role of educational development units in universities. <u>Tertiary Education News</u> 4 ((1, 2, 3)): pp. 1-2.

Webb, G. (1993). Announcing the death of development, again, in Ryan, G., Little, P., Dunn, I. (eds.) <u>Research and Development in Higher Education 16</u>. Campbelltown, NSW: Higher Education Research and Development Society of Australia. pp. 99-104.

Webb, G. (1996). <u>Understanding Staff Development</u>. Buckingham: The
    Society for Research into Higher Education & Open University Press.

Wegerif, R. (1998). The social dimension of asynchronous learning
    environments. <u>Journal of Asychronous Learning Networks</u> 2 (1): pp.
    34-49.

Wenger, E. (1998). <u>Communities of Practice: learning, meaning, identity</u>.
    Cambridge: Cambridge University Press.

Westbrook, V. (2006). The virtual learning future. <u>Teaching in Higher
    Education</u> 11 (4): pp. 471-482.

Wolcott, H. F. (1990). On seeking - and rejecting - validity in qualitative
    research, in Eisener, E. W., Peshin, A. (eds.) <u>Qualitative inquiry in
    education: the continuing debate</u>. New York: Teachers College Press.

Yorke, M. (2003). Pedagogical Research in UK Higher Education: An
    Emerging Policy Framework, in Eggins, H., (ed.) <u>The Scholarship of
    Academic Development</u>. Buckingham: The Society for Research into
    Higher Education & Open University Press.

Zuber-Skerritt, O. (1994). <u>Professional development in higher education:
    theoretical framework for action research</u>. London: Kogan Page.

Zuboff, A. (1995). Theories That Refute Themselves. University of London.

APPENDICES

APPENDIX 1   PHASE 1 QUESTIONNAIRE

Models of Knowing, Learning, Delivering: An initiative using the application of Problem Based Learning for Staff Development to support the move to online learning in the Degree α

Problem Definition:
How can we effectively deliver the Degree α using online technology?

Staff Team Questionnaire 17th April 2002.
(None of the responses to the questionnaire will be presented in any way to enable identity of any of the responders)

(Reflection after two meetings, on 14th and 19th March 2002, using PBL to resolve the problem.)

1.   Prior Learning and Teaching.

   a.   How long have you been lecturing on the Degree α?

   b.   Do you enjoy teaching, why?

   c.   How do your academic qualifications contribute to your current
          teaching?

   d.   In what year(s) did you complete these qualifications?

   e.   How does your professional experience to date contribute to your
          current teaching?

   f.   What is the length of your professional experience?

   g.   How do you see your role as a teacher?

   h.   How do you think people learn?

   i.   Can you describe your previous experience with using computers: -
          1. How do you use them in academic life?
          2. What do you use computers for in everyday life?

   j.   Describe briefly how you would go about designing a regular face-to-
          face course.

   k.   If you had to design your module(s) on the Degree α again what
          would you do differently? (What are the lessons learnt?)

   l.   How much student feedback have you had regarding the existing
          module(s)?

   m.   Can you describe the involvement of students in the delivery of your
          module(s): -

1. Interaction with students
2. Generating substantive discussions
3. Participation
4. Getting to know your students
5. Kinds of students

n. Please add any other information that you believe is relevant to your

    learning and teaching to date.

2.   <u>Current Learning Teaching using Technology for Online Delivery.</u>

a. What is your experience of online education up to the present?

b. Can you describe the role of technology in your teaching: -
   1. How have you used technology for delivery?
   2. Do you think technology changes the way you teach?
   3. If 'yes' - In what way?

c. Could your (revised) course module(s) be suitable for online delivery?

d. Can you describe how the course module would differ if taught face-to-face versus online: -
   1. Interaction with students
   2. Generating substantive discussions
   3. Participation
   4. Getting to know your students

   5. Amount of work for staff and students
   6. Instructor anxiety for the course
   7. Staff role
   8. Confidence in technical back-up support
   9. Having documentation of student performance and activity
   10. Motivating students

   11. Having to deal with technology
   12. Flexibility of class topic schedule
   13. Understanding student knowledge
   14. Monitoring student engagement and learning
   15. Student assessment

e. What are your greatest concerns about moving to online delivery?

f. How would the design of the online course differ from how you

   designed face-to-face?

g. How much do you feel in control of what is happening when designing

     an online course?

h. Please add any other comments that you believe need to be considered
   for a move to online delivery

3.   <u>Problem Based Learning – Impressions after two meetings.</u>

   a.   What are the main learning issues that have arisen so far in this
        'Case'?

   b.   What are your initial impressions of PBL?

   c.   Describe what you learned from the first two meetings.

   d.   In retrospect after the two meetings have you formed any opinion on
        using PBL to resolve the Case Problem of moving to deliver the
        Degree α using online technology?

   e.   What learning theories are you aware of that could underpin the
        learning in an online mode

   f.   Have you ever attended any course in PBL?

   g.   What support do you need to be able to resolve the Case Problem?

   h.   Please use 'feeling' words to describe your current experience in this
        staff group.

   i.   Any other comments or recommendations?
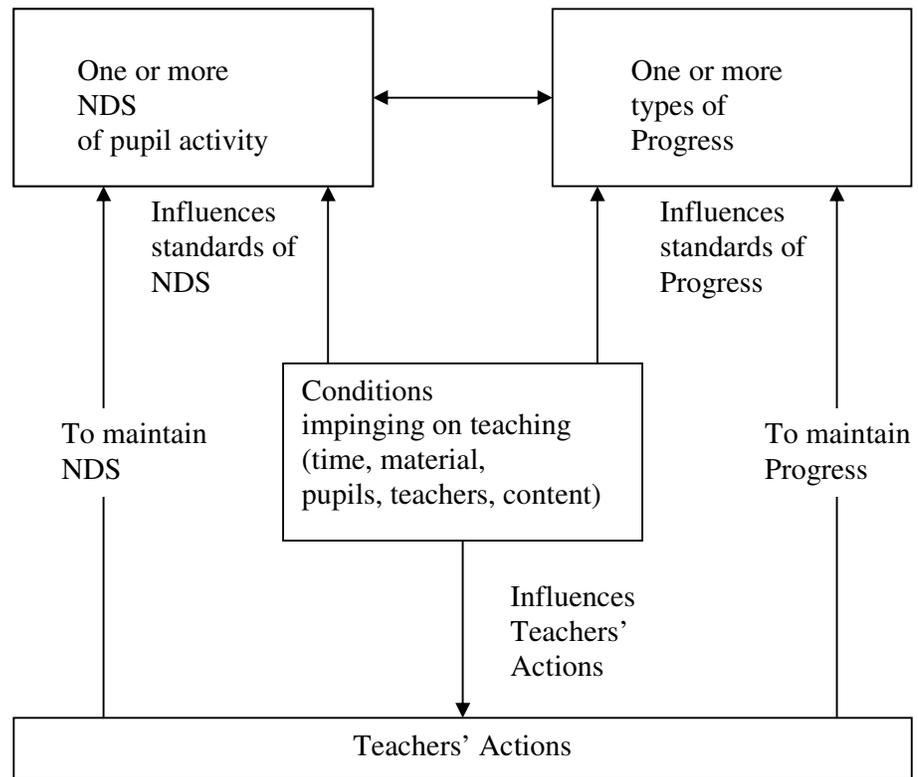
where **NDS** (a Normal Desirable State of student activity) is the dominant generalisable concept used by teachers in evaluating their own teaching. Different teachers have different conceptions of NDS even in cases where similar tasks were being undertaken. Three broad categories of **Progress** were identified by Brown and McIntyre. Some categories of Progress may be necessary to achieve the NDS and the NDS may contribute to Progress.

In order to achieve their goals (to maintain NDS and promote Progress) Teachers take certain **Actions** and they evaluate these in terms of their success in achieving their goals. There are of course **Conditions** that impinge on the teaching and these have an effect on influencing Teachers Actions.

Figure 2.2.2.ii The Model of Brown and McIntyre

APPENDIX 3   QUESTIONS USED IN INTITAL INTERVIEWS AT
                  PHASE 2

<u>Structure of Interviews for Data Collection.</u>

<u>Individual Interviews</u>

(First Interview)

(Welcome and to confirm the person on tape)
First Name, **Thank you for your time for this interview.**
How long have you been teaching on the *Specific Degree Programme*

(Broad introductory question to settle them and give confidence)
Can you recall a teaching experience that you feel very positive about?

What do you think made it a positive experience?

Do you see any opportunities and possibilities to develop that sense of positive experience in your delivery of learning to the students on the *Specific Degree Programme***?**

Could you extend that and talk to me about using new technologies? What would you say about where they can take you in terms of the potential and what we have been talking about?

Now, – just one further extension of your thinking. – Talk to me about 'Good Teaching', or 'Enjoyable Teaching', and the issue of collaborating with colleagues in working together.

That has been very helpful. Can I have you comments on one more topic? You've talked about what you enjoy about teaching (*and some of the things you don't enjoy***). Here's a diagram that I have found useful in helping me to think about what we do. Have a look at the diagram and see if there is anything that you feel makes a connection between what you have been saying (***or some things you have not yet said***) and some of the issues that we have been discussing.**

Show the tetrahedron, and possibly have the axis of learning of individual/social, reflection/non-reflection, cognitive/experience.

Thank you, *First Name***. I really appreciate your time. You know I will be interviewing some other colleagues. Can I ask you not to discuss the interview with any of them until we meet together as a Group. Many thanks.**

Models of Knowing, Learning and Delivery

Knowledge (Courses, Curriculum, Syllabi)

Learning Theories

Student
Development
Learning

Staff

Representation (Teaching & Learning
Resources)
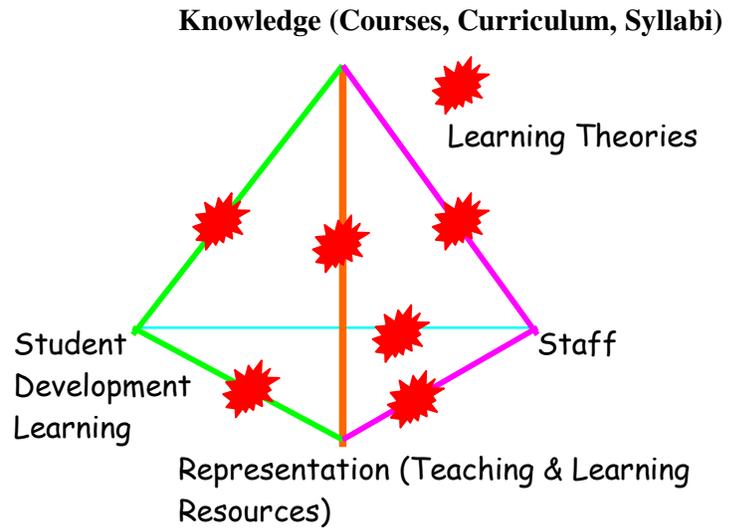
Learning Theories – Continuums

Individual

Non
Reflection

Information

Experience

Reflection

Social
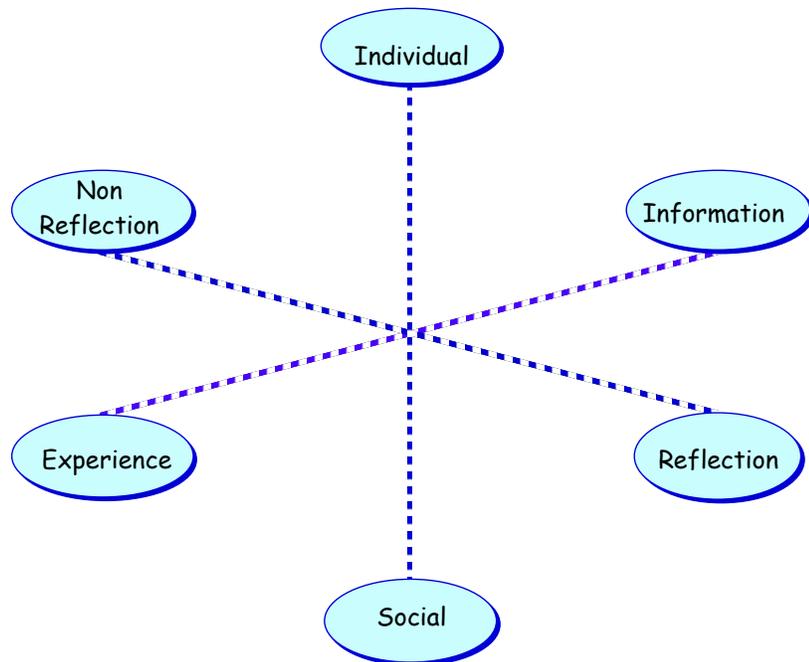
APPENDIX 4

GUIDANCE PAGES FOR THREE INDEPENDENT CO-RATERS

Applying Grounded Theory to Individual and Group Interview Discussions Selection of Categories

The following pages define the five degree groups of staff who were interviewed.

To seek to maintain anonymity the staff names have been replaced by Staff letters and the Degrees gave been Greek letters. There is no significance to the sequencing.

Individual Staff Interviews have been filed in alphabetic order of the Staff letter.
The Group discussions have been filed in alphabetic sequence.

One staff, Staff H, was unavailable for the Degree α Group discussion.

One staff, Staff T, joined both the Degree β and Degree γ Group discussions.

One Staff, Staff Y, was unable to arrange a suitable time for the individual interview, and joined the Degree δ Group discussion 11 minutes after it had commenced.

One Staff, Staff Z, had to cancel the individual interview at short notice due to a family bereavement, and was not available for the Degree ε Group discussion

Two staff, Staff P and Staff U were unavailable for the Degree ε Group discussion. Two staff, Staff A1, Staff A2 substituted for them in the Group discussion.

References to individual Staff Names, subject names, areas of work practice and similar transcriptions of the recorded data have been replaced, after transcription, to seek to maintain anonymity of all staff and all degrees. Where this has been inadequately completed is an oversight by the researcher due to the volume of transcribed data to be scanned. Every effort has been made not to affect the 'flow' or sense of the recorded data.

Robbie Burns   22 October 2004

Draft Structure, dates and questions for Individual and Group Interviews.

	Date/Time 1st Interview	Date/Time 2nd Interview

(Degree α) **16.03.04 @ 11.30**
Staff E   18.02.04 @ 16.30
Staff B   02.02.04 @ 10.15
Staff H   03.02.04 @ 09.30 (but was not available for Group discussion)
Staff G   22.01.04 @ 10.00
Staff M   28.01.04 @ 14.00

(Degree β) **15.03.04 @ 16.30**
Staff R   22.01.04 @ 14.00
Staff A   26.01.04 @ 16.00
Staff I   09.02.04 @ 16.30
Staff O   27.01.04 @ 17.00
Staff T   28.01.04 @ 11.00

(Degree γ) **02.04.04 @ 09.15**(Staff T also joined the Group Discussion)
Staff S   28.01.04 @ 15.00
Staff C   03.02.04 @ 15.30
Staff F   12.02.04 @ 11.45

(Degree δ) **01.04.02 @ 14.00**
Staff L   29.01.04 @ 10.30
Staff K   03.02.04 @ 10.30
Staff N   09.02.04 @ 14.00
Staff Y   was not available for interview on a number of occasions, but joined the Group discussion 11 minutes into the discussion)

(Degree ε) **28.04.04 @11.00**
Staff Q   03.02.04 @ 13.00
Staff D   29.01.04 @ 15.00
Staff Z   *was not available for interview (bereavement), or group discussion*
Staff X   05.02.04 @ 14.00
Staff P   03.02.04 @ 14.45 (but was unavailable for the Group discussion)
Staff V   03.02.04 @ 13.30
Staff U   29.01.04 @ 14.30 (but was unavailable for the Group discussion)
Staff J   29.01.04 @ 15.30
Staff A1   joined the Group discussion
Staff A2   joined the group discussion

Structure of Interviews for Data Collection.

(First Interview)
(To seek to establish a relaxed environment, invite comment on course design, development and delivery using a blend of learning including online learning, before inviting comment on the research diagrams)

(Welcome and to confirm the person on tape)
First Name, **Thank you for your time for this interview.**
1. How long have you been teaching on the *Specific Degree Programme?*

(Broad introductory question to settle them and give confidence)
2. Can you recall a teaching experience that you feel very positive about?

3. What do you think made it a positive experience?

4. Do you see any opportunities and possibilities to develop that sense of positive experience in your delivery of learning to the students on the *Specific Degree Programme*?

5. Could you extend that and talk to me about using new technologies? What would you say about where they can take you in terms of the potential and what we have been talking about?

6. Now, - just one further extension of your thinking. – Talk to me about 'Good Teaching', or 'Enjoyable Teaching', and the issue of collaborating with colleagues in working together.

7. That has been very helpful. Can I have you comments on one more topic? You've talked about what you enjoy about teaching (*and some of the things you don't enjoy***). Here's a diagram that I have found useful in helping me to think about what we do. Have a look at the diagram and see if there is anything that you feel makes a connection between what you have been saying (***or some things you have not yet said***) and some of the issues that we have been discussing.**

Show the tetrahedron, and the axis of learning of individual/social, reflection/non-reflection, cognitive/experience.

Thank you, *First Name*. **I really appreciate your time. You know I will be interviewing some other colleagues. Can I ask you not to discuss the interview with any of them until we meet together as a Group? Many thanks.**

(First Interview, to be held after the completion of the first individual interviews)

Welcome to this group discussion regarding the *Degree Course Name*
During our individual discussions we talked about 'good teaching' and 'enjoyable teaching'. I also asked you to try to relate some of your thinking to the diagrams I am working with.

I would now like to listen to your group discussion as you talk together about developing the course for a blend of learning that will include online delivery.

Here are the same diagrams just to have it in front of you for reference.

1. How do you as a group want to develop the *Degree Course Name* to have a blend of learning that improves student learning?

Depending on the individual responses within the group, facilitate the discussion to cover...

2. What have you specified as the (broad) aims of the course?

3. Could you be more specific about the Learning Outcomes? (Knowledge, Know-How & Skill, Competence)

4. How does your delivery seek to achieve these Learning Outcomes?

5. Talk to me about the Constructive Alignment between your Learning Outcomes and your Assessment.

6. What has influenced your thinking about course delivery?

7. How do you think the course will be improved?

8. What do you need / have you had to learn so that you can deliver the new approach?

9. What are your expectations as you work together?

APPENDIX 5   INTER RATER RELIABILITY TESTS Tables 5.4.6a and 5.4.6b

Total Sample

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	345	0.568	0.100	0.000	P<0.001
	Group 2	Disagree	262	0.432			
	Total		607	1.000			
Rater 1 with Rater 3	Group 1	Disagree	255	0.420	0.100	0.000	P<0.001
	Group 2	Agree	352	0.580			
	Total		607	1.000			
Rater 2 with Rater 3	Group 1	Disagree	259	0.427	0.100	0.000	P<0.001
	Group 2	Agree	348	0.573			
	Total		607	1.000			
a	Based on Z Approximation.						

Degree α

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	77	0.527	0.100	0.000	P<0.001
	Group 2	Disagree	69	0.473			
	Total		146	1.000			
Rater 1 with Rater 3	Group 1	Disagree	72	0.493	0.100	0.000	P<0.001
	Group 2	Agree	74	0.507			
	Total		146	1.000			
Rater 2 with Rater 3	Group 1	Disagree	59	0.404	0.100	0.000	P<0.001
	Group 2	Agree	87	0.596			
	Total		146	1.000			
a	Based on Z Approximation.						

INTER RATER RELIABILITY TESTS Tables 5.4.6c and 5.4.6d

Degree β

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	74	0.544	0.100	0.000	P<0.001
	Group 2	Disagree	62	0.456			
	Total		136	1.000			
Rater 1 with Rater 3	Group 1	Disagree	55	0.404	0.100	0.000	P<0.001
	Group 2	Agree	81	0.596			
	Total		136	1.000			
Rater 2 with Rater 3	Group 1	Disagree	63	0.463	0.100	0.000	P<0.001
	Group 2	Agree	73	0.537			
	Total		136	1.000			
a	Based on Z Approximation.						

Degree γ

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	32	0.451	0.100	0.000	P<0.001
	Group 2	Disagree	39	0.549			
	Total		71	1.000			
Rater 1 with Rater 3	Group 1	Disagree	41	0.577	0.100	0.000	P<0.001
	Group 2	Agree	30	0.423			
	Total		71	1.000			
Rater 2 with Rater 3	Group 1	Disagree	28	0.394	0.100	0.000	P<0.001
	Group 2	Agree	43	0.606			
	Total		71	1.000			
A	Based on Z Approximation.						

INTER RATER RELIABILITY TESTS Tables 5.4.6e and 5.4.6f

Degree δ								
Binomial Test								
		Category	N		Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	44		0.524	0.100	0.000	P<0.001
	Group 2	Disagree	40		0.476			
	Total		84		1.000			
Rater 1 with Rater 3	Group 1	Disagree	37		0.440	0.100	0.000	P<0.001
	Group 2	Agree	47		0.560			
	Total		84		1.000			
Rater 2 with Rater 3	Group 1	Disagree	41		0.488	0.100	0.000	P<0.001
	Group 2	Agree	43		0.512			
	Total		84		1.000			
a	Based on Z Approximation.							

Degree ε								
Binomial Test								
		Category	N		Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)	
Rater 1 with Rater 2	Group 1	Agree	55		0.324	0.100	0.000	P<0.001
	Group 2	Disagree	115		0.676			
	Total		170		1.000			
Rater 1 with Rater 3	Group 1	Disagree	61		0.359	0.100	0.000	P<0.001
	Group 2	Agree	109		0.641			
	Total		170		1.000			
Rater 2 with Rater 3	Group 1	Disagree	104		0.612	0.100	0.000	P<0.001
	Group 2	Agree	66		0.388			
	Total		170		1.000			
a	Based on Z Approximation.							

APPENDIX 6 –LEARNING ISSUES IDENTIFIED BY CO-RATERS

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
1	B	4	12	1	1	1	3	6	Affordances of ICT
1	H	4	11	1	1	1	3	5	Anxiety about technology
1	G	7	10	1	1	1	3	7	Assessment driving learning
1	E	3	1	1	1	1	3	3	Assessment feedback
1	G	4	2	1	1	1	3	5	Assignment feedback
1	B	4	17	1	1	1	3	6	Collaboration
1	M	5	6	1	1	1	3	6	Collaboration
1	E	8	37	1	1	1	3	7	Feedback to students
1	B	3	17	1	1	1	3	5	Fun
1	G	1	47	1	1	1	3	3	Group Dynamics
1	E	4	16	1	1	1	3	4	Group Dynamics, peer pressure
1	M	7	30	1	1	1	3	7	Group Individual issues
1	B	1	32	1	1	1	3	3	Group Interactive learning
1	B	6	21	1	1	1	3	7	Group/Individual issues
1	B	6	40	1	1	1	3	7	Group/Individual issues
1	H	12	15	1	1	1	3	7	Group/Individual issues
1	E	7	20	1	1	1	3	7	Hands on learning
1	B	2	11	1	1	1	3	4	Interactive groups
1	E	6	11	1	1	1	3	7	Interactive groups
1	H	2	26	1	1	1	3	2	Kolb
1	H	8	40	1	1	1	3	7	Kolb
1	G	7	25	1	1	1	3	7	Lack of qualifications
1	M	5	3	1	1	1	3	6	Leadership issues
1	G	4	21	1	1	1	3	5	Learning on technology
1	E	2	29	1	1	1	3	3	Non judgmental support asking questions
1	H	6	34	1	1	1	3	6	Perceptions about collaborating with colleagues
1	G	1	43	1	1	1	3	3	Preparation
1	G	4	2	1	1	1	3	5	Prior learning
1	H	5	13	1	1	1	3	5	Reasons for poor uptake in technology
1	B	5	43	1	1	1	3	7	Reflection
1	G	6	8	1	1	1	3	7	Reflection on teaching
1	M	1	36	1	1	1	3	3	Relevant
1	M	6	25	1	1	1	3	7	Role of staff development
1	B	7	22	1	1	1	3	7	Small Group Assignments
1	G	6	45	1	1	1	3	7	Socio cultural issues
1	M	7	44	1	1	1	3	7	Socio cultural issues
1	G	1	26	1	1	1	3	2	Staff learning from students
1	G	4	8	1	1	1	3	5	Staff Motivation
1	G	5	3	1	1	1	3	6	Staff student response
1	E	1	48	1	1	1	3	3	Student Learning
1	B	3	35	1	1	1	3	5	Technical support
1	B	6	1	1	1	1	3	7	Theory to practice
1	B	4	35	1	1	1	3	6	Time
1	B	4	50	1	1	1	3	6	Time
1	H	5	39	1	1	1	3	5	Time
1	H	2	44	1	1	1	3	3	Variety of Teaching methods
1	M	4	1	1	1		2	5	Benefit of technology
1	H	11	3	1	1		2	7	Kolb
1	H	2	50	1	1		2	3	Learner types
1	M	8	5	1	1		2	7	Peer issues

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
1	B	1	15	1	1		2	3	Prior learning
1	M	7	39	1	1		2	7	Reflection
1	G	2	42	1	1		2	4	Reflection to develop participation
1	G	4	47	1	1		2	6	Reflective response
1	H	10	5	1	1		2	7	Role play into reflection
1	G	3	30	1	1		2	4	Staff Collaboration integrated assessment
1	B	5	7	1	1		2	6	Student expectation
1	B	4	40	1	1		2	6	Teaching styles
1	H	2	4	1	1		2	2	Theory to practice
1	G	3	7	1	1		2	4	Time
1	E	3	42	1		1	2	4	Technology supports group work
1	B	7	16	1		1	2	7	Understanding not clear
1	E	1	28	1		1	2	2	Assessment
1	M	7	15	1		1	2	7	Case study building on prior knowledge
1	M	1	31	1		1	2	3	Communication rapport
1	M	6	46	1		1	2	7	Creativity
1	M	2	3	1		1	2	4	Fun
1	H	8	18	1		1	2	7	Group work
1	H	11	34	1		1	2	7	Learning from each other
1	M	2	40	1		1	2	4	Linkage workplace to theory
1	M	3	48	1		1	2	5	Moderating self paced learning
1	E	2	13	1		1	2	3	Motivation
1	E	1	18	1		1	2	2	Personal Satisfaction
1	G	2	21	1		1	2	3	Preparation
1	H	7	11	1		1	2	6	Preparation
1	G	1	21	1		1	2	3	Relaxed Atmosphere
1	G	2	46	1		1	2	4	Self Directed study
1	E	9	2	1		1	2	7	Staff development by ongoing doing
1	B	6	9	1		1	2	7	Staff new knowledge
1	E	1	40	1		1	2	3	Staff Student learning together
1	G	1	19	1		1	2	2	Student interaction
1	E	3	20	1		1	2	3	Student Prior Reading
1	E	4	49		1	1	2	5	Facilitator
1	G	3	15		1	1	2	4	Learning opportunities
1	M	1	41		1	1	2	3	Make linkages theory to practice
1	G	4	11		1	1	2	5	Technology needs
1	G	7	42		1	1	2	7	Theory to practice
1	E	8	1	1			1	7	Assessment Strategies
1	B	2	33	1			1	4	Balance of Power
1	E	3	32	1			1	3	Benefit of Technology
1	M	4	28	1			1	6	Benefits from colleagues learning
1	H	5	6	1			1	5	Control by technology
1	M	3	7	1			1	5	Creative & Artistic skills
1	M	4	42	1			1	6	Early adopter
1	G	1	13	1			1	2	Fear
1	G	6	28	1			1	7	Fear demotivates
1	G	2	10	1			1	3	Feedback develop through moderating
1	G	8	3	1			1	7	Fun
1	M	7	23	1			1	7	Fun
1	H	1	20	1			1	2	Impact of a leader

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D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
1	H	3	47	1			1	4	Knowledge of students
1	M	3	18	1			1	5	Leader
1	M	8	2	1			1	7	LTC supports reflection
1	G	7	13	1			1	7	Organisation Culture
1	M	8	18	1			1	7	Peer issues
1	E	6	24	1			1	7	Peer pressure
1	M	6	36	1			1	7	Peer pressure
1	M	2	22	1			1	4	Peer review
1	M	4	13	1			1	5	Peer review
1	M	7	4	1			1	7	Prior knowledge
1	H	11	17	1			1	7	Prior Preparation
1	M	8	12	1			1	7	Pursuit of excellence
1	B	1	44	1			1	3	Relevant
1	M	2	28	1			1	4	Research Informed
1	H	3	8	1			1	3	Staff preparation
1	E	7	39	1			1	7	Student feedback
1	M	3	28	1			1	5	Student involvement
1	H	9	13	1			1	7	Student types
1	M	1	21	1			1	2	Theory and practice
1	M	4	17	1			1	5	Time
1	M	3	14	1			1	5	Time and team effort
1	H	8	28	1			1	7	Variety of teaching strategies
1	B	1	22	1			1	3	Work related
1	B	3	1		1		1	5	Affordances of ICT
1	E	4	3		1		1	4	Benefits of Technology
1	B	4	45		1		1	6	Collaborating using technology
1	H	2	30		1		1	2	Impact of leaders
1	M	3	1		1		1	5	Perceived benefits of technology
1	B	3	42		1		1	5	Wariness of IT
1	H	6	13			1	1	5	Attitude to technology
1	M	2	18			1	1	4	Engage in hands on
1	B	1	18			1	1	3	Interactive groups
1	H	11	43			1	1	7	Learn individually
1	H	10	40			1	1	7	Learning did happen
1	E	5	13			1	1	6	Positive Staff attitudes
1	G	1	31			1	1	3	Relevant
1	H	5	48			1	1	5	Role of Academic
1	M	3	16			1	1	5	Teaching on your own
1	H	9	28			1	1	7	Try something out
1	H	11	29			1	1	7	Variety of learning
1	H	1	33			1	1	2	Variety of teaching strategies
1	H	9	44			1	1	7	Variety using technology
1	H	3	37			1	1	4	Very individual approach
1	H	10	19			1	1	7	Visual handouts
1	G	2	31			1	1	3	What students want
1	G	3	26			1	1	4	Work as individuals

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
2	A	4	49	1	1	1	3	5	(In)Equality of access
2	I	2	5	1	1	1	3	5	(In)Equality of access
2	T	3	35	1	1	1	3	5	(In)Equality of access
2	A	8	16	1	1	1	3	7	(Reluctance) Time
2	A	4	20	1	1	1	3	5	Adapting to technology
2	I	1	44	1	1	1	3	5	Affordances of ICT
2	R	2	10	1	1	1	3	3	Aligned to industry
2	A	8	48	1	1	1	3	7	Applying theory to practice
2	R	1	19	1	1	1	3	2	Applying theory to practice
2	R	4	13	1	1	1	3	6	Benefits of collaborating
2	R	5	40	1	1	1	3	7	Benefits of technology
2	T	5	36	1	1	1	3	7	Change teaching practice
2	I	4	23	1	1	1	3	7	Class size
2	T	4	19	1	1	1	3	6	Collaboration
2	R	3	26	1	1	1	3	5	Concerns using technology
2	A	5	5	1	1	1	3	5	Cost Factor in internet use
2	A	7	34	1	1	1	3	7	Different Learning Styles
2	O	2	19	1	1	1	3	4	Education v Training
2	O	3	9	1	1	1	3	5	Exploit Affordances
2	A	6	12	1	1	1	3	6	Fear demotivates
2	R	1	24	1	1	1	3	2	Group Interactive learning
2	R	5	47	1	1	1	3	7	Improved teaching style
2	A	3	31	1	1	1	3	4	Integrating Technology
2	R	5	5	1	1	1	3	7	Kolb
2	T	7	29	1	1	1	3	7	Learn better in groups
2	R	6	8	1	1	1	3	7	Learning and practice
2	R	1	40	1	1	1	3	2	Learning Styles
2	I	2	43	1	1	1	3	6	Locus of Power
2	O	4	20	1	1	1	3	6	Locus of Power
2	A	5	24	1	1	1	3	5	March of technology
2	O	4	24	1	1	1	3	6	Need for trust
2	A	6	4	1	1	1	3	6	Need to build trust
2	A	8	24	1	1	1	3	7	New learning by staff
2	I	4	36	1	1	1	3	7	Real Life scenarios
2	I	4	48	1	1	1	3	7	Real Life scenarios
2	T	6	10	1	1	1	3	7	Reflection
2	T	6	30	1	1	1	3	7	Staff learning from students
2	T	4	31	1	1	1	3	6	Staff Relationships
2	R	2	49	1	1	1	3	4	Student collaboration
2	T	3	24	1	1	1	3	5	Student interaction
2	R	2	34	1	1	1	3	4	Student Prior Reading
2	O	4	16	1	1	1	3	6	Suspicion, lack of trust
2	R	2	38	1	1	1	3	4	Theory to practice
2	T	2	41	1	1	1	3	4	Time
2	T	6	3	1	1	1	3	7	Time
2	O	3	26	1	1	1	3	5	Time and commitment
2	A	2	12	1	1		2	3	Assessment Feedback
2	T	3	15	1	1		2	5	Benefits of technology
2	R	5	1	1	1		2	7	Experiential approach
2	A	3	3	1	1		2	3	Feedback to students

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
2	R	5	14	1	1		2	7	Future teaching practice
2	R	5	34	1	1		2	7	Improved teaching style
2	R	6	2	1	1		2	7	IT Resources in teaching
2	T	6	15	1	1		2	7	Learning Styles
2	R	2	16	1	1		2	3	Moderating based on experience
2	R	6	22	1	1		2	7	Perceived benefits of technology
2	T	7	37	1	1		2	7	Reflection
2	A	5	40	1	1		2	6	Reluctant acceptance of Collaboration
2	A	2	34	1	1		2	3	Research Informed
2	T	1	15	1	1		2	2	Staff motivation
2	T	2	35	1	1		2	4	Student interaction
2	A	1	18	1	1		2	2	Student Prior Reading
2	I	2	19	1	1		2	5	Technology Potential
2	T	7	8	1	1		2	7	Time for group work
2	T	3	45	1	1		2	5	Time management
2	O	6	29	1		1	2	7	Applying theory to practice
2	O	1	50	1		1	2	3	Appraisal
2	A	1	38	1		1	2	2	Delegating Choice
2	I	1	9	1		1	2	2	Enabled interaction
2	I	1	24	1		1	2	4	Fun
2	I	1	19	1		1	2	3	Good relationships
2	T	2	49	1		1	2	4	Group work
2	I	4	10	1		1	2	7	Group/Individual issues
2	I	5	24	1		1	2	7	Group/Individual issues
2	O	6	47	1		1	2	7	Group/Individual issues
2	I	6	29	1		1	2	7	Locus of Power
2	O	1	36	1		1	2	3	Prior learning
2	I	6	15	1		1	2	7	Relevant
2	O	3	45	1		1	2	5	Research Informed
2	O	6	22	1		1	2	7	Staff Development is key
2	A	3	48	1		1	2	5	Staff Enthusiasm
2	I	6	19	1		1	2	7	Staff Student learning together
2	O	6	33	1		1	2	7	Staff to students
2	O	1	11	1		1	2	2	Staff Well prepared
2	A	7	49	1		1	2	7	Technology might help with social issues
2	I	5	48		1	1	2	7	Application
2	I	2	37		1	1	2	6	Collaborating with technology
2	I	3	12		1	1	2	6	Confusion by collaborating
2	T	1	21		1	1	2	2	Interaction and discussion
2	O	1	25		1	1	2	3	Interaction Staff/Students
2	A	6	22		1	1	2	6	Need support staff
2	O	5	8		1	1	2	6	Potential for technology, collaboration
2	A	2	21		1	1	2	3	Student Learning
2	O	2	29		1	1	2	5	Technology and learning
2	R	3	1	1			1	4	Activity Based learning
2	I	1	29	1			1	4	Advance Preparation
2	T	1	47	1			1	2	Case study
2	T	2	9	1			1	3	Fun
2	T	3	20	1			1	5	Learning Styles
2	T	2	4	1			1	3	Motivated Staff

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
2	T	4	10	1			1	6	Need for Fun
2	A	8	5	1			1	7	Personal preferred style
2	T	1	49	1			1	2	Physical environment
2	R	1	22	1			1	2	Practical Impact
2	R	5	30	1			1	7	Prior knowledge of ICT
2	O	3	3	1			1	5	Prior learning
2	A	7	40	1			1	7	Socio cultural issues
2	R	1	15	1			1	2	Specific Learning Outcomes
2	O	5	50	1			1	7	Staff Development is key
2	T	2	21	1			1	3	Staff learning from students
2	I	4	3	1			1	7	Time
2	R	3	14	1			1	5	Unclear how to exploit learning
2	T	6	22		1		1	7	Actively motivated
2	T	4	12		1		1	6	Class size
2	R	6	45		1		1	7	Feelings about technology
2	A	4	2		1		1	5	Hard Copy material
2	A	8	38		1		1	7	Improved resources
2	R	2	43		1		1	4	Increased communication
2	R	2	28		1		1	4	Increased time for activities
2	O	7	12		1		1	7	Misunderstanding of reflection
2	R	6	36		1		1	7	Perceived benefits of technology
2	R	5	25		1		1	7	Potential for WebCT
2	T	2	12		1		1	3	Reciprocated learning
2	T	5	49		1		1	7	Socio cultural issues
2	R	4	33		1		1	7	Staff or professional development
2	T	1	34		1		1	2	Student interaction
2	T	2	6		1		1	3	Subject Expertise
2	T	1	28			1	1	2	Got theory across
2	I	5	13			1	1	7	Group/Individual issues
2	O	2	5			1	1	4	Learning by overhead transparencies
2	T	4	8			1	1	6	Loss of concentration
2	I	3	46			1	1	7	Prior learning
2	A	2	25			1	1	3	Quality Assurance
2	R	7	8			1	1	7	Talking clarifies thinking
2	O	2	42			1	1	5	Technology and learning
2	T	5	30			1	1	7	Time

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
3	F	3	41	1	1	1	3	4	Assessment mark
3	C	2	22	1	1	1	3	4	Blended parallel approaches
3	S	4	10	1	1	1	3	6	Collaboration benefits
3	S	4	27	1	1	1	3	6	Collaboration benefits
3	F	3	3	1	1	1	3	4	Confidence
3	C	4	48	1	1	1	3	6	eModerating
3	C	4	38	1	1	1	3	6	Engaging Students
3	C	6	6	1	1	1	3	7	Experience of Learning Theory
3	S	6	18	1	1	1	3	7	Group/Individual issues
3	C	6	29	1	1	1	3	7	Individual/group issues
3	C	3	28	1	1	1	3	5	Institutional issue
3	S	1	39	1	1	1	3	3	Interaction
3	S	2	43	1	1	1	3	5	Lack of qualifications
3	S	2	49	1	1	1	3	5	Language weakness
3	C	2	20	1	1	1	3	4	Learning Styles
3	S	5	21	1	1	1	3	7	Learning Theories
3	S	3	21	1	1	1	3	3	Potential for technology projects for diversity
3	S	6	41	1	1	1	3	7	Power of group work
3	F	3	8	1	1	1	3	4	Skills
3	S	1	43	1	1	1	3	3	Staff learning from students, interaction
3	F	4	47	1	1	1	3	5	Student centred
3	S	6	12	1	1	1	3	7	Student interaction
3	C	1	29	1	1	1	3	3	Student responsible to learn
3	F	8	11	1	1	1	3	7	Time
3	F	4	10	1	1	1	3	4	Use of video for group
3	C	3	19	1	1	1	3	5	WebCT is stronger
3	S	2	23	1	1		2	4	Focused learning, Interest
3	F	1	20	1	1		2	2	Fun
3	S	5	49	1	1		2	7	Over assessing
3	S	2	6	1	1		2	3	Prior knowledge
3	S	2	14	1	1		2	3	Relevant
3	F	4	38	1	1		2	5	Scaffolded support
3	F	4	24	1	1		2	5	Self-assessment
3	S	3	5	1	1		2	5	Teaching Language
3	F	2	40	1	1		2	4	Time
3	C	5	45	1		1	2	7	Engaging Students
3	F	5	49	1		1	2	6	Fatigue
3	S	1	26	1		1	2	2	Interaction, fun
3	F	2	18	1		1	2	3	Interest
3	S	7	20	1		1	2	7	Not sure on Learning Theories
3	F	7	33	1		1	2	7	Reflection on teaching
3	C	1	10	1		1	2	2	Student Enthusiasm
3	C	2	4	1		1	2	3	Support for the student
3	F	6	32		1	1	2	6	Collaboration
3	F	5	16		1	1	2	6	Fear demotivates
3	C	3	1		1	1	2	5	Integrating technology - Simulation
3	F	9	11		1	1	2	7	Prior learning
3	F	1	26		1	1	2	3	Student interaction
3	F	8	9		1	1	2	7	Student support
3	F	5	32	1			1	6	Anxiety

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
3	S	1	23	1			1	2	Case studies
3	C	1	37	1			1	3	Integrated Learning
3	C	5	29	1			1	7	Knowledge from experience
3	S	6	1	1			1	7	Learning Outcomes
3	S	2	31	1			1	4	Prior knowledge
3	F	3	29	1			1	4	Relationships
3	C	5	38	1			1	7	Repetition
3	S	2	1	1			1	3	Staff Preparation
3	F	4	17	1			1	5	Time
3	S	3	37	1			1	3	Work related assessment
3	S	4	7		1		1	6	Enjoyable
3	C	4	16		1		1	6	Integrating Technology
3	S	4	19		1		1	6	Interesting
3	C	3	48		1		1	5	Perceived potential of technology
3	C	3	32		1		1	5	Reasons for uptake of technology
3	F	4	31		1		1	5	Self directed learning
3	C	1	34		1		1	3	Tutor facilitation
3	C	4	35			1	1	6	Discussion board is a good way to learn
3	C	3	45			1	1	6	Integrated Teaching
3	F	4	3			1	1	5	Non engagement with technology
3	S	1	34			1	1	2	Students engaged

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
4	K	5	13	1	1	1	3	7	Blend of learning
4	K	3	16	1	1	1	3	6	Collaboration benefits
4	L	4	19	1	1	1	3	6	Collaboration benefits
4	L	4	33	1	1	1	3	6	Collaboration benefits
4	N	7	40	1	1	1	3	7	Collaboration support to resolve difficulties
4	K	4	44	1	1	1	3	7	Dialogue is better
4	N	1	24	1	1	1	3	3	Extended Project work
4	N	10	6	1	1	1	3	7	Group work issues
4	K	5	38	1	1	1	3	7	Group/Individual issues
4	N	10	25	1	1	1	3	7	Group/Individual issues
4	K	4	11	1	1	1	3	7	Learning from students
4	L	1	15	1	1	1	3	2	Learning Styles
4	L	7	18	1	1	1	3	7	Learning Styles
4	L	8	12	1	1	1	3	7	Reflection on learning
4	N	3	41	1	1	1	3	5	Staff collaboration
4	N	6	41	1	1	1	3	6	Staff collaboration
4	K	1	46	1	1	1	3	4	Student interaction
4	K	1	49	1	1	1	3	4	Student Prior Reading
4	N	3	17	1	1	1	3	5	Student Prior Reading
4	N	10	20	1	1	1	3	7	Student relationships
4	N	9	38	1	1	1	3	7	Technical support
4	K	6	2	1	1	1	3	7	Time for reflection
4	N	3	44	1	1		2	5	Benefit of Technology
4	L	4	45	1	1		2	6	Collaboration benefits
4	K	2	41	1	1		2	4	Facilitator
4	L	5	29	1	1		2	6	Learning from students
4	L	5	19	1	1		2	6	Perceived benefits of technology
4	L	3	1	1	1		2	4	Reflection
4	K	1	30	1	1		2	3	Relevant
4	N	2	28	1	1		2	4	Staff preparation
4	K	6	7	1	1		2	7	Theory to practice
4	N	8	38	1	1		2	7	Time
4	N	5	14	1		1	2	5	Addition not replacement
4	N	7	34	1		1	2	6	Collaboration benefits
4	L	6	10	1		1	2	6	eModerating
4	N	4	12	1		1	2	5	Exploit Affordances
4	N	6	1	1		1	2	6	Good quote
4	N	9	19	1		1	2	7	Group work preferred
4	L	5	10	1		1	2	6	Learning from colleagues
4	L	5	45	1		1	2	6	Learning from distance
4	N	4	25	1		1	2	5	Locus of Power
4	K	2	19	1		1	2	5	Maintaining a database of journal articles
4	N	6	11	1		1	2	6	Mixed ability challenge
4	K	4	17	1		1	2	7	New Student knowledge
4	L	7	43	1		1	2	7	Reflection on teaching
4	N	2	7	1		1	2	3	Relevant
4	N	9	2	1		1	2	7	Relevant
4	N	6	23	1		1	2	6	Staff availability
4	N	8	29	1		1	2	7	Staff development
4	L	2	39	1		1	2	4	Student lecturer communication

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
4	K	2	9	1		1	2	5	Student Prior Reading
4	N	3	33	1		1	2	5	Technical support issues
4	L	8	44	1		1	2	7	Theory to practice
4	N	1	13	1		1	2	2	Theory to practice
4	N	1	46	1		1	2	3	Theory to practice
4	K	3	34		1	1	2	6	Academic & Practice
4	N	3	8		1	1	2	5	Benefit of Technology
4	K	4	39		1	1	2	7	Benefits of technology improved communications
4	K	1	34		1	1	2	3	Influences on learning
4	K	5	19		1	1	2	7	More passive
4	L	3	21		1	1	2	5	Potential for technology, collaboration
4	L	2	13		1	1	2	3	Staff/Student interaction
4	L	7	7		1	1	2	7	Understanding learning
4	L	2	43	1			1	4	Confidence
4	K	2	33	1			1	5	Early Adopter
4	K	1	8	1			1	2	Project work
4	N	10	47	1			1	7	Reflection benefits
4	N	5	4	1			1	5	Staff emoderation
4	N	1	42	1			1	3	Student feedback
4	K	1	13	1			1	2	Student interaction
4	N	2	3	1			1	3	Student Prior Reading
4	N	9	25	1			1	7	Theory to practice
4	N	1	37	1			1	3	Tutor feedback
4	K	4	24	1			1	7	Variety of Representation
4	K	4	35		1		1	7	Benefits of technology
4	N	4	49		1		1	5	Interaction
4	L	7	32			1	1	7	Learning theories
4	K	2	3			1	1	5	Perceived us of technology
4	N	11	8			1	1	7	Reflection
4	N	8	18			1	1	7	Staff development
4	L	3	45			1	1	6	Stand alone teaching
4	K	1	25			1	1	3	Student engagement
4	L	5	3			1	1	6	Team teaching not done in DIT
4	L	2	30			1	1	3	Update materials

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
5	U	3	46	1	1	1	3	5	(In)Equality of access
5	P	6	23	1	1	1	3	7	1 on 1 Staff Learning
5	V	4	13	1	1	1	3	5	Affordances of ICT
5	P	3	37	1	1	1	3	5	Assessment driving learning
5	D	7	11	1	1	1	3	7	Behavioural Style
5	D	3	23	1	1	1	3	5	Benefits of technology
5	D	3	47	1	1	1	3	5	Benefits of technology
5	D	4	19	1	1	1	3	5	Benefits of technology
5	Q	4	22	1	1	1	3	7	Benefits of technology
5	V	3	24	1	1	1	3	5	Benefits of technology
5	V	3	39	1	1	1	3	5	Benefits of technology
5	X	5	20	1	1	1	3	6	Benefits of technology
5	V	2	31	1	1	1	3	5	Benefits of technology freedom
5	J	3	34	1	1	1	3	5	Benefits of WebCT
5	J	4	33	1	1	1	3	5	Blend of learning
5	J	6	33	1	1	1	3	7	Change in delivery
5	D	4	34	1	1	1	3	6	Collaboration benefits
5	V	4	25	1	1	1	3	6	Collaboration in assessments
5	Q	3	14	1	1	1	3	6	Collaboration team teaching
5	X	3	20	1	1	1	3	5	Communication can be difficult
5	V	5	46	1	1	1	3	7	Design / Representation
5	X	3	15	1	1	1	3	5	Discussion board concerns
5	Q	5	20	1	1	1	3	7	eLearning Pedagogy
5	Q	5	37	1	1	1	3	7	eLearning Pedagogy
5	X	4	3	1	1	1	3	5	eModerating
5	D	7	16	1	1	1	3	7	Experiential Style
5	J	4	12	1	1	1	3	5	Fear demotivates
5	J	3	27	1	1	1	3	5	Flexibility
5	P	4	33	1	1	1	3	6	Group/Individual evaluation
5	D	7	26	1	1	1	3	7	Group/Individual issues
5	P	4	40	1	1	1	3	6	Group/Individual issues
5	U	6	48	1	1	1	3	7	Group/Individual issues
5	J	5	12	1	1	1	3	6	Integrative assignments
5	P	3	49	1	1	1	3	6	Integrative assignments
5	V	2	14	1	1	1	3	4	Interaction with industry
5	P	2	32	1	1	1	3	5	Interactive activities online
5	Q	1	29	1	1	1	3	3	Interactive discussion
5	P	1	13	1	1	1	3	2	Interactive groups
5	P	1	33	1	1	1	3	3	Interactive groups
5	U	1	33	1	1	1	3	2	Interactive groups
5	P	6	3	1	1	1	3	7	Interactive learning
5	Q	2	20	1	1	1	3	5	Interactive learning
5	U	2	18	1	1	1	3	4	Involve students
5	X	5	8	1	1	1	3	6	Large numbers awkward
5	X	2	24	1	1	1	3	4	Learning from students
5	D	8	17	1	1	1	3	7	Learning strategies
5	Q	5	1	1	1	1	3	7	Learning Styles
5	Q	5	10	1	1	1	3	7	Learning Styles
5	P	6	30	1	1	1	3	7	Learning to inform teaching
5	D	1	31	1	1	1	3	2	Locus of Power

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
5	U	3	27	1	1	1	3	5	Locus of Power
5	X	7	2	1	1	1	3	7	Methods of delivery
5	P	2	47	1	1	1	3	5	Motivating issues, assessment, not just online notes
5	D	7	31	1	1	1	3	7	Passive Learning
5	X	7	7	1	1	1	3	7	PBL interesting students with WebCT
5	J	7	43	1	1	1	3	7	Perceived benefits of technology
5	J	8	11	1	1	1	3	7	Perceived benefits of technology
5	X	7	41	1	1	1	3	7	Potential of technology express opinions
5	X	7	48	1	1	1	3	7	Potential of technology student demand
5	Q	1	40	1	1	1	3	3	Preparation is important
5	U	3	11	1	1	1	3	5	Prior learning
5	D	6	33	1	1	1	3	7	Psychology of learning
5	J	2	17	1	1	1	3	3	Real world relevance
5	U	6	32	1	1	1	3	7	Role of teacher
5	X	8	7	1	1	1	3	7	Socio cultural issues
5	D	5	46	1	1	1	3	6	Staff competitiveness
5	D	2	36	1	1	1	3	4	Student directed learning
5	D	3	28	1	1	1	3	5	Student directed learning
5	D	7	20	1	1	1	3	7	Student Learning Styles
5	X	6	4	1	1	1	3	6	Students don't favour team teaching
5	P	1	21	1	1	1	3	3	Teaching styles
5	P	4	6	1	1	1	3	6	Team teaching
5	Q	3	4	1	1	1	3	6	Team teaching
5	Q	6	19	1	1	1	3	7	Technology in different contexts
5	D	5	25	1	1	1	3	6	Technology support
5	V	1	27	1	1	1	3	3	Theory to practice
5	D	2	40	1	1	1	3	4	Time
5	U	5	27	1	1	1	3	6	Time
5	U	8	5	1	1	1	3	7	Time
5	X	4	29	1	1		2	5	Affordances of ICT
5	V	2	47	1	1		2	5	Anonymity
5	X	3	29	1	1		2	5	Benefits of technology
5	X	4	23	1	1		2	5	Benefits of technology easier to manage
5	V	4	41	1	1		2	6	Collaboration in delivery
5	U	1	39	1	1		2	2	Feedback fun
5	X	3	38	1	1		2	5	Flow of discussion
5	Q	2	17	1	1		2	5	Fun, involvement
5	Q	1	34	1	1		2	3	Fun, research informed
5	Q	1	20	1	1		2	2	Interaction
5	U	2	37	1	1		2	4	Interactive groups
5	D	6	41	1	1		2	7	Knowing students
5	V	6	6	1	1		2	7	Knowledge of technology
5	Q	6	33	1	1		2	7	Motivation to use WebCT
5	D	7	45	1	1		2	7	No knowledge of Prior Knowledge
5	X	5	31	1	1		2	6	Pedagogy and lack of knowledge of affordances
5	X	6	15	1	1		2	6	Potential for team teaching
5	X	1	35	1	1		2	3	Prior reading
5	U	2	21	1	1		2	4	Prior learning
5	V	1	10	1	1		2	2	Real life situations
5	U	4	25	1	1		2	5	Real scenario

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
5	U	1	46	1	1		2	3	Reflection
5	Q	4	32	1	1		2	7	Reflective learning
5	X	2	2	1	1		2	3	Related to real world
5	X	1	43	1	1		2	3	Relevant
5	U	7	28	1	1		2	7	Research Informed
5	X	2	11	1	1		2	4	Relevant, interesting
5	Q	4	26	1	1		2	7	Socio cultural issues
5	V	6	39	1	1		2	7	Socio cultural issues
5	X	2	15	1	1		2	4	Staff well prepared
5	Q	4	17	1	1		2	7	Use of WebCT
5	J	1	35	1		1	2	2	Achieving communication
5	J	2	43	1		1	2	4	Class dynamics
5	J	7	2	1		1	2	7	Demonstrate learning
5	X	1	18	1		1	2	3	Facilitating discussion
5	U	5	16	1		1	2	6	Fun engaged
5	J	1	10	1		1	2	2	Giving away information
5	J	7	33	1		1	2	7	Group/Individual issues
5	Q	6	6	1		1	2	7	Group/Individual issues
5	U	1	14	1		1	2	2	Impact of LTC
5	X	1	22	1		1	2	3	Interactive groups
5	P	5	41	1		1	2	7	Learning Styles
5	J	5	2	1		1	2	5	Log on v Learning
5	Q	1	46	1		1	2	3	Longer time than expected
5	D	8	13	1		1	2	7	Mutual learning
5	J	7	12	1		1	2	7	Peer assessment
5	Q	1	10	1		1	2	2	Relevant to real world
5	D	3	5	1		1	2	4	Research Informed
5	P	4	25	1		1	2	6	Student motivation
5	D	2	9	1		1	2	3	Student Prior Reading
5	D	2	18	1		1	2	3	Student Prior Reading
5	J	6	26	1		1	2	7	Students driving change
5	X	3	46	1		1	2	5	Time
5	P	5	32	1		1	2	7	Time for reflection
5	V	1	44		1	1	2	3	Application of theory
5	D	3	43		1	1	2	5	Benefit of technology - international
5	V	2	18		1	1	2	4	Bring in graduates
5	P	2	27		1	1	2	5	Don't believe in putting notes online
5	Q	3	24		1	1	2	6	Joint assessments
5	U	4	13		1	1	2	5	Link with industry
5	U	4	39		1	1	2	5	Linking with industry for debate
5	X	7	13		1	1	2	7	Potential of technology
5	J	7	36		1	1	2	7	Time to reflect
5	U	4	46	1			1	5	Aligning assessment with learning outcomes
5	J	5	27	1			1	6	Benefiting from others expertise
5	P	3	8	1			1	5	Fun
5	U	2	1	1			1	3	Locus of Power
5	D	1	43	1			1	3	Prior knowledge
5	X	8	22	1			1	7	Reflection
5	J	7	17	1			1	7	Relevant to industry
5	U	4	34	1			1	5	Rewarding assessment

D	S	P	L	A1	A2	A3	T	Q	Learning Issue Description
5	X	2	46	1			1	4	Self confidence
5	X	6	49	1			1	7	Staff new knowledge
5	X	5	49	1			1	6	Staff share good practice
5	J	3	10	1			1	4	Student motivation
5	D	1	16	1			1	2	Student Prior Reading
5	P	5	28	1			1	7	Teachers as learners
5	U	6	4	1			1	6	Time
5	U	6	39	1			1	7	Work related
5	X	7	30		1		1	7	Alternative assessments
5	D	5	9		1		1	6	Assessment crossover
5	V	2	39		1		1	5	Benefit of technology - Info notes on web
5	X	3	10		1		1	5	Benefits of technology
5	Q	2	26		1		1	5	Blended with f2f
5	U	1	18		1		1	2	Danger of Information overload
5	J	7	48		1		1	7	Flexibility
5	P	1	46			1	1	3	Buzz was there
5	V	5	27			1	1	6	Knowledge delivery
5	J	3	19			1	1	4	Reflecting on teaching
5	U	4	2			1	1	5	Using technology effectively
5	P	2	3			1	1	3	Variety of approaches

APPENDIX 7   SUMMARY, by frequency, of the
Categories by co-raters (A Full list is available on the attached DVD)

Perceived Unique Categories	No.	Perceived Unique Categories	No.
Group Interactive Learning	69	Fatigue	1
Benefit of technology	59	Feelings about technology	1
Theory to practice	37	Flow of discussion	1
Group/Individual issues	36	Giving away information	1
Collaboration Benefits	35	Got theory across	1
Learning Styles	29	Hard Copy material	1
Time	29	Impact of LTC	1
Prior Learning	28	Improved resources	1
Feedback to Students	22	Institutional issue	1
Reflection	20	Integrating Technology	1
eModerating	19	Knowledge delivery	1
Fun	15	Knowledge from experience	1
Relevant	13	Knowledge of technology	1
Fear	10	Learning by overhead transparencies	1
Locus of Power	8	Learning from distance	1
Staff development	8	Learning on technology	1
Staff Preparation	8	Learning opportunities	1
Peer issues	7	Learning Outcomes	1
Teaching styles	7	Learning to inform teaching	1
(In)Equality of access	5	Log on v Learning	1
Early Adopter	5	Loss of concentration	1
Motivation	5	Need support staff	1
Research Informed	5	New Student knowledge	1
Attitude to technology	4	Non engagement with technology	1
Kolb	4	Organisation Culture	1
Learner types	4	PBL interesting students with WebCT	1
Learning Theories	4	Personal Satisfaction	1
Motivated Staff	4	Physical environment	1
Confidence	3	Pursuit of excellence	1
eLearning Pedagogy	3	Quality Assurance	1
Class size	2	Relationships	1
Creativity	2	Repetition	1
Flexibility	2	Role of Academic	1
Impact of leaders	2	Role of staff development	1
Improved teaching style	2	Role of teacher	1
Lack of qualifications	2	Scaffolded support	1
Need for trust	2	Skills	1
Staff new knowledge	2	Specific Learning Outcomes	1
Student motivation	2	Staff competitiveness	1
Technical support	2	Staff Relationships	1
Achieving communication	1	Staff student response	1
Actively motivated	1	Staff to students	1
Adapting to technology	1	Stand alone teaching	1
Addition not replacement	1	Student Enthusiasm	1
Blend of learning	1	Student expectation	1
Blended parallel approaches	1	Students don't favour team teaching	1
Buzz was there	1	Students driving change	1
Communication can be difficult	1	Subject Expertise	1
Danger of Information overload	1	Talking clarifies thinking	1
Demonstrate learning	1	Teachers as learners	1
Design / Representation	1	Teaching on your own	1
Dialogue is better	1	Technology in different contexts	1
Discussion board concerns	1	Technology support	1
Don't believe in putting notes online	1	Unclear how to exploit learning	1
Education v Training	1	Understanding learning	1

APENDIX 7 (Contd.)

Perceived Unique Categories	No.
Understanding not clear	1
Update materials	1
Use of video for group	1
Use of WebCT	1
Using technology effectively	1
Variety of Representation	1
Variety using technology	1
Very individual approach	1
Visual handouts	1
WebCT is stronger	1
What students want	1
121	**606**

APPENDIX 8 SAMPLE BRIEFING HANDOUT FOR THE FOCUS
GROUPS

Degree a Focus Group   12 May 2005

Discussion of issues related to

'*How can the Institute improve Staff Development processes to enable staff to develop a blend of learning(including online), to enhance Learning and Teaching?*

Thank you giving your time for the individual and group interviews related to the above.

From those interviews the attached 'categories' have been identified and selected as key issues requiring more in-depth discussion to inform a set of recommendations that will contribute some answers to the question.

Although the Focus Group is being recorded all data collected will be treated in the strictest confidence and will only be reported in anonymised form.

Draft Format to guide the Focus Group

> Outline of the process

> Discussion of issues raised from your 'own degree' discussions

> Discussion of issues raised from 'all degrees' discussions

> Discussion of issues related to Institutional Change

> Any other issues regarded as important

Issues related to your own degree

3 out of 3 reviewers   32% of categories the same
2 out of 3   28%
1 out of 3   40%

	3/3	2/3	1/3	all	LI
Group Interactive Learning	6	5	5	16	33
Group Dynamics	8	0	2	10	26
Feedback to students	4	1	3	8	17
Benefits of technology	1	2	5	8	12
Collaboration	3	2	2	7	15
Reflection	2	4	1	7	15
Theory and Practice	2	4	1	7	13
Time	3	1	2	6	13
Prior Learning	1	3	2	6	12

Issues in common across all degrees considered

Group Interactive Learning   69

Benefit of technology   59

Theory to practice   37

Group/Individual issues   36

Collaboration Benefits   35

Learning Styles   29

Time   29

Prior Learning   28

APPENDIX 9 - SAMPLES OF NOTE TAKING AND MEMO WRITING

Reference on file of recording: FG α Notes 1 / 01.17-02:30	Degree: α
What: Group Interactive Learning	Who: Staff H
How: Asking a question to clarify what is meant by Group Interactive Learning	When: At the beginning of the focus group, before any other issue had been raised.
With what consequences: Even when the issue is clarified Staff H is still puzzled, but claims to be using group interactive learning effectively.	Where:In public discussion with colleagues where there may be some personal sensitivity in relation to engaging with the use of technology.

Sample Note for Degree α on Group Interactive Learning.

Reference on file of recording: FG β Notes 2 / 16.00-17.00	Degree: β
What: Group Interactive Learning Staff T doesn't like group work and thinks some Personal Development on this issue would help.	Who: Staff T, followed by Staff R, Staff O and Staff A
How: In response to the researcher asking how these staff could be supported in this through staff development this honest comment was volunteered	When: With colleagues half way through the focus group when issues relating to the assessment such learning were being discussed
With what consequences: The response was developed by further discussion on how group learning needs to be conducted. The discussion continued to flow	Where:In the context of using group learning during seminar days that specifically exploit this form of learning

Sample Note for Degree β on Group Interactive Learning

Reference on file of recording: FG β Notes 2 / 00.45-02.15	Degree: β
What: Group Interactive Learning There had been an earlier suggestion by Staff A on how this staff team could work together better as a group	Who: Staff T followed in response by Staff R and Staff O
How: The researcher had switched the discussion to the issue of GIL that had been raised by all degrees. This was a spontaneous interjection.	When: Half way through the focus group discussion when an earlier suggestion was recalled and fed back into the discussion by Staff T
With what consequences: Agreement by the staff team that small targets could be agreed for staff development	Where:In course committees it would be great to have the space and time to reflect like this focus group was doing

Sample Note for Degree β on Group Interactive Learning

Reference on file of recording FG γ Notes 2 / 07.30-09.30	Degree: γ
What: Group Interactive Learning Sharing experience of the benefits of working with another group.	Who: Staff S working in a group context with another group in the institution
How: The expertise available in the group context enabled Staff S to undertake learning that he would otherwise have been unaware of.	When: In the context of a discussion about how necessary it is for staff to have a more flexible mode of learning to be able to fit it into available time
With what consequences: This staff member benefited significantly from the expertise available from the group learning and had confidence to extend his own use of it. Now sharing it in this group has enthused others.	Where: In a group context with common course content interests providing the motivation.

Sample Note for Degree γ on Group Interactive Learning

Reference on file of recording FG δ Notes 1 / 20.26-22.15	Degree: δ
What: Group Interactive Learning The large numbers in classes make group work almost impossible. Issues like selection of groups, learning styles etc. need to be considered	Who: Staff N in responses to the researcher, and Staff Y joined in
How: Staff N was trying to express his thinking about the difficulties and experiences with group work	When: With first year students it is very difficult since they have not been exposed so much to group work.
With what consequences: The discussion developed into issues dealing with the assessment of such group work and its management	Where:Half way through the discussion group.

Sample Note for Degree δ on Group Interactive Learning

Reference on file of recording FG ε Notes 1 / 06.00-06.45	Degree: ε
What: Group Interactive Learning Academic staff are not sure about how to handle differences between the approach of 1st year and 4th year students to group learning.	Who: Staff Q in response to the researcher asking about pedagogical issues in preparing for group learning and what the technology affords one to do.
How: Conversation oscillates from variation in group approaches to how academic staff should respond, on to legal issues in assessing group work	When: One year after there was apparent clarity and enthusiasm for the introduction of WebCT by these staff there is now confusion.
With what consequences: This leads on to a suggestion about Discussion Board, with marks awarded, to prepare for the group work, but students don't use Discussion Board.	Where: In the context of trying to use group learning in a varied set of situations where students respond differently at different years.

Sample Note for Degree ε on Group Interactive Learning

Reference on file of recording FG α Notes 1 / 09.00-11.00	Degree: α
What: Role of academic management to assist academic teaching staff move forward.	Who: Staff G and Staff M and Staff B interacting after researcher invites discussion.
How: Academic Staff are busy but need to make the leap to use ICTs and that requires policy leadership.	When: After a year of using WebCT Staff G has dropped using it as it was too difficult.
With what consequences: Leads to discussion on the course and how this impinges on development of course. Requires management input/ decision.	Where: In a context of trying to break free of constraints regarding course development to use ICTs where staff think 2 year planning is needed.

Sample Note for Degree α on the role of Academic Management

Reference on file of recording FG β Notes 1 / 03.00-05.30	Degree: β
What: Role of Management. Management don't appreciate how much goes into one hour of good teaching	Who: Staff T and Staff R respond to the discussion on the issue of time pressures and find support from Staff O
How: Staff perspective is that academic management need to learn what is involved in good teaching	When: At the start of the focus group this is raised spontaneously as a key issue.
With what consequences: Staff feel they are on a constant treadmill and begin to question if academic management understand.	Where: During time when they want to be better prepared to meet their own high standards of preparation and personal development.

Sample Note for Degree β on the role of Academic Management

Reference on file of recording FG γ Notes 2 / 00.15-04.30	Degree: γ
What: Role of Management. There is a need for academic management to express support for academic staff.	Who: Staff C, Staff W and Staff F agree that they need support and Staff S suggests that academic management need staff development also.
How: There is a culture of keeping 'legal' issues under control based on fear and staff feel they need support.	When: When students complain and action is taken to appeal examination results.
With what consequences: Staff sense academic management need to show clearly that they support them	Where: When priority is needed on policy about key issues which need to be identified by management

Sample Note for Degree γ on the role of Academic Management

Reference on file of recording	
FG α Notes 1 / 01.17-02:30	FG γ Notes 2 / 07.30-09.30
FG β Notes 2 / 16.00-17.00	FG δ Notes 1 / 20.26-22.15
FG β Notes 2 / 00.45-02.15	FG ε Notes 1 / 06.00-06.45

What: Group Interactive Learning.

There is not clarity among academic staff regarding group interactive learning with an expressed need for some personal development in this area. However time pressure is a contributing factor. Some key issues affecting academic staff are the noted differences by early and later years to group study, and how such learning should be assessed to prevent challenge by appeal. Where such time is made available significant benefit arises by cross-institutional learning.

Sample Memo for Group Interactive Learning

Reference on file of recording FG α Notes 1 / 09.00-11.00 FG β Notes 1 / 03.00-05.30
What: Role of Academic Management.

Academic staff recognise a need for clarity about policy in the development of the use of ICTs. Early initiative and enthusiasm by early adopters has dropped off as time pressures have continued. Academic members of staff think that academic management do not appreciate how much time goes into preparing of a good 1 hour lecture. What is needed is forward planning on timetabling.

Sample memo for the Role of Academic Management

Reference on file of recording FG α Notes 1 / 09.00-11.00 FG β Notes 1 / 03.00-05.30
What: How Academic Management could learn together by group interactive learning to overcome some of the expressed needs of academic staff.

Learning in groups does not need to apply only to students and to academic staff. It can apply to academic management. In fact some academic staff have suggested that this sort of learning would benefit academic management to help focus key issues relating to policy development and the need for planning of timetables to reflect the priority of staff development to support key areas.

Sample memo related to focusing theory