Chapter Three: Methodology

Introduction

Box 3.1: Chapter purposes

- To situate the research and the philosophical position of the researcher relating to it;
- To outline the research design and relate it to the research questions;
- To demonstrate the appropriateness of the research approach for inquiry in the field of ESD;
- To introduce the research instruments, types of data generated and approach to analysis of this material;
- To illuminate the ethical considerations taken as part of the research process;
- To set the scene for subsequent chapters that present and discuss data generated and analysed through this methodology.

Having introduced the research questions (Chapter One) and begun to speculate on the potential qualities of the extra-curricular sphere for ESD in HE (on the basis of a review of the literature in Chapter Two), this chapter outlines and justifies the methodology adopted to explore these questions; its general purposes are summarised in Box 3.1. By way of outline, the chapter starts by situating the research, allying it both with a critical realist philosophy and an exploratory approach. This part outlines some tenets of critical realist thinking pertinent to the execution of the research in order to demonstrate congruence with an investigation into ESD. It also argues that the exploratory approach adopted is consistent with opening up a novel area of investigation. The research design, based on mixed methods, is then elaborated with the links to the research questions made clear. In this part, the methods employed - an extensive survey of UK HEIs and an intensive case study at one university - are introduced and the types of data generated are elucidated. The chapter moves on to describe the handling of these data as part of the wider analytical process. It then argues for the suitability and veracity of the methods employed. Finally, ethical considerations are documented. The chapter ends with a brief concluding review to set the scene for the introduction of the main body of empirical and analytical work in subsequent chapters.

Situating the research

Saunders, Lewis and Thornhill (2003) use the analogy of the layers of an onion as a means to view research. The outer layer of the onion represents the researcher's *philosophical position*. This will influence the next layer in, the *research approach*, and in turn this will influence *research strategy*, the *time horizon* adopted, and ultimately the choice of *methods* for data collection. However, the outer layers of the research 'onion' are not always made explicit by researchers. Making them so, should help readers to situate the research and assess the claims made through it. [12]

Philosophical position

The *philosophical position* that underlies this research could best be described as informed by critical realism (after Bhaskar, 1978, 1979, 1989; 1991, 1993). It combines a realist ontology, that accepts there is a real world that exists independent of our knowledge about it, with an interpretivist epistemology that acknowledges that through human perception our knowledge of the real world is conceptually mediated and therefore fallible[13]. Importantly from this position it remains possible and fruitful to gain knowledge about the real world and so advance general understanding about real world issues such as ESD. This is so because not all knowledge will be equally fallible. As Danermark et al (2002, p. 15) note 'facts are theory-*dependent* but they are not theory-*determined'*; our ideas about the world may be fallible, but it is possible to develop and distinguish between them through research and scholarly investigation.

In critical realist thought, reality has depth; it cannot be understood by empirical observation alone[14]. One implication of this assumed ontological

[12] As a researcher, this process of confronting and making explicit one's own ontological and epistemological assumptions through grappling with the metaphorical onion peelings of research decisions can produce some tears.

[13] In holding these assumptions I associate with critical realism being what Danermark et al (2002, p. 202) represent as a 'third way' between a naive social science based on an 'empiricist/objectivist ideal' and the opposing idealist/relativist alternative that, taken to its extreme, militates against the search for any general knowledge.

[14] Three domains of reality are assumed in the classic critical realist writings of Bhaskar (1978; 1979; 1989; 1991; 1993): *empirical*, *actual* and *real*. In the empirical domain we

depth is that causality is not explained in terms of simple empirical regularities between concrete phenomena, but through consideration of the generative mechanisms that give rise to them. Concrete phenomena that can be observed, such as extra-curricular educational events, are influenced by, and in turn may influence, more abstract structures and mechanisms that may not be directly recorded but are none the less real. Accordingly, in addition to gathering data about concrete phenomena, it is important to consider the underlying structures, mechanisms and powers that account for them. The interplay of these various elements in different contexts may lead to a mechanism realising its power to produce a phenomenon, or may inhibit it from doing so. For example, it could be argued that all university environmental committees have the power to initiate environmental awareness programmes. In some contexts, for example, where supportive policy frameworks exist, funding programmes are in place, institutional commitments to environmental management systems are present, or the institution is trying to position itself as 'green' university in order to gain a marketing advantage, this power may be exercised. In others, it may not.

Another aspect to the 'depth' of reality from critical realist philosophy that is pertinent to this investigation is the notion that reality is hierarchically layered in strata, for example, chemical, biological, psychological and social strata (Danermark et al., 2002, p. 60). Each successive stratum upward is seen to have new emergent and non reducible mechanisms with their own distinct powers. For this reason explanation can never be satisfactorily achieved by reduction down to ever smaller parts, nor indeed as Collier argues by 'reduction' to ever larger wholes (Collier, 1994, p. 117). To use an example cited by Sayer (1992):

> 'We would not try to explain the power of people to think by reference to the cells that constitute them, as if cells possessed this power too.' (pp. 118-119)

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observe factual events; in the actual domain, factual events occur whether we observe them or not; whilst in the *real* domain the structures and mechanisms that may produce factual events reside. I side with Sayer's perspective (2000) that not all structures and mechanism will be obscured from investigation as is implied in some readings of these three domains.

Gaining understanding, particularly at higher social strata, where education systems emerge, necessitates consideration of the interplay of a multitude of mechanisms and their interaction in complex and open systems. This ontological acceptance of complex systems and emergence, and with it opposition to reductionist explanation, is clearly congruent with ideas about ESD based on systems theories (introduced in Chapter Two)[15].

Research approach

In earlier chapters it was argued that the role and impact of extra-curricular ESD phenomena have neither been examined nor theorised greatly. In this context, an exploratory research approach is appropriate to open up this area of enquiry. Explanation remains a valid goal, but a rigorous exploration of the territory is a useful first step in helping to formulate such an explanation. This exploratory approach draws somewhat from interpretivistic traditions whilst rejecting the ontological relativism often associated with these traditions[16]. In this research, the interpretive aspect takes the meanings made from accounts given by university staff and students and uses these to help explore the structures and mechanisms in operation around extra-curricular ESD interventions. As Sayer (2000) argues:

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[15] Critical realism is one area where Sterling (2003, p. 76) admits to have limited his own enquiry when developing his thesis on whole systems thinking . That said, where he does mention critical realist thought, he indicates it could aid the transition to sustainable education. Thus when arguing that there are three stages or 'moments' of paradigm change from the dominant modernist paradigm (first order), through the idealist/constructivist position (second order), towards an emergent post-modern ecological worldview (third order), Sterling indicates that critical realism might provide 'a pathway towards the third order' (falling between positions two and three). Sterling's own ontological and epistemological position is in part informed by the idea of 'participative reality' based on the work of Heron (1996). He argues this helps transcend the schism between realism and idealism (Sterling, 2003, p. 89). Under Heron's view (Heron, 1996, p. 11) reality is always 'subjective-objective', it can only be known through our mind's participation or interaction with it. Whilst from a different origin, I believe there appears to be some resonance between this position and critical realist position inspired by Bhaskar.

[16] In this way I am in agreement with Shipway's (2002, p. 226) argument that post-modern interpretivist methods have strength as research tools, and critical realism 'can disconnect these powerful methods from their tradition, and sustain their use even more effectively, in that the data gained avoids positivist counter-attack on grounds of relativism or irrealism.' The rejection of assumptions associated with interpretivist traditions is not unique to my piece of research, for example, Porter (2002, p. 65) highlights this very point in a discussion of a critical realist informed ethnography.

> ‘Critical realism acknowledges that social phenomena are intrinsically meaningful, and hence that meaning is not only externally descriptive of them but constitutive of them (though of course there are usually material constituents too). Meaning has to be understood, it cannot be measured or counted, and hence there is always an interpretive or hermeneutic element in social science’
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> (p. 17)

Whilst exploratory in approach, this research is not confined to the question of what happens, but seeks to describe what happens in order to explore questions of how and why this is so.

Research design

With an outline of the philosophical grounding, drawing from critical realism, and broad exploratory approach in place, this part introduces the research design. A bespoke design has been developed. Writers such as Sayer (2000), Yeung (1997), and Danermark et al (2002), have all attempted to guide a critical realist methodology. However, Yeung (1997) acknowledges that critical realism has primarily been developed as a philosophy of science not a methodology[17]. Sayer (2000, p. 19) adds that critical realism does not offer ‘cook book prescriptions’.

The bespoke design adopted is based on mixed methods employing both qualitative and quantitative approaches. From a critical realist philosophical stance such a mix need not be one based on pragmatism, a belief in warranty through triangulation, or that of a belief in false duality (Scott, 2007); the paradigmatic schism between quantitative and qualitative approaches is not present and the relevance of method to research questions thus takes precedence. In place of the terms ‘quantitative’ and ‘qualitative’, Sayer (1992) refers to ‘extensive’ and ‘intensive’ approaches, each having their own worth. Danermark et al. (2002) refer to the mix as *critical methodological pluralism* placing the emphasis on choosing the best approach because not all methods will be equally suitable. In this research

[17] I consider this research to be informed by and compatible with a critical realist philosophy, however, I come at it very much as a practical researcher and ESD practitioner rather than as a realist philosopher. I agree with Yeung (1997, p. 54) that, ‘we need a philosophy to inform our practice and, at the same time, through our practice we would inform our philosophy in dialectical ways’.

both macro (extensive) and micro (intensive) frames of inquiry are adopted for the different questions of concern.

At the macro level, the research uses a cross sectional survey to give a ‘snap shot’ of UK HEI practice at one point in time, i.e. it looks for regularities in accounts of the ESD phenomenon in different UK universities focusing on the extra-curricular aspect of this phenomenon. The survey is used to help answer the research question about the extent of UK extra-curricular ESD interventions by seeking to establish their presence or absence at UK universities in the 12 months prior to the investigation. It also helps to illuminate parts of the research questions about the potential of such practice by gathering views about the strengths, weakness, opportunities for and barriers to the use of extra-curricular interventions. In so doing, the focus begins to turn toward the search for structures and mechanisms associated with these phenomena.

At the micro level, action research (or research-in-action) is used to generate a ‘case study’ of practice at one institution over an extended period. I was seconded to work for one day a week at the case study institution to assist with the promotion of extra-curricular ESD interventions whilst simultaneously researching the impact of this and related work. In this more intensive part, the focus turns to exploring substantive connections by looking at how extra-curricular ESD interventions play out in one real world setting. A key component within this case study is a longitudinal survey of participants involved in the host institution’s sustainable development related e-mail network, i.e. members of the university community who have become involved with an extra-curricular ESD intervention. The longitudinal aspect affords the opportunity for consideration of change through time and thus allows for consideration of impact. The case study aims to explore questions concerning the impacts of interventions on understandings of sustainable development and associated attitudes and behaviour, as well as the potential for individual learning and institutional change.

The research design has had to be flexible and implemented in a pragmatic fashion to account for the constraints of time and resources and changing circumstances on the ground.[18] As Smith-Sebasto (2000, p. 19) argues, in environmental education research, it is near impossible to design a 'perfect study' but important to do the best with what one has.

Methods for generating data

A variety of methods are employed in the design and these have generated data of different types. These methods and data types are now detailed prior to introducing the approach to analysis. The research design, methods used and data types generated are summarised in Figure 3.1.

The extensive part of the research design uses a *reporting method* based on a postal questionnaire survey sent to all UK HEIs. The data types generated include categorical data from closed questions and free text from open questions. The postal survey and its deployment are discussed in more detail in Chapter Four. The questionnaire form is reproduced in Appendix 1.

The intensive part of the research design, the case study of one HEI, uses:

- *an investigative method* – gathering reports, policies and meeting minutes relevant to the topic;
- a *reporting method* based on research notes and evaluation sheets relating to extra-curricular events and activities at the case study institution;
- a *dialogue method* utilising semi-structured interviews with a mixed group of 27 participants in the case study institution's sustainable development related e-mail network. These 27 participants were recruited based on a purposive approach to ensure variability between students, academic and support staff and a mix of subjects and years of study. Further details of the group recruited are included in Chapter Six;

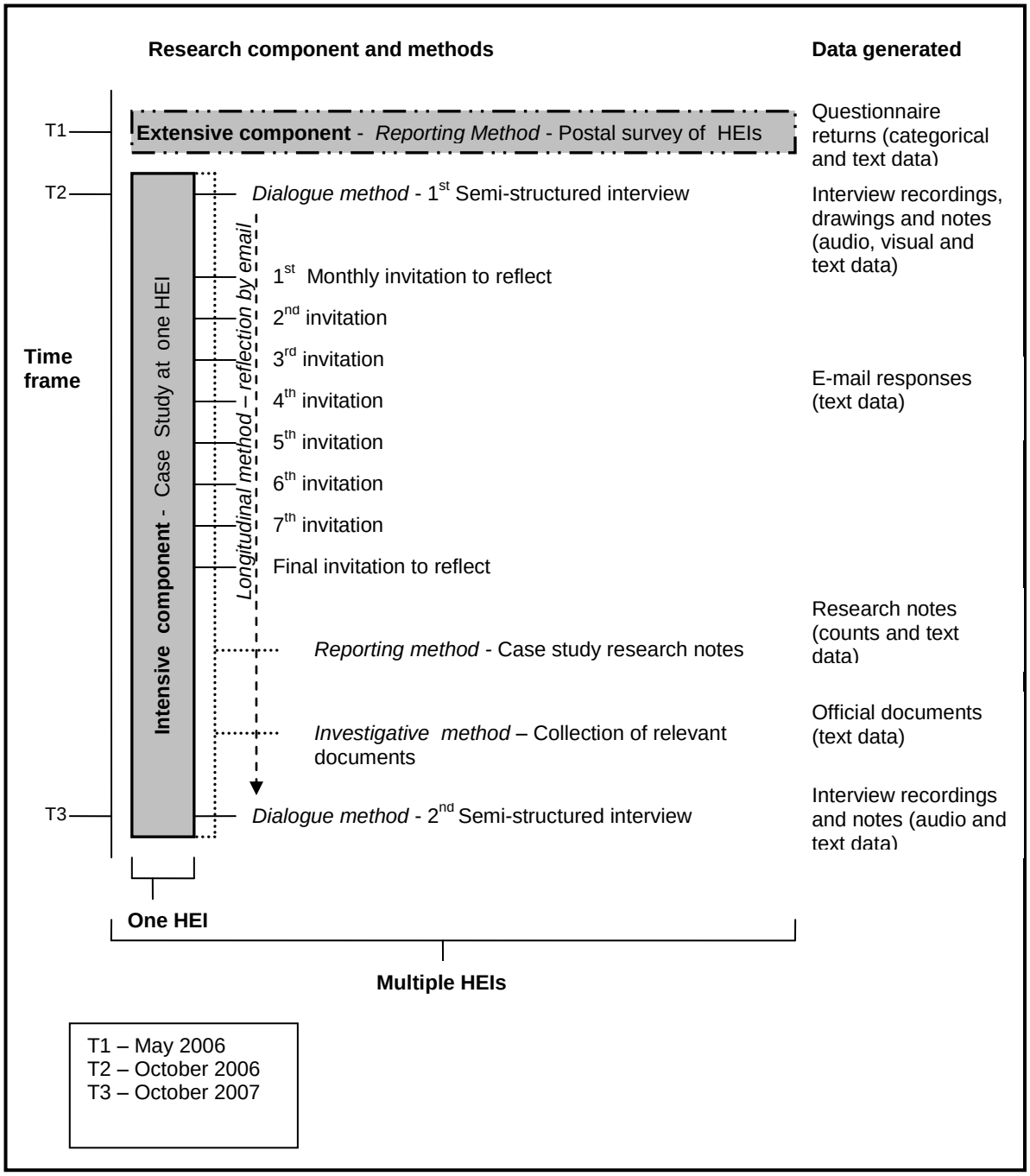
[18] It took more time than expected to get the necessary permission for the investigation to commence necessitating some reprogramming from the outset.

- a *longitudinal method* – based on monthly invitations to participants to make reflections by e-mail collected over an academic year; and the re-interviewing of study participants 12 months on from the initial interview. This second interview involved guided reflection over previous material shared to explore changes that had taken place.

The data types generated include text and counts within the research notes; interview recordings and drawings made by research participants during the interviews; reflections made by participants during the year[19]; and documents produced by the university. The case study research instruments are discussed in more detail in Chapters Five and Six. The guide sheets for the semi-structured interviews and prompt for the first monthly reflections are reproduced in Appendix 2.

[19] Including my own reflections as researcher

Figure: 3.1: Research design showing the main components and methods employed and types of data generated



Analysis and data handling

The conventions of scientific reporting and limitation of textual representation often imply a clean sequence of discrete stages in research, with analysis being something that comes late in the research process. In reality the process is a much messier affair and analysis starts early and finishes late.

Here the general analytical framework is introduced alongside that for *handling data* – the approach to 'creating and working with data records', (Richards, 2005, p. 3) - itself a central part of the analytical process in social research.

In line with the philosophical assumption of ontological depth that underpins the research (outlined earlier in this chapter), the approach to analysis is not solely concerned with seeking regularities between concrete phenomena recorded in the empirical data – although this is certainly part of it. The analytical approach aimed to move beyond an initial description of the objects of study - extra-curricular ESD phenomena and related learning - through an abductive[20] re-description of them to help illuminate potential structures and mechanisms at play.

In the extensive part of the research, the analysis seeks out similarities across the population of UK universities with respect to the use of and perceived qualities of extra-curricular ESD interventions. Here categorical data from the questionnaires were processed using the SPSS statistical software package (version 14.0) to produce percentages and counts to describe patterns within. These patterns were summarised in tables and bar charts. The approach to free-text data was based on coding and classification into themes followed again by counts and tabulation. With relatively small chunks of free text from the questionnaire answers, this coding and classification was facilitated with word processing software.

In the intensive part of the research, the analysis is based on building a 'thick description' (after Geertz, 1994) by drawing together the different material collected. The approach to the initial interview data, from the survey within the case, draws on 'grounded theory'-type techniques (after Glaser & Strauss, 1967). Interview recordings were processed into verbatim transcripts (an extract from one transcript is included in Appendix 3 for illustrative purposes). Transcription was deliberately undertaken by me, the

[20] Here I take abduction to mean the process of making an inference through a re-description of the phenomenon of study based on theoretical ideas.

researcher, in order to gain an intimate association with the data through 'immersion' in them. Transcripts were then reduced by a process of close 'open coding' linked to the constant comparative approach (after Strauss & Corbin, 1998). These codes were then classified further to develop a hierarchy of emergent themes. Theoretical ideas were developed through a process of 'memoing' in tandem to this open and classificatory coding. These memos drew initially on ideas emerging from the transcripts themselves, but also on ideas from the UK survey and the wider literature through an iterative process between the different sources. NVivo software (Version 7) designed for storing, coding, retrieving and representing data in this type of 'grounded' process was utilised. To counter the fragmentation of meaning as a result of the coding process (Selden, 2005), summary 'stories' for each participant were recreated by reference to both the source transcripts and their ultimate coding. These 'stories' were themselves used as reference memos as part of the iterative analytical process (summary stories are reproduced in Appendix 4).

The longitudinal aspect within the analysis was dealt with through a comparison between answers from the first and second interviews to questions about participant understandings, feelings, opinions and behaviour in relation to sustainable development. Answers from the first interviews and reflections made during the year provided source material for guided reflection about change in the second interviews. There is rarely a longitudinal element when using such qualitative approaches (Flick, 2006, p. 143), accordingly data from the second interview was processed with the benefit of coding developed from the first round.

Appropriateness of design and methods

Having introduced the research design and its philosophical antecedents, this part argues for the appropriateness of the design for this investigation into extra-curricular HESD. Three arguments have already been introduced in this regard, notably:

(i) the suitability of the critical realist conception of reality to studies of education viewed through the lens of systems theories;

(ii) the appropriateness of an exploratory approach for studying an area which has been subject to little scrutiny; and

(iii) use of a mixed design to capture the breadth and depth of the extra-curricular ESD phenomenon.

In this part, the argument for the suitability of the individual elements used in combination is developed.

With limited knowledge of extra-curricular ESD practice within the HE sector, the extensive part of the research is focused on enumerating what is happening - whether extra-curricular ESD practice is widespread and if it is, how much and what types of practice are found. These 'what' and 'how much' type questions are particularly suited to a survey strategy (Yin, 2003, p. 6). The choice of a postal questionnaire survey over other forms of survey, (e.g. telephone or web survey) was made on pragmatic grounds. In the absence of knowing in advance who might best answer the questions about extra-curricular ESD in each institution, the decision was taken to send the survey to the head of each institution and ask them to complete it, or forward it to someone they judged best placed to do so. Following discussion with the Vice Chancellor's office within my own university about the likely response to such an approach, it was judged that an appropriately designed survey package sent through the post would most likely result in a positive response. The deployment of the survey package is detailed in Chapter Four.

For the intensive part of the research, the focus is concerned with questions of 'how' and 'why' things happen not just 'what' happens. Here a case study is an appropriate approach as it enables a thick contextual account to be developed (Yin, 2003, p. 6). The general aim is to develop 'as full an understanding of that case as possible' (Punch, 1998, p.150 in Silverman, 2005, p. 126). Rather than seek to limit and control variables through an experimental strategy, the case study approach rests on consideration of the wider combination of factors at play together. In this way it enables an examination of the role of extra-curricular ESD in relation to other factors. This relational aspect is in keeping with both a systems perspective and

constructivist conception of education where learning is seen to be shaped by the whole gamut of a learner's experiences.

Case study research has been identified as a very suitable way to investigate sustainable development in HE (Walker, Corcoran, & Wals, 2004). However, many of the published case studies of HESD have been criticised for being superficial and lacking in rigour, for having limited links to theory, and for containing minimal detail of the methods used and the data collected (Corcoran, Walker, & Wals, 2004; Fien, 2002; Kyburz-Graber, 2004) In view of these criticisms it seems appropriate to outline how quality issues have been addressed.

A useful starting point to defend the veracity of this particular case study would be to clarify what is meant by the term 'case study' itself; this is because the term has been criticised as a vague 'catchall' label used to describe disparate research approaches (Merriam, 1988, p. xii). Yin (2003) begins to define case study research as:

> An empirical enquiry that
> - Investigates a contemporary phenomenon within its real-life context especially when
> - the boundaries between phenomenon and context are not clearly evident. (p. 13)

In this research, the contemporary phenomenon of extra-curricular ESD is explored within the real life context of one university over the period of twelve months. The university provides the case setting with the main units of analysis being the extra-curricular ESD offer at this university and a mixed group of staff and students who are members of the university's sustainable development email list, itself part of this wider extra-curricular ESD offer. Yin (2003, p. 14) goes on to add that a case study 'relies on multiple sources of evidence'. Here, as introduced earlier, these multiple sources of evidence include documentary evidence and research notes about the university and the extra-curricular ESD interventions initiated; and interview recordings, drawings and emailed reflections from members of the study group. The case study presented here could also be viewed as both an 'intrinsic' and

'instrumental' case according to Stake's (2003, pp. 136-137) classification. It is the former in the sense that it is description of a phenomenon at one university that is of intrinsic interest to members of that institution, including the committee who sponsored many of the interventions and the research itself as a means to improve practice. It is the latter in the sense that it has been developed in order to gain an insight into the phenomenon of extra-curricular ESD and so provide the basis for making generalisations about this phenomenon.

Having clarified the type of case study created, the focus now falls on the mode of its production and the suitability of the individual techniques adopted in this regard. The mode of making the case is action research, a theoretically appropriate approach to studying complexity in learning and teaching contexts (Phelps, 2005). However, what is meant by 'action research' in this work needs some clarification as it too can have 'many faces' (Herr & Anderson, 2005, p. 2). In this case, the term action research is used to indicate that the research was undertaken in action; the researcher was involved in both 'action' - initiating extra-curricular ESD interventions for the case study institution – and simultaneous 'research' into these actions designed to help understand and so improve them. It is unlike some practitioner action research in the sense that the researcher was a researcher engaged in part-time practice, rather than a practitioner engaged in part-time research.

Semi-structured face-to-face interviews formed the primary means to generate data in the case with interviews at the beginning of the academic year and re-interviews 12 months later with all 27 participants. As an exploratory study, the most significant questions to be asked were somewhat open ended thus favouring a flexible interview approach. Whilst there is 'no perfect interview that can provide the whole story' (Gerson & Horowitz, 2002, p. 211), semi-structured interviews are the most common form in case study work lying somewhere near the middle in a continuum between a structured questionnaire and listening to other people's natural conversations (Gillham, 2000). Here a schedule of themes and questions was utilised (Appendix 2)

that allowed the flexibility to explore participant experience in conversational style whilst maintaining some structure tied to the key research questions.

The first round of interviews also included a request for participants to produce a picture or diagram to convey their understanding of sustainable development. Drawings have been used as empirical material in other environmental education studies (e.g. Alerby, 2000). In this research, the call on participants to represent their understanding of sustainable development as a picture or diagram was used as a device to re-ask the preceding question focused on what participants understood by sustainable development. In addition to generating visual material, it provided an opportunity for more detailed elaboration of the previous answers because participants were asked to narrate whilst drawing.

The longitudinal aspect in the design was not simply a 'before' and 'after' counterpoint captured through the interviews; as highlighted earlier in this chapter, participants were also invited to share reflections by email on a monthly basis to provide a finer resolution and attempt to capture every day episodes that prompted thought about sustainable development. Phelps (2005, p. 38) argues that reflection, defined as 'a mental process in which one thinks about things by going back over them' is a valid and relevant means to both generate data and, importantly for action research, *to promote learning and change*. Particularly relevant for this investigation, in a setting and field where complexity and emergence are deemed important, is the open ended nature of reflection that 'embrace[s] non linearity, enabling intermingled documentation of ideas and experiences from past, present and imagined futures' (Phelps, 2005, p. 39). These experiences might include *extra-curricular and other non-formal educational* stimuli.

The clarification of what the case study is and how it has been created is an important part in demonstrating its *reliability*, which alongside *validity* and *generalisability* form the three main dimensions commonly used to judge research quality (Fox, Green, & Martin, 2007). Here the approach to these three aspects of quality is discussed further. Firstly reliability has been

addressed by taking steps to document the instruments and procedures used. The case study process has been introduced here. It is discussed further in Chapters Five, Six and Seven and supported with documentation in the appendices. The aim is to demonstrate transparency in the process and clarity about the instruments used. Secondly, the issue of validity has been addressed by developing a 'chain of evidence' (Yin, 2003, p. 105) to show the relationship between the data and the explanations offered. Chapters Five, Six and Seven present the case report and the conclusions arising from it. Here the arguments advanced are presented alongside segments of the data that support them with some further material included in the appendices. The aim is to enable the reader to navigate back and forth between the research questions, data, and conclusions drawn. Finally with respect to generalisability, the case is by definition an investigation of a particular case and therefore all that happens in it is not directly transferable elsewhere. This is a common criticism or one of the 'traditional prejudices' against case study research (Yin, 2003, p. 10). However that is not to say case studies do not have value for generalisation elsewhere. Depending on the reader's own philosophical orientation this could be as: 'illuminative case law', necessitating the provision of 'rich contextual details' to enable the reader to assess the relevance to another setting (Stevenson, 2004, p. 48; Warhurst, 2005, pp. 82-83); or, as Yin (2003, p. 37) argues, on the basis of 'analytical generalisation' in order to develop a theory of more general application. Using Sayer's critical realist terminology (2000):

> Actual concrete patterns and contingent relations are unlikely to be 'representative', 'average' or 'generalizable'. Necessary relations discovered will exist wherever their relata are present, for example casual powers of objects are generalizable to other contexts as they are necessary features of these objects. (p. 21)

Ethical considerations

The overall quality of the research design and its implementation is itself an important ethical concern; there has been significant third-party investment in this research from the university sponsoring it, the university hosting the case, and the participants involved via the postal survey and case study. It is

thus important that this investment is not wasted and the research stands up to scrutiny.

There was an institutional requirement to gain ethical approval for the research prior to the start of data collection. The ethical approval process followed a utilitarian model developed to cover bio-medical research and involved making an application for approval to a faculty ethics committee (the application form is reproduced in Appendix 5). In summary, to gain approval the credibility and potential benefits of the research had to be demonstrated and set against the potential harm to research subjects and the measures employed to limit this harm. The argument advanced was that the research had a potential positive contribution to wider society in aiding sustainable development, yet it presented minimal risk of harm to participants. With respect to potential benefit, although there is much debate about the use and abuse of the term sustainable development, it was argued there is significant agreement that its absence today is a life and death matter for some people and has real impacts in both the human and more-than-human world. In addition, it has been suggested the absence of sustainable development in the future has a projected, though more contested, catastrophic impact. Accordingly, in the context of the UNDESD 2005-2015, research that makes an original contribution to knowledge is this area should have some wider benefit. With respect to potential harm it was argued the research was low risk. This was because: it did not cover any of the categories outlined by the Economic and Social Research Council in their 'Research Ethics Framework' (ESRC, 2005) for research involving more than minimal risk; it did not involve direct questioning about sensitive topics; and it was to take place in settings that participants were already familiar with, thereby minimising discomfort, distress and inconvenience.

Although deemed to have minimum risk, there was, as with all research involving the questioning of people, some potential for harm. This potential was managed by following accepted good practice, notably: taking steps to ensure voluntary participation; the informed consent of participants; assurances concerning anonymity; data protection measures and,

importantly, a sensitivity to participants. This sensitivity is particularly important in a detailed case study that utilises in-depth interviews and written reflections. It was possible that through these dialogues and reflections some negative or embarrassing data may have come to light pertaining to an individual, group or the institution as a whole. The sensitivity required to deal with these situations requires ongoing engagement.

Informed consent was sought through the provision of information about the research prior to participation. This information set out the purpose, methods and intended uses of the research. It introduced measures to protect the identity of participants and assurances about steps to ensure data protection. It set out to explain what participation in the research would entail and the risks involved. The voluntary nature of participation and right to withdraw was emphasised both at the outset and at each subsequent point of contact. The information provided to participants prior to participation in the study is reproduced in Appendix 6.

With respect to data security and the protection of personal details, data were stored and processed using password protected software. Hard copies of materials were locked up in a secure office. Processed data from the case study, notably interview transcripts and summary stories, utilised psuedonyms and were edited to alter the names of other people and places refered to by interview participants.

There were also potential benefits from participation in the research. It was argued that there was the potential to have a heightened learning experience through the interview and reflective journal process. For some participants, notably students and academics without experience of interview research, the opportunity to participate in the research process was itself a potentially valuable experience, providing insights for possible future research practice. Participants in the case study could also count the hours they were engaged in the study as ‘volunteering hours’ in the case study institution’s volunteering certificate scheme.

Action research presents some particular ethical considerations (Zeni, 1998). As a practitioner, working part-time for the case study institution, it would be legitimate to gather data to evaluate the impact of one's own practice. However, using these data for a doctoral research goes beyond the 'zone of accepted practice' (Zeni, 1998, p. 13). Here, in addition to improving one's own practice, the aim is to communicate and publish in order to inform wider thought and practice. This aspect was made clear to all participants. The longitudinal element at the centre of the case study differed from much traditional education based action research in two ways. Firstly, the principal researcher was not in a formal lecturer/teacher role with a research focus on students/pupils, but in a facilitator role working with both students, academic and non academic staff. Accordingly the researcher was not in a sustained position of power over participants as can be commonplace in educational settings. Secondly, participants in the research were involved in voluntary extra-curricular engagements, not core curricular activities: they were involved in these engagements by free will. It is argued that the voluntary nature of the extra-curricular experience leaves less potential for coercion, or feelings of obligation to participate compared with what may arise in traditional classroom research. The issue of power relations, coercion and voluntary participation nevertheless did arise during the recruitment process indirectly, when academic staff offered to help recruit their students into the study. This assistance was declined.

One of the key ethical issues that remains, in common with classic action research, is the dual role of the investigator as both researcher and actor within the study. There is a danger that bias creeps in, for example, the action researcher might want to protect how their actions are perceived and so over emphasize the positive and down play the negative. The tools to maintain the ethical integrity of the research enquiry are: transparency and active self-reflexivity on my part as researcher; a research design that seeks to utilise multiple data sources; and a research supervisory team that includes non-participants. As mentioned in Chapter One, active reflexivity is recorded through my reflections in text boxes and footnotes.

Conclusion

In this chapter, it has been argued that a critical realist informed philosophical stance and exploratory approach are compatible with each other and with a mixed methods investigation into extra-curricular ESD. The twin pronged research strategy advanced has been shown to focus on aspects of both the breadth and depth of the extra-curricular ESD phenomena and so address the principal research questions. The scene is now set to elaborate on the two main elements of the research. The next chapter (Chapter Four) focuses attention to the detail and findings of the survey of UK HEIs, whilst the subsequent Chapters Five, Six and Seven do likewise for the case study investigation.