Chapter 7: Research design

As stated in the introduction, the research design adopted in this inquiry was primarily influenced by Guba and Lincoln's (1985) conception of Naturalistic Inquiry, which they later acknowledged was a form of Constructivism (Guba and Lincoln, 1998), and to a lesser extent Charmaz's (2006) constructivist conception of Grounded Theory. These are expanded upon in the next sections with reference to Crotty's (1998) four research design elements. Decisions that were taken that influenced the research design are woven into the narrative.

7.1 Crotty's research design elements

Crotty claims that the terminology used in research literature is confusing with epistemologies, theoretical perspectives, methodologies and methods *"thrown together in grab-bag style as if they were all comparable terms"* (Crotty, 1998:3). Crotty suggests these terms represent distinct hierarchical levels of decision making within the research design process. Paraphrasing, a researcher initially adopts a particular stance towards the nature of knowledge (for example, objectivism or subjectivism). This stance or epistemology will underlie the entire research process and governs the particular theoretical perspective selected (for example, postpositivism or interpretivism). The theoretical perspective will be implicit in research questions and dictate the researcher's choice of methodology (for example, grounded theory or ethnography). Finally, this methodology or plan of action will in turn inform the choice of research methods employed (for example, questionnaires or interviews). Crotty (1998) recognises that he omits ontology from the research process but conflates it with epistemology claiming the two are mutually dependent and difficult to distinguish conceptually when discussing research issues: "*to talk about the construction of meaning* [epistemology] *is to talk of the construction of a meaningful reality* [ontology]" (Crotty, 1998:10). Creswell (2003), who bases his research process framework on Crotty's (1998) four research design elements, implies that these four decision making elements lead to a research approach which tends to be more quantitative, qualitative or mixed, primarily dependent on the researcher's initial stance towards the nature of knowledge.

7.2 Epistemology

Epistemology is about *"how we know what we know"* (Crotty, 1998:8) or *"the nature of the relationship between the knower or would-be knower and what can be known"* (Guba and Lincoln, 1998:201). Epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we ensure it is adequate and legitimate (Maynard, 1994). It is related to ontology, *"the study of being"* (Crotty, 1998:10) or *"The nature of reality"* (Lincoln and Guba, 1985:37). Crotty (1998) notes that an ontological stance implies a particular epistemological stance and vice versa. He highlights the complementary nature of the terms when he cites the ontological notion of realism, which postulates that realities exist outside of the mind, and its complement objectivism, an epistemological notion asserting that meaning exists in objects independent of any consciousness; if one stance is adopted, so its complement.

Guba and Lincoln (1998) state that constructivist research is relativist, transactional and subjectivist. Adopting a relativist stance means *"there is no objective truth to be known"* (Hugly and Sayward, 1987:278) and emphasises the diversity of interpretations that can be applied to the world. Transactional means that truth arises from interactions between elements of some rhetorical situation (Berlin, 1987), and is the product these interactions and the individuals' thoughts ('*constructed realities'*). Subjectivist research positions the world, including the psychological world of research participants, as unknowable and the role of the researcher is to construct an impression of the world as they see it (Ratner, 2008). It follows that conventional distinctions between epistemological and ontological viewpoints disappear in constructivist research as the *"investigator and the object of investigation are … interactively linked so that the 'findings' are literally created as the investigation proceeds"* (Lincoln and Guba, 1985:207). The epistemological and ontological stance adopted in constructivist research thus differs from a more realist ontology and objectivist epistemology underlying popular conceptions of *'Grounded Theory'* (for example, Glaser and Strauss, 1967; Strauss and Corbin, 1998), where the investigator's role is to discover the truth that lies within the object of investigation, with reality existing independently of any consciousness (Crotty, 1998; Charmaz, 2006). Data are assumed to be objective facts that already exist in the world, and the role of the researcher is to discover these data and determine the theories they imply (Charmaz, 2006). However, Charmaz's (2006) Grounded Theory

research design is consistent with a constructivist epistemology and ontology by *"placing priority on the phenomena of study and seeing both data and analysis as created from shared experiences and relationships with participants and other sources"* (Charmaz, 2006:330) claiming that a more objectivist approach diminishes *"the power of a constructivist approach by treating experience as separate, fragmented and atomistic"* (Charmaz, 2006:331).

For research that claims to be relativist, transactional and subjectivist, the above analysis has several implications: Firstly, social research produces *"multiple constructed realities that can be studied holistically; inquiry into these multiple realities will inevitably diverge (each inquiry raises more questions than it answers)"* (Lincoln and Guba, 1985:37). Secondly, 'humans' should be the primary data collection instrument (Lincoln and Guba, 1985) since it is difficult to envisage non-human instruments that could interact with participants in a way that would reveal their multiple constructed realities. Thirdly, as *"the knower and the known are inseparable"* (Lincoln and Guba, 1985:37) the research participants should be a *"natural setting"* (for example, the context related to the study) since their *"realities are wholes that cannot be understood in isolation from their contexts"* (Lincoln and Guba, 1985:39). Fourthly, as *"every act of observation influences what is seen"* (Lincoln and Guba, 1985:39), the researcher has to be the primary data-gathering instrument to fully understand, respond and describe the complex interactions taking place. Fifthly, as each research participant has their own point of view, the focus of research is on the identification of contextualised meaning of these multiple points of view (Green, 2000) with the goal of creating a joint, collaborative reconstruction from the multiple realities that exist (Guba and Lincoln, 1989b). This implies that the research participants have a co-producer role in the research process and have a role in negotiating outcomes.

7.2.1 Implications for this research

For this research I was the sole investigator ('human instrument') who interacted with all participants. I was thus more able to realise, and holistic study, all students' and academics' constructed realities. As one of the undergraduates' teachers and a colleague of all the academics, it seemed appropriate to conduct the research information collection within my school where most teaching takes place and where all but one academic[29] has their office. The subsequent analysis of information

[29] Academic 01 had an office in one of the University's libraries

collected formed a tentative reconstruction from the multiple realities that existed at the time the information was collected. Not withstanding the temporal and contextual nature of the information collected, this was presented to participants for comment with the aim that some dialogue might ensue, and the collaborative reconstruction of the multiple realities revealed by my original analysis might evolve in the light of new insights and clarification of views expressed.

7.3 Research theoretical perspective

Crotty defines the theoretical perspective of his research design framework as *"The philosophical stance informing the methodology"* (Crotty, 1998:3) and claims there are potentially many theoretical research perspectives that result from particular epistemological and ontological stances. For example, the theoretical perspectives positivism and post-positivism both have underlying objectivist epistemology, and both could lead to a variety of methodologies including experimental research, survey research and some designs of Grounded Theory.

Charmaz asserts that her constructivist conception of Grounded Theory is *"squarely in the interpretive tradition"* (Charmaz, 2006:330). Schwandt (1994) claimed that constructivism more generally was synonymous with an interpretivist approach. The interpretist approach is frequently attributed to Max Weber and his concept of 'verstehen' meaning *"understanding something in its context"* (Holloway, 1997:2). He opposed the application of the positivist approach to the social sciences since people's actions are not related to the general laws of nature, being highly complex and dependent on their habits, emotions, beliefs and rationales. Hence, unlike the scientific experiment in positivist research, a person may respond in a number of ways to a particular stimulus since people's actions as context-bound and dependent on time, location and the minds of those involved (Holloway, 1997). In other words, *"People create and associate their own subjective and intersubjective meanings as they interact with the world around them"* and thus interpretive research *"attempt*[s] *to understand phenomena through accessing the meanings participants assign to them"* (Orlikowski and Baroudi, 1991:5), although ultimately the researcher cannot replicate the experiences of their research participants (Charmaz, 2006) or be divorced from the phenomenon they are studying (Holloway, 1997). Weber claims that all social research is inherently biased, and complete neutrality and objectivity are impossible to achieve since the values of the researcher and the participants are always present (Holloway, 1997).

For research that claims to be interpretivist, the above analysis has two main implications:

7.3.1 Reflexivity

Holloway (1997) and Charmaz (2006) claim that interpretive research needs to be reflexive. The interpretive position posits knowledge as a social and cultural construction and hence the researcher needs to take account of how their assumptions and views have impacted on the research process and products in order to interpret the complexities of the multiple realities involved. According to Levy, this is *"not in order to suspend subjectivity, but to use the researcher's personal interpretive framework consciously as the basis for developing new understandings"* (Levy, 2003:94). Reflexive practice aligns with Naturalistic Inquiry (Lincoln and Guba, 1985) in that it addresses the hermeneutics of research practice (Levy, 2003). Ultimately, *"… being reflexive in doing research is part of being honest and ethically mature in research practice"* and as such requires researchers to *"stop being 'shamans' of objectivity"* (Ruby, 1980:154) and assuming value-free positions of neutrality. Ruby describes this approach as *"an obscene and dishonest position"* (Ruby, 1980:154).

When undertaking reflective practice, issue of power frequently come to the forefront. Aléx and Hammarström (2008) refer to Foucault's studies which highlight issues of power related to the dominant discourses that permeate society and in particular the importance of uncovering discourses in everyday practices. They cite the research interview where both the interviewer and the interviewee will act in certain ways according to their perception of each others' power. This might result in the interviewer highlighting certain aspects of the interview, whilst repressing others. Issues relating to age, education, gender, ethnicity, theoretical position and so on may also influence the dynamics of the interview. Feminist qualitative researchers in particular stress the importance of being conscious of power hierarchies within interview situations and *"Despite the best intentions, the interview situation may be experienced as, and may in fact be, a form of abuse. Practising reflexivity can be one way to minimize such experiences in interview situations"* (Aléx and Hammarström, 2008:170). However, reflexivity should be practiced by the researcher during all stages of the research process and at all levels. Alvesson and Sköldberg indicate four levels of reflexivity that might be critiqued:

Aspect / level	Focus
Interaction with empirical material	Accounts in interviews, observations of situations and other empirical materials
Interpretation	Underlying meanings
Critical interpretation	Ideology, power, social reproduction
Reflection on text production and language use	Own text, claims to authority, selectivity of the voices represented in the text

Table 7.1 Levels of reflexivity (Alvesson and Sköldberg, 2009:273)

Hence a reflexive researcher would attempt to explicitly identify viewpoints held that may affect the researcher's interpretations at the micro level of the research narrative and empirical material collected, and also at the macro level of the underlying interpretations. This would include the reflexive researcher stating what has been emphasised, downplayed and missed out in the research. The main tool used by reflexive researchers is the research diary, where the researcher reflects upon on different aspects of doing the research and their role within the construction of research knowledge (Blaxter et al., 2001).

7.3.2 Evaluation

As the products of an interpretist inquiry are provisional and context-specific, positivist research evaluation criteria like internal validity, reliability, generalizability (external validity) and objectivity, do not carry the same connotations (Angen, 2000). Angen (Lincoln and Guba, 1985; 2000) identifies two broad approaches that have been adopted by interpretivist researchers to evaluate the merit of their research: a subtle form of realism and a complete reconfiguration of the positivist evaluation criteria.

7.3.2.1 Subtle Realism

This approach involves the development of a parallel set of interpretative evaluative criteria to that used to evaluate positivist research (for example, American Evaluation Association, 2005) and is a subtle form of realism (Hammersley, 1995). This makes explicit, or sometimes it is left implicit, the reformulation of positivist evaluation criteria for interpretative research. For example, Hammersley (1995) redefines validity as confidence and also suggests researchers consider the

plausibility, relevance and importance of their research. Similarly, Lincoln and Guba (1985) define a set of trustworthiness criteria consisting of credibility, transferability, dependability and confirmability, paralleling more positivist notions of internal validity, external validity, reliability and objectivity respectively. Specific procedures are frequently suggested aimed at increasing the validity of interpretative research have been criticised as harking back to realist and positivist roots (Angen, 2000). For example, member checking, returning analysis to participants for confirmation of accuracy, has been criticised for assuming a fixed truth (Sandelowski, 1993), reflexivity has been criticised as creating an illusion of objectivity (Smith, 1994), triangulation, the use of multiple methods, investigators or sources, has faced similar criticisms to member checking (Silverman, 2001) and peer review has been criticised for downplaying the central involvement of the principle researcher (Morse, 1994).

A central tenet of both interpretivist and positivist Grounded Theory is that the research must have credibility, and to achieve this, the researcher must have intimate familiarity with the setting and topic. This was conceived by Lincoln and Guba (1985) as 'prolonged engagement', where a researcher invests sufficient time to become *"orientated to the situation"*, open to the multiple influences and someone who is trusted, and 'persistent observation', where the researcher focuses in detail on those characteristics and elements that are relevant to the inquiry. However, Lincoln and Guba (1981) warn of 'going native', where researchers who spend considerable time in the field lose their *"detached wonder"* (Lincoln and Guba, 1985). There is no guarantee that this will not happen in this research, although Lincoln and Guba (1985) do mention that being aware is a *"great step toward prevention"*. In addition to credibility, Charmaz (2006) stresses that the resonance and usefulness of some research also depends upon the originality of its outcomes. For Charmaz, a researcher should be addressing questions like *"Has your research achieved intimate familiarity with the setting or topic?"* (credibility), *"What is the social and theoretical significance of this work?"* (originality), *"Have you revealed both luminal and unstable taken-for-granted meanings?"* (resonance) and *"Can your analysis spark further research in other substantive areas?"* (usefulness).

7.3.2.2 Complete reconfiguration

This approach is a complete reconfiguration of the positivist evaluation criteria for interpretative research. It *"views interpretative knowledge claims and truth as*

negotiable features" (Angen, 2000:386) and the *"trustworthiness or goodness of a piece of research* [as] *a continuous process occurring within a community of researchers"* (Angen, 2000:387). Hence, rather than focussing on the outcome of the interpretivist inquiry, it tends to focus on the inquiry process itself (Schwandt, 1997). As Smith points out, *"The task for interpretivists is to elaborate what lies beyond epistemology and beyond the idea that there are special, abstract criteria for judging the quality of research"* (Smith, 1993:150), especially because *"interpretivist[s] see criteria not as abstract standards, but as an open-ended, evolving list of traits that characterize what we think research should do and be like"* (Smith, 1993:153). Emphasising that inquiry evaluation is a continuous process, Angen (2000) uses the term 'validation' as opposed to 'validity' and categorises these reconfigured approaches as ethical validation and substantive validation.

Since defining their trustworthiness criteria, Lincoln and Guba have repositioned their approach to validation. From one which was a subtle form of realism, they have reconfigured it to one that empowers participants, claiming this better captures "*the quality of a constructivist approach"* (Guba and Lincoln, 1989a). They propose four types of validation that should be pursued. Firstly, the research should consider Ontological Authenticity of the research conducted so that *"over time, everyone* [including the researcher] *formulates more informed and sophisticated constructions and becomes aware of the content and meaning of competing constructions"*. Secondly, the research should have Educative Authenticity and all participants should become more understanding and tolerant of each other's perceptions. Thirdly, the research conducted should have Catalytic Authenticity and sufficiently motivate participants that they want to act. Finally, feeling motivated enough to act lacks Tactical Authenticity if the participants are not empowered to act.

7.3.3 Implications for this research

During the process of conducting this research, I aspired to keeping a research diary which included reflections about from the information collection phases, my role in the process and tentative underlying meanings induced. In addition, I aspired to keep reflective notes during the subsequent information analysis phases about possible assumptions I was making. By reflecting upon recent interactions and the information analysis just conducted, the aim was to capture thoughts that might otherwise be forgotten. These included more micro-level reflections about the power relationship between me and the students, and me and my superiors. In addition,

more macro-level reflections tended to take place as the thesis was being written-up, for example how my choice of information collection 'tools' affected the outcomes. Where appropriate, these reflexive reflections are indicated in the thesis narrative.

This thesis will be read by those who come from both positivist and interpretative traditions. Hence, to convince readers of the value, trustworthiness and authenticity of this research, Guba and Lincoln's (1989a) authenticity criteria, Lincoln and Guba (1985) trustworthiness criteria and Charmaz (2006) criteria for Constructivist Grounded Theory studies have been applied, whilst still maintaining some notion of an interpretivist theoretical perspective when considering the latter two criteria. For example, triangulation was not used in this study to judge the reliability of the research undertaken, but to support the credibility and dependability of the research undertaken (see Section 7.5.5). That is, in terms of the outcomes of this research, I will consider the credibility, transferability, dependability, confirmability, credibility, originality, resonance and usefulness, and focusing on the inquiry process itself, I will consider its ontological, educative, catalytic and tactical authenticity.

7.4 Methodology

Methodology is the *"strategy, plan of action, process or design"* lying behind the choice and use of particular research methods (Crotty, 1998:3). Many different methodologies may have the same underlying theoretical perspective and each methodology may be implemented using different combinations of research methods. More so, some methodologies may be conceived by different investigators as originating from different theoretical perspectives. For example Grounded Theory, classified as a methodology by Crotty (1998) alongside experimental research, ethnography and action research, is viewed from both interpretive and positivist theoretical perspectives (Charmaz, 2006).

Charmaz (2006) Constructivist Grounded Theory and Lincoln and Guba's (1985) constructivist Naturalistic Inquiry can be considered as methodologies (Crotty, 1998). The aim of constructivist inquiry is to interpret research participants' meanings, which are themselves interpretations, and produce a 'substantive theory' (Charmaz, 2006) or 'working hypotheses' (Lincoln and Guba, 1985). However, as constructivist inquiry is interpretative, any theorising done is dependent upon the researcher's views and cannot stand outside of them (Charmaz, 2006). Hence, any

substantive theories or working hypotheses developed should 'emerge' in the sense that they are induced or 'grounded' on data generated during the research process (Lincoln and Guba, 1985; Cohen et al., 2001; Charmaz, 2006). They should allow *"for indeterminacy rather than seeking causality"* and give *"priority to showing patterns and connections rather than linear reasoning"* (Charmaz, 2006:126). Guba and Lincoln refer to this *"replacement concept for causality"* as "mutual simultaneous shaping" where it is impossible to distinguish causes from effects as *"everything influences everything else, in the here and now"* (Lincoln and Guba, 1985:151). Within any rhetorical situation, many factors interact to simultaneously produce an outcome that affects all parties. Hence, within the research context, both the researcher and the research participants' views and understandings are shaped as the data collection proceeds.

For constructivist research, the above analysis has several implications. Firstly, the substantive theories or working hypotheses that are developed are ideographic. That is, they apply to particular cases rather than represent law-like generalisations, since the interpretations made and theorising achieved will be specific to the context and researcher (Lincoln and Guba, 1985; Charmaz, 2006). Secondly, research design is emergent (see Introduction). Thirdly, as research participants and the researcher are in a state of *"mutual simultaneous shaping"*, the researcher the outcome of data collection recognises the complex interactions that have taken place and temporal nature of any findings. Fourthly, Guba and Lincoln argue for the legitimate use of intuitive or tacit knowledge at all stages of the research process since *"the nuances of the multiple realities can be appreciated only in this way; because much of the interaction between investigator and respondent or object occurs at this level; and because tacit knowledge mirrors more fairly and accurately the value patterns of the investigator"* (Lincoln and Guba, 1985:40).

The above epistemological, theoretical and methodological implications are central to the methodological procedures adopted by Guba and Lincoln (1985) and Charmaz (2006). The following two sections summarise their procedures and the final third sections highlights the similarity and differences between methodologies:

7.4.1 Naturalistic Inquiry

Guba and Lincoln (1985) propose that Naturalistic Inquiry should be conducted in a natural setting by the researcher, since the research context is integral to any meanings induced. The researcher builds upon their tacit knowledge using researcher-centred methods such as interviews, observations and document analysis in an iterative cycle of four elements: purposeful sampling, inductive analysis, grounded theory development and emergent design next-step decision making. The first three elements have much in common with the methodological approach espoused by Glaser and Strauss's conception of Grounded Theory (1967), although Glaser (2004) disputes the two methodologies coincide. The iterations continue until no new data emerges and the theory stabilizes. Time or research constraints may also curtail the research. Throughout, the researcher should engage in member checking and ensure minority views are fairly represented. To enable others to construe the applicability of the research to their context, a case study report is developed. Finally, the trustworthiness of the research is critically reviewed by a panel of local respondents in the study having been continually conducted by the researcher throughout the study.

7.4.2 Constructivist Grounded Theory

The methodological procedures of Charmaz's (2006) Constructivist Grounded Theory are primarily based on Glaser and Strauss's (1967) Grounded Theory. The iterative procedure begins with the selection the most appropriate data-gathering method for producing rich, social contextual and situational data. More typically, intensive interviewing, and the use of elicited and extant texts are employed. The data collected is then 'coded' (see Section 7.5.3). Ideas or hunches that become apparent during this process are noted in the form of memos. Theoretical sampling is used to obtain further selective data to refine and fill out major codes or categories emerging from the data. The iterations continue until theoretical saturation, when no more properties of the category appear during data collection. Throughout this process the researcher used constant comparison (Section 7.5.6) and memo writing techniques. The former helps ensure data is not forced into codes, codes into categories and categories into concepts, and the latter enables data to be compared at increasingly higher levels of theory and also to direct further data gathering. Finally, the researcher conducts a literature review and evaluates upon the research process and products.

7.4.3 Comparison between methodologies

The methodological procedures adopted by Guba and Lincoln (1985) and Charmaz (2006) show much similarity. Both recommend the use of researcher-centred research methods, both view data collection as a series of similar iterative cycles, both emphasise that theories should be grounded in the data, and both promote purposeful sampling and constant comparison techniques. At a procedural level, differences in emphasis are apparent in the timing of the literature review and the use of established Grounded Theory techniques. The timing of the literature review within an inquiry is a tension frequently discussed in the qualitative literature (Heath and Cowley, 2004). Glaser (1978) describes the proper pacing of reading the literature so as *"not to contaminate one's effort to generate concepts from data with preconceived concepts that may not really fit, work or be relevant"* (Glaser, 1978:31). In contrast Strauss and Corbin (1998) consider the use of the literature early in the research process to stimulate theoretical sensitivity and generate hypotheses. The extent to which Grounded Theory data analysis methods are utilised within the two methodologies differs. Guba and Lincoln (1985) suggest that the constant comparison technique should be the primary Grounded Theory technique, whereas Charmaz (2006) advocates the selective use of the full range of Grounded Theory techniques (for example, Glaser and Strauss, 1967; Glaser, 1978).

Beyond procedural differences, Glaser has made extensive criticisms of Charmaz's (2006) conception of Grounded Theory (see Glaser, 2002) and Guba and Lincoln's (1985) Naturalistic Inquiry (see Glaser, 2004) claiming they corrupt and unnecessarily remodel Grounded Theory. Many of his criticisms are at a paradigmatic level and highlight epistemological and theoretical differences, rather than methodological differences. According to Guba and Lincoln, paradigms are a systematic set of beliefs and methods that *"represent a distillation of what we think about the world (but cannot prove)"* (Lincoln and Guba, 1985:15) . Hence, Guba and Lincoln (1985) would view any paradigmatic differences as incommensurable. In addition, Glaser (2002) concedes that many differences between his and Charmaz's (2006) approaches to Grounded Theory maybe due in part to their different use of the interview research method. Charmaz's (2006) research background has necessitated the use of prolonged, in-depth interviews involving *"active listening"* (Egan, 1998) whereas Glaser (2002) described much Grounded Theory interviewing as *"passive listening"*.

7.4.4 Implications for this research

The following sections and chapter will provide the specific methodological details of the research conducted, but suffice to say that this inquiry adopted researcher-centred methods which were entirely qualitative and in which I collected all the information from participants primarily via prolonged, in-depth interviews involving active, as opposed to passive, listening. However, data collected by a colleague in a parallel collaborative quantitative project and my own teaching were also included in the analysis as a form of triangulation. The information collected from undergraduates was in four iterative cycles (Level 1 focus groups, Level 1 research conversations, member checking and finally Level 3 research conversations) and from academics in two cycles (research conversations and member checking). The subsequent information analysis techniques used were those promoted by Charmaz (2006) and these helped ensure any tentative hypotheses were grounded in the information collected. The techniques employed included constant comparison and hermeneutic-dialectic as described by Guba and Lincoln (1985; 1989; 1990; 2001). As stated in the Introduction, this research was delimited to a particular cohort of undergraduates and those academics who taught undergraduates when the undergraduate research conversations and focus groups took place. Hence, this research adopted more of a convenience, as opposed to purpose or theoretical, sampling strategy. This was partly due to wanting to ensure all participants' views and understandings were represented in this research and the need to collect information from undergraduates soon after they had begun their studies. More theoretical sampling techniques would have necessitated considerable information analysis prior to the purposeful selection of subsequent participants. Finally, the literature associated with this research was consulted throughout the study. Due to working on other research studies and preparing for my own teaching, no attempt was made to avoid reading the literature associated with this research. Indeed the study itself was partly inspired by my reading of Livingstone's Children Go Online studies. However, a more focussed review of the literature took place during the months before the Level 3 research conversations took place. Hence, the study's conclusions were mostly formed after the final review of the literature.

7.5 Methods

Crotty defines research 'methods' as *"the techniques or procedures used to gather or analyse data related to some research question or hypothesis"* (Crotty, 1998:3). There are many potential research methods that might be adopted in a particular methodology, although some may be more appropriate than others in adhering to the methodology's underlying theoretical perspective. For example, the experimental research method is unlikely to have a role in constructivist research, although the use of quantitative research methods per se may have a role in constructivist research. Rodwell (1998) emphasises that whilst it is not possible to hold both positivist and interpretive assumptions about inquiry, it is possible to conduct both qualitative and/or quantitative research, whilst still adhering to the epistemological positions of each theoretical perspective. However she then notes that whilst this might be possible, certain issues will need to be addressed. For example, issues relating to single (positivist inquiry) versus multiple (interpretative inquiry) realities, the relationship between the researcher and the participants (as a neutral observer in positivist inquiry and as someone who jointly constructs meaning in interpretive inquiry) and the generation of nomothetic (law-based) versus ideographic (symbols-based) knowledge.

The following sections summarise the key issues related to the research methods relevant to Naturalistic Inquiry (Lincoln and Guba, 1985) and Constructivist Grounded Theory (Charmaz, 2006).

7.5.1 Interviewing

The most common qualitative data collection method is probably the interview (Mason, 2002) and the one highlighted by Guba and Lincoln (1985) and Charmaz (2006). Charmaz (2006) states that intensive qualitative interviewing fits Grounded Theory methods particularly well since both are potentially open-ended yet directed, shaped yet emergent and paced yet unrestricted. Mason (2002) identifies three types of qualitative interviews (in-depth or intensive, semi-structured and loosely structured or unstructured) each typically involving an *"interactional exchange of dialogue"*, having a relatively informal style, being *"thematic, topic-centred, biographical or narrative"* and operating from the premise that, as knowledge is situated and contextual, the purpose of the interview *"is to ensure that the relevant contexts are brought to into focus so that situated knowledge can be produced"*

(Mason, 2002:62). Mishler (1986) claims that most research interviewing is conducted with a restricted conception of the interview process, and both Mason (2002) and Charmaz (2006) claim that many qualitative researchers inappropriately choose interviewing as a primary data collection method. Mason (2002) cites nine reasons why a researcher might select qualitative interviewing as a primary data collection method. These include their ontological position, for example they are interested in participants' perceptions and their epistemological position for example researcher-participant dialogue is the only meaningful method for generating data. However, Mason (2002), Charmaz (2006) and Silverman (2000) all warn of the epistemological implications of the latter approach. Essentially, interviews do not reproduce realities. Qualitative interviews are typically reliant on participant's capacities to verbalise, interact, conceptualise and remember (Mason, 2002). In addition, participants' 'stories' provide accounts from particular points of view to serve a particular purpose, including tacit conversational rules, professional expectations about what 'should' be said and exercising subtle power relationships (Charmaz, 2006).

7.5.2 Focus Groups

Focus groups are a popular, but relatively recent, technique for gathering qualitative research data (Morgan, 1996). Williams and Katz define them as a *"small gathering of individuals who have a common interest or characteristic, assembled by a moderator, who uses the group and its interactions as a way to gain information about a particular issue"* (Williams and Katz, 2001). Although sometimes chosen because they save time compared to one-to-one interviews (Reed, 1997), with Agar and MacDonald (1995) describing them as the 'fast food' form of qualitative research, their primary advantage is to explicitly use the group's interactions to produce data (Barbour and Kitzinger, 1998) and their ability to facilitate individual responses in response to the contributions of other group participants (Morgan, 1996; Glitz, 1998). Morgan (1996) elaborates on the latter claiming that focus groups can be more than the sum of individual interviews because participants feel the need to explain themselves and query each other and Doyle claims they have potential "*accelerate the natural social processes by which individuals compare opinions with each other*" (Doyle, 2004a). This in turn leads to additional data related to the extent of consensus and diversity. A further benefit is that focus groups also provide the opportunity for the researcher to ask questions related to the group's previous responses. For example, asking them to compare their previously stated

experiences and views, rather than inferring these after the focus group (Morgan, 1996). However, the potential for interaction amongst the focus group members is also one of the problematic areas of conducting focus group research data collection. In contrast with Morgan's (1996) studies, Agar and MacDonald (1995) found that focus groups reduced the burden on participants to explain themselves and the researcher's interactions had a tendency to disrupt group interactions rather than facilitate them. In addition, Reed (1997) highlighted issues related to the additional complexity of coding the focus group discussions (for example, associating comments to individuals), the additional complexity of the data analysis (for example, focus group participant's views tended to change as the discussions progresses) and coping with formal and informal power relationships (for example one of Reed's focus groups became little more than a one-to-interview as one participant dominated the discussions). Reed concludes that focus groups may appear to be a *"quick and easy shortcut … but we would argue that like all shortcuts, this approach provides a restricted view of the terrain being travelled"* (Reed, 1997:770).

7.5.3 Qualitative coding

Typically in qualitative research, once the data has been collected, transcribed and read through, the transcripts are then coded (Creswell, 2003). Essentially, coding involves breaking the transcript texts into 'chunks' and reassembling these 'chunks' in a meaningful way. The precise method for breaking and assembling these 'chunks' is dependent upon the qualitative research strategy employed (Creswell, 2003). Lincoln and Guba (1985) Naturalistic Inquiry stops short of giving detailed coding instructions, suggesting researchers ground their theories in the data by employing hermeneutic-dialectic (see Section 7.5.4) and constant comparison techniques (see Section 7.5.6). However, the data analysis techniques espoused by Grounded Theory provides more detailed guidance.

Glaser and Strauss (2006) note the existence of two dominant qualitative coding approaches. The first approach is more 'deductive' and involves converting data to some quantifiable form ('codes') to test a priori hypothesis. The second approach is more 'inductive' and involves coding the data first to generate a posteriori hypothesis. They promote a third approach for Grounded Theory that combines the *"explicit coding procedures of the first approach and the style of theory development of the second"* as a series of iterative steps until (Glaser and Strauss, 2006:102).

This involves initially free or open coding the transcripts. That is, ‘chunks’ of text (words, phrases, incidents or lines of text, depending on the research being conducted) are assigned a code (a shorthand label) that constitutes what the researcher understands it means or represents. Initial codes are tentative and stick closely to the data rather than representing some pre-existing concepts. Constant comparison techniques (Section 7.5.6) are used to ensure any repeated codes ‘fit’ the data. Inevitably, initial coding produces numerous codes that need to be synthesised. The second ‘focused’ coding phase involves using the most significant or frequent initial codes to recode the transcripts (Charmaz, 2006). Constant comparison techniques are used again to ensure the codes assigned are grounded in the data. Codes that do not ‘fit’ the data are modified or omitted. The focused codes begin to crystallise meanings and actions in the data. Codes may be gathered together to form categories or subcategories. The third and final coding phase involves the creation of theoretical codes that bring together the substantive focus categories into tentative hypotheses and eventually an overall theory. To support theoretical coding Glaser (1978) proposes a series of coding families that include the ‘Six C’s’: Causes, Contexts, Contingencies, Consequences, Covariances and Conditions. These coding families are prompts for the researcher *“to tell an analytic story that has coherence …* [and] *move your analytic story in a theoretical direction”* (Charmaz, 2006:63).

Strauss and Corbin (1990) propose another type of coding that overlaps and replaces many aspects of the focused and theoretical coding phases. ‘Axial’ coding enables the data to be brought back together after initial open coding to form the basis of a theory. Axial coding entails specifying the properties and dimensions of a category, and its relationship to other categories, to form *“a dense texture of relationships around the ‘axis’ of a category”* (Straus, 1987:64). Strauss and Corbin apply a set of technical terms and techniques to make the relationships between categories visible to the researcher. In one organising scheme they specify that the research considers (amongst others) the conditions, actions/interactions and consequences of categories formed. Although Charmaz does not dismiss this coding phase, she warns that *“at best, axial coding helps clarify and to extend the analytic power of your emerging ideas”* and *“At worse, it casts a technological overlay on the data – and perhaps your final analysis”* (Charmaz, 2006:63).

7.5.4 Hermeneutic-dialectic techniques

Guba and Lincoln (1985; 1989; 1990; 2001) place 'hermeneutic-dialectics' at the heart of constructivist inquiry. They summarise this as the *"… process by which constructions entertained by the several involved individuals and groups (stakeholders) are first uncovered and plumbed for meaning* [hermeneutics] *and then confronted, compared, and contrasted in encounter situations* [dialectics]*"* (Guba and Lincoln, 2001). Guba describes this process in more detail:

> *"The constructivist proceeds in ways that aim to identify the variety of constructions that exist and bring them into as much consensus as possible. This process has two aspects: hermeneutics and dialectics. The hermeneutic aspect consists in depicting individual constructions as accurately as possible, while the dialectic aspect consists of comparing and contrasting these existing individual (including the inquirer's) constructions so that each respondent must confront the constructions of others and come to terms with them. The hermeneutic/dialectic methodology aims to produce as informed and sophisticated a construction (or more likely, constructions) as possible".*
> (Guba, 1990:26)

Hermeneutics is categorised by Crotty (1998) as a theoretical research perspective, as an *"ancient discipline"* by Reason and Rowan (1981) and a methodology by Lincoln and Guba (1998), although in Naturalistic Inquiry, Lincoln and Guba (1985) treat this as one of several research methods that supports their research design. The most important principles of hermeneutics is the *'hermeneutic circle'* (Reason and Rowan, 1981) where in order to understand the whole, one has to understand the constituent parts, but to understand the constituent parts, one has to understand the whole. In contrast, dialectics is *"the study of internal contradictions"* (Kvale, 1996:55) and is a process that opposes hermeneutics in the sense that hermeneutics is attempting to converge meanings and dialectics is attempting to expose contradictions in meanings formed (Kvale, 1996). Hence, Lincoln and Guba's conception of hermeneutic-dialectics and their constructivist methodology, is both iterative and recursive.

7.5.5 Triangulation

Seeking to corroborate one source and method with another, or enhance the quality of the data through some form of "*triangulation*" of methods (Mason, 2002) is a technique of research to which many subscribe, but few practice (Cohen et al., 2001). The former motive in qualitative inquiry has been seen as a fallible path to validity since it implies a 'true fix' on reality and has "*analytical limitations*"

(Silverman, 2000). Triangulation also implies that "*there is one, objective and knowable social reality*" (Mason, 2002). Hence, the use of triangulation techniques for the purposes of validating the findings has been seen as philosophically problematic, but critics of this technique do not dispute its validity for augmenting findings (Silverman, 2000; Mason, 2002). This view is compatible with Lincoln and Guba's Naturalistic Inquiry (1985) methodology that underpins this research.

7.5.6 Constant Comparison

The constant comparison technique is a generic data analysis technique common to many research designs including Lincoln and Guba's Naturalistic Inquiry (1985) and Glaser and Strauss's Grounded Theory (2006). Variations include 'Negative Case Analysis' (Lincoln and Guba, 1985) or 'Deviant-Case Analysis' (Silverman, 2000). It is a systematic procedure for ensuring the theories or working hypotheses developed are grounded in all the data collected. The technique essentially involves starting:

> *"… with a small batch of data. A provisional analytic scheme is generated. The scheme is then compared to other data, and modifications made in the scheme as necessary. The provisional analytic scheme is constantly confronted by 'negative' or 'discrepant' cases until the researcher has derived a small set of recursive rules that incorporate all the data in the analysis".*
> (Mehan, 1979)

'Negative Case Analysis' (Lincoln and Guba, 1985) or 'Deviant-Case Analysis' (Silverman, 2000) are thus particular constant comparison techniques where the researcher actively seeks negative or deviant cases in order to refine the working hypothesis being developed. Through the process of constant comparison, gaps in the data analysis may emerge requiring the purposeful selection of participants that may provide illuminating examples to reinforce or amend any theory being developed. This is labelled as 'theoretical sampling' by Glaser and Strauss (1967; 2006) and 'purposeful sampling' by Lincoln and Guba (1985).

7.5.7 Use of quantitative data

Chapter 1 has already referred to three sets of quantitative data gathered at the same time this research was conducted using the Survey of Communication Technology Use (Cox et al., 2008), a Learning Style Inventory (Kolb, 1976) and a Approaches and Study Skills Inventory for Students (ASSIST) questionnaire (Entwistle, 1997). The issues raised by Rodwell (see above) related to the use of

quantitative data in constructivist research need to be addressed. The results from the survey, inventory and questionnaire give the impression of a single 'true' reality with nomothetic conclusions (for example, students prefer website X), whereas more qualitative techniques produce more complex interpretations, consisting of multiple viewpoints, even amongst the same individuals (for example, students may have many different favourite' websites depending on the context, their mood, the purpose, who was asking, and so on). Lincoln and Guba (1985) state that use of quantitative data within constructivist inquiry is commensurate providing the researcher acknowledges the epistemological underpinnings that the quantitative data used:

> *"It is not crucial that naturalistic inquiry be carried out using qualitative methods exclusively or at all (although mounting a naturalistic inquiry by purely quantitative means stretches the imagination) ... but the inquirer who does not adopt, however provisionally, the axioms of the naturalistic paradigm cannot be said to be doing naturalistic inquiry"*
> (Lincoln and Guba, 1985:250).

Furthermore, from a positivist viewpoint issues have been raised about the use of Kolb's Learning Style Inventory and Entwistle's ASSIST. Both have been criticised for their unreliability, although Entwistle's ASSIST fares better at indicating a HE student's core learning approaches (Coffield et al., 2004). Coffield also notes that Entwistle's ASSIST has been criticised for its unquestioned preference for the deep approach, whereas strategic and even surface approaches may be effective in some contexts. Moreover, the tests are frequently used to identify students' learning styles and approaches yet both were originally intended to support students' metacognition reflections and supporting activities. It follows that, within this research the results of both tests have been treated tentatively.

7.6 Implications for this research

The primary information collection method used in this research was inspired by Charmaz's (2006) conception of an intensive, open-ended, semi-structured qualitative interview. As emphasised by Mason (2002), Charmaz (2006) and Silverman (2000), researchers sometimes mistakenly use research interviews as a way of reproducing 'realities', whereas they can only give an insight into participants' recollections and perceptions of experiences and understandings. Hence, the research interview or research conversation aligns well with a study that aims to explore undergraduates' and academics' perceptions.

Research conversations were chosen since they are the only meaningful method of gleaning people's perceptions of some abstract concept (Charmaz, 2006). Whilst the reflexive stance adopted towards this research will not negate issues relating to the use of research conversations for collecting information, it will help ensure the issues are more transparent to the reader and an integral part of the analysis. A further form of research conversation was used just before the undergraduates began their formal studies in my school. To capture undergraduates' views and understandings in the couple of days before they began their studies, I held focus groups with all but two undergraduates in the research cohort. This was primarily for pragmatic reasons, but also because the interactions between focus group participants might act as a catalyst for exploring the diversity of potential views and understandings held (Doyle, 2004a).

The information analysis techniques employed in this study were primarily based on those described by Charmaz (2006) who was influenced by the techniques proposed by Glaser and Strauss (1967; 1978). However, Glaser's (1978) coding families were not used since a previous study into school teachers' perceptions of being Internet literate found them cumbersome. However, this study endeavours to adhere to the principles of constant comparison (including negative or deviant-case analysis) and hermeneutic-dialectics that are at the heart of Naturalistic Inquiry and Grounded Theory. In addition, a form of triangulation was employed primarily to augment the study's findings as opposed to validate them. Comparisons were made between the information collected from research conversations, focus groups and parallel Survey of Communication Technology Use, ASSIST and LSI surveys. Any consensus identified was subject to delimitations as highlighted in a constructivist methodology (Lincoln and Guba, 1985). Conversely, any disagreements that were identified were the source of discussion and additional insights, not potential invalidity.