THE IMPACT OF RESIDENTIAL ADVENTURE EDUCATION ON PRIMARY SCHOOL PUPILS

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to the University of Exeter
as a thesis for the degree of
Doctor of Education

January 2012

I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

ABSTRACT

This is a mixed method study carried out from a pragmatist philosophical position. The research question is how (if at all) do primary school pupils change following a residential adventure education experience, how does any change relate to their experience during the residential and what implications does that have for the provision of residential adventure education?

It is a three phase study. Phase 1 is quantitative: a survey to assess whether there is a correlation between the extent of residential opportunities and whole school performance measures. Phase 2 is qualitative: a series of interviews with headteachers, parents and policy makers to discover their perceptions of the impact of a residential programme. Phase 3 is quantitative: designing and testing an instrument to measure the impact on pupils of different aspects of a residential programme and comparing this with their classroom attainment and their social and emotional development.

No relationship was found between the extent of residential opportunities and whole school performance measures, although it was found that opportunities are inversely correlated with deprivation.

Interview data produced a rich source of evidence for the way in which different aspects of a course combine together to produce a powerful impact. Complexity theory was used as a theoretical perspective to suggest that a non-linear step change in self-confidence could arise naturally and possibly inevitably as a result of the fact that residential adventure education is a complex system.

Analysis of the pupil impact survey showed that many different aspects of the experience combine to create the impact but that it can reliably be separated into four components: living with others, challenge, teacher relationships and learning about self. There was a significant correlation between the improvement in individual pupils' classroom attainment over the course of a term and the impact that the residential had on them. There was a significant improvement from pre-course to post-course in pupils' prosocial behaviour and a significant reduction in perceived hyperactivity.

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ACKNOWLEDGEMENTS

I should like to express my very grateful thanks to all those pupils, headteachers and numerous others who have helped by providing the data, to my supervisors, Associate Professor Keith Postlethwaite and Dr Deborah Osberg, and to my wife Marion, for drawing the diagram of a cusp catastrophe and for tolerating a preoccupied husband for some considerable time.

1. INTRODUCTION

1.1 Context

> 'When planned and implemented well, learning outside the classroom contributed significantly to raising standards and improving pupils' personal, social and emotional development.' (OFSTED, 2008: 5)

This study will challenge OFSTED's assertion. It will explore how pupils' personal development manifests itself in the classroom and will ask whether the assertion is borne out in terms of measurable outcomes.

OFSTED's judgement is unsubstantiated by research evidence and it is therefore necessary to be sceptical about its validity. Nevertheless, OFSTED's views reflect a widely held perception that learning outside the classroom (LOtC) is 'a powerful approach to learning' (DfES, 2006). The study will explore the reasons for this, with a particular focus on residential adventure education. Throughout this study, RAE will be used as an abbreviation for residential adventure education and residential (commonly used in the sector as a noun) will be used to mean residential experience.

First, it is necessary to define the range of provision that the study considers and to put it in context. LOtC encompasses a broad range of learning opportunities, including activities in the school grounds, visits to art galleries, museums, heritage venues, places of worship, nature reserves, farm visits and tours abroad as well as outdoor adventurous activities (CLOtC, 2011). Focusing down on the outdoor provision, SkillsActive (2011) lists a number of different approaches: outdoor education, outdoor recreation, development training, adventure tourism, sports development, expeditions and exploration, adventure therapy and bushcraft.

It is therefore evident that adventurous activities form only a sub-set of LOtC and that outdoor education is only one of many approaches to activities in the outdoors. To confuse the situation further, outdoor education also embraces environmental studies as well as adventurous activities. One interpretation of the scope of outdoor education shows outdoor activities, environmental education and personal and social development in three interlocking circles, with outdoor education as the intersection between the three (Higgins, 2002). However, the current reality is more complicated. It is possible to use adventurous activities to achieve a large number of different aims: skills development, fun and enjoyment, curriculum related educational aims, personal development or team development. As will be

seen in this study, schools attending courses will seldom have one clear aim but will often adopt a fuzzy combination of many aims.

Even though they only form part of a much broader picture, adventurous activities constitute a significant proportion of overall provision, with 1,182 providers who are licensed to provide activities to children (AALA, 2009). Many of those providers offer residential courses. In fact, research for DfES reports that outdoor education is the most common form of residential provision used by schools (although the authors do not separate this into adventure-based and environmental): in 2004, nearly 80% of primary schools in England and Wales organised outdoor education residentials (The Scout Association, 2004).

My particular interest is in residential adventure education, for the simple reason that my whole career has been spent in that specialism. I intend to employ a broad definition of the type of provision that the study will consider, both in terms of aims and in terms of the range of activities, for the following reasons.

Within the outdoor sector, there is a reasonable consensus that 'The educational intention is to stimulate personal and social development' (Higgins and Loynes, 1996/7: 2). In contrast, the Learning Outside the Classroom Manifesto suggests that **'**Learning outside the classroom is about raising achievement through an organised, powerful approach to learning ... ' (DfES, 2006). There is clearly a wide variety of possible aims and approaches. Moreover, experience suggests that headteachers who organise residentials do not necessarily have a clear perception of the aims of their course.

As well as a wide range of aims, there is also a spectrum of different approaches. For example, local authority and commercial providers are on different points of the spectrum. There have in fact been contentious claims that some approaches have more educational potential than others (Cooper, 2007). It is hoped that the study may cast some light on these claims. However, because there is such a mixture of aims and approaches, I do not propose to limit the research to provision which is explicitly developmental but to consider all types of provision.

In terms of the range of activities, I intend to adopt a similarly broad interpretation. A common definition of adventure is 'an experience that involves uncertainty of outcome' (Hopkins and Putnam, 1993: 6). Uncertainty of outcome could of course apply to non-active

endeavours (for example, embarking on an EdD) but it is interpreted in this study to mean any physical activity which is sufficiently challenging that participants are uncertain about whether they will succeed.

To summarize therefore, in this study, RAE is considered to embrace any experience during which pupils spend the night away from home while taking part in adventurous physical activities of any description. There is no attempt to make a judgement as to how "educational" the aims of that experience may be**.**

As well as my personal interest in RAE, there are two other reasons for focusing on it. First, although the literature review will challenge the generalizability of those claims, it is claimed that adventurous activities provide a particularly powerful educational opportunity: 'It seems that adventure programs have a major impact on the lives of participants, and this effect is lasting' (Hattie et al, 1997: 70). Second, addition of the residential component creates a particularly complex and interesting learning environment (Cooper, 1996/7).

I am focusing on primary schools for three reasons. First, the use of residentials by primary schools is increasing. At the time of making the decision to focus on primary schools, this assertion was based on my personal experience as there was no published evidence to cite; however, results of this study substantiate it. Second, primary school children are at an earlier developmental stage than secondary school children (Piaget, 1952) and are therefore arguably less able to process the learning. Nevertheless, it has a clear impact, an apparent anomaly that needs investigation. Third, there is very little research on the primary age group in the outdoor education literature.

There is strong anecdotal evidence that RAE has a powerful effect and a strong belief among many educators that this is the case. As a result, there is a surprising enthusiasm among school staff and a willingness to commit time and money to residentials. Politicians are also generally supportive. However, that support amounts to little more than warm words, with very little practical help from central government for outdoor education in England (House of Commons Education Committee, 2010).

For a number of years, I have been Chair of the English Outdoor Council and have, in that role, actively campaigned for greater opportunities for adventure for young people. The need for more robust evidence has been apparent in that process. My primary motivation for carrying

out this research is to produce evidence that might be of help in arguing the case for a more sustainable approach to the provision of outdoor education. Policy implications therefore form a small but important element of this study.

Policy issues have also influenced the form of the research. While there has been a surprisingly large volume of research in outdoor education, there is little which comes to the attention of reviewers who have a broader perspective. To illustrate this, an influential recent report guides schools on strategies to improve learning in the context of the new Pupil Premium. In considering the options, it draws exclusively on publications **'**which have specifically set out to evaluate the impact quantitatively of different approaches on (sic) learning using test or examination scores' (Higgins, Kokotsaki and Coe, 2011: 31). There is no mention of LOtC.

It is an expectation of the university that an EdD thesis will make a distinct contribution to professional knowledge within the chosen field and will involve 'real life' issues concerned with practice (University of Exeter, 2008). Allison (2006) differentiates between internally focused research that helps to develop our understanding of processes and outcomes and externally focused research that is concerned with the justification of outdoor education to decision makers. This study spans the two: it is firmly grounded in real life, practical issues, but also has the clear intention of gathering new evidence that will support the case for outdoor education at a national level. As well as any articles in academic journals that may arise from the research, it is proposed to disseminate the results in easily comprehensible language to users and practitioners.

1.2 Researcher positionality

After a career spent in residential adventure education, I have strong enthusiasm for (and an acknowledged bias towards) that approach, which I know from personal experience to be a very powerful developmental tool. Many authors have asserted the power of the outdoors and its educational potential. However, enthusiasm and assertion are inadequate in a world where evidence-based decision making is (at least nominally) expected.

To make the case for greater opportunities for participation in adventure education, more evidence is needed. As indicated in the previous section, my primary motivation for carrying out this research is to uncover knowledge that might be of practical value to the adventure education community in this process. Therefore, the practical utility of the research is central

and that has been a factor in reaching my philosophical standpoint. Such a standpoint was far from easy to reach as I have sympathy with two contrasting epistemological views.

My fundamental ontological position is realist. Clearly, physical objects can exist and events take place with or without the presence of human consciousness. Bhaskar (1978) argues convincingly that, while knowledge is a social product, for knowledge to be possible, there has to be a law-governed world which is independent of human experience. However, the question of whether meaning ascribed by humans to the real world can have any universal character, or is inescapably individual, is much more nuanced.

A key question for an educational researcher is to what extent events and interactions which make up the social world can be described in terms of a reality which exists outside the constructions of participants. Pring (2000) considers that it is possible to make generalizations about people and groups which can be expressed as facts and to attribute causality to social interactions. He makes the point that there are shared understandings of constructed meaning achieved not least through language. I have some sympathy with this.

On the other hand, I accept that we may never know whether we have accurately represented that meaning (Furlong, 2004). It seems clear to me that there cannot be a single reality in social situations. Moreover, I acknowledge that the constructionist view that 'meanings are constructed by human beings as they engage with the world' (Crotty, 1998: 43) applies not only to social interactions but also to some properties of the physical world and certainly to concepts arising from those properties.

These are disparate ontological views and it is necessary to find a theoretical perspective which reconciles them. Such a perspective is likely to span the scientific and interpretive approaches to research and achieving a balanced perspective is far from easy. There is still a regrettable tendency for adherents of competing epistemologies to adopt polarized stances and a confrontational approach, instead of considering how alternative approaches might each make a contribution to knowledge (Donmoyer, 2006). Moreover, there is an unjustified tendency to associate all scientific approaches with positivism.

While it is recognized that there are different interpretations of positivism (Crotty, 1998), they all rely on an underpinning objectivist epistemology. However, the belief that there can be one objective truth has been undermined even within the scientific community by the

paradigm shifts of the last century. As a physicist, I have always had a clear understanding that Popper's falsification principle underpins modern scientific method (Popper, 1969). The concept of objective truth seems to be fundamentally at odds with the always provisional nature of knowledge that Popper's principle implies. A spirit of humility demands that the latest theory at any point in time should be regarded as only the best approximation made to date. Viewed in this context, 'brute' positivism (Byrne, 2002: 15) seems to me to be simplistic and untenable.

However, although I reject the most strident positivism, I do not dismiss the possibility of treating some generalizations about the social world as if they have a degree of objective reality. I am sympathetic to a softer objectivism such as that of Pring (2000). At the same time, there are clearly many situations in which the interpretive paradigm provides the best way of understanding the complex webs of meaning inherent in the educational world.

It will be clear by now that I am uncomfortable with the need for a forced choice between an objectivist **or** a constructionist epistemology. Instead, I am much more inclined to Dewey's view that reality is anchored in experience, that knowledge is derived from the interaction between a person and their environment and that that the only meaningful question is what that knowledge is used for (Biesta and Burbules, 2003).

This is an inherently pragmatic outlook. Having experienced some frustration in navigating the battleground of competing epistemologies, it was a breath of fresh air to read that, instead of searching for metaphysical truths, it is a legitimate theoretical perspective to consider truth to be 'what works' (Tashakkori and Teddlie, 1998: 16), although I acknowledge that 'what works' is likely to be context-specific. Pragmatism reconciles my wish to acknowledge a (non-positivistic) objective reality with the constructed nature of individual perception: 'In a pragmatic approach, there is no problem in asserting both that there is a single 'real world' and that all individuals have their own unique interpretations of that world' (Morgan, 2007: 59).

Before developing this, I will outline my reasons for discarding two other philosophical approaches. One is the critical paradigm. Even though my underlying aim in this research is to make a modest contribution to changing society, to attempt this through adopting the critical paradigm is not my preferred approach, for a number of reasons. First, in much of the literature, there is a strong emphasis on emancipation. While this is clearly a necessary

emphasis in the contexts in which Freire (1992) worked, his arguments do not seem to me to transfer intact to a democratic context. Nevertheless, even within that context, emancipatory rhetoric remains prominent with, for example, the expectation that critical research should be used to achieve 'rationality and justice' (Carr and Kemmis, 1986: 162). It seems to me that effectiveness and fairness would be a more proportionate alternative and that excessive use of liberatory rhetoric may positively discourage its acceptance by practitioners.

Second, it seems fundamentally closed-minded to go into an unknown situation with the intention of exposing hegemony and dominance, particularly when attempting to carry out exploratory research in an area in which there is no reason to believe they exist. Third, while the underlying aim of my research is to make a difference, I consider that it is more appropriate to achieve political ends by political means without having to risk distorting a research approach to fit the critical paradigm.

Parenthetically, having mentioned the possibility of hegemony, it is important to acknowledge that it does exist in outdoor education: for example, the field is disproportionately male dominated (Lugg, 2003). Although a specifically feminist viewpoint would be inappropriate, I recognize that I must be alert to the unjustified assumptions which regrettably still exist in this hegemonic culture.

Postmodernism is the other perspective that I choose to discard. There is no one view of what pragmatism means: for example, Kvale and Brinkman (2009) associate its emergence as a philosophical position with the postmodern view that reality is fragmented and subject to multiple local meanings. In many ways, postmodernism is attractive: I accept the premises that meaning can always be contested, that all truths are partial and that we must live with uncertainty (Guba and Lincoln, 2005). However, there are a number of reasons why I decline to take a specifically postmodern approach.

First, there is a fundamental ontological difficulty. Postmodernism's emphasis on a purely local reality (Lyotard, 1984) is inconsistent with my assumption that it is possible to make tentative generalizations which can be expressed as facts and causality, even if these are associated with considerable uncertainty. Second, to embrace postmodernism would be incompatible with my refusal to step wholly into the interpretivist camp. Third, I think it is intrinsically pessimistic to be reduced to a fragmentation of meaning that implies the helplessness of social action. My view of pragmatism is more optimistic: I consider that it

liberates the researcher from unnecessary and restrictive paradigmatic controversies and creates a freer sense of what is possible.

Morgan (2007) argues that, if paradigms are seen as shared beliefs and practices in a research field rather than epistemological stances, there is no intrinsic barrier to crossing what might otherwise be regarded as epistemological boundaries. In other words, rather than defining paradigms by top down, metaphysical considerations, one should consider what approach is likely to be most helpful. An implication is that, in a pragmatic philosophy, 'an integrated methodology' will often be appropriate (Morgan, 2007: 62), a more elegant synonym for mixed methods. My rationale for using mixed methods is developed in section 1.3.

Pragmatism is not about abandoning beliefs or principles: it is an expression of the belief that, providing the arguments behind adopting a particular approach can be justified, practical utility is more important than being straight jacketed by philosophical constraints. I consider that both physical and social phenomena can be considered to have an objective reality, albeit one that can never be known with certainty. At the same time, I acknowledge that the sort of knowledge that is likely to be useful in educational terms is very often knowledge of the constructed realities of individuals. Pragmatism is an excellent way of bridging the gap between these standpoints.

There is considerable support for the use of a pragmatist position in educational research. For example, Norwich argues for co-existence between interpretivist and causal explanatory models and acknowledges the value of a pragmatist philosophical position 'as a way of giving up the quest for absolute foundations without letting go of a relatedness to reality' (Norwich, 2000: 25). Biesta and Burbules (2003) consider that a pragmatic approach to research should not simply be about efficiency but that it must question the aims and purposes of education. In section 2, I consider the contribution that outdoor education and its values might make in the context of the overall aims of education.

Kuhn points out that, as well as maintaining coherence between one's ontological and epistemological stances, it is also necessary to consider axiological assumptions (Kuhn 2008: 172). Outdoor education is heavily value-laden. Nichols (2000) suggests that certain values (such as belief in the importance of personal growth for its own sake) are commonly held by outdoor staff but that the degree to which outdoor education should compromise these values in favour of the broader values of society is problematic. I have strongly held personal values

which range from a belief in the potential inherent in young people to the need to demonstrate positive outcomes in our work. While I recognize that personal values must not intrude on the substance of research, nevertheless, a pragmatic, mixed methods approach will allow the study to be both person-centred and outcome-orientated, in a way that is consistent with those values.

One of the theoretical perspectives to be brought to bear on the research question is complexity. It helps to bridge the gap between a scientific and an interpretive approach: 'Complexity holds out the potential to re-establish the lost link to science that resulted from a denunciation of positivist assumptions' (Horn, 2008: 130).

Cilliers (1998) points out that philosophical approaches can influence the way we approach complex systems and he considers that postmodernism is particularly useful. However, I argue that a pragmatic approach based on a realist ontology is also consistent with the demands of complexity. The "bottom up" nature of pragmatism, unconstrained by metaphysical dogma, seems to fit well with the emergent nature of complexity. Davis and Sumara agree, noting that complexity thinking is consistent with an 'open-minded, evidence-based attitude towards the production of new interpretive possibilities' and is therefore 'compatible with pragmatist philosophy' (Davis and Sumara, 2006: 26).

In fact, combining complexity with a realist pragmatism is an approach that is considered to have particular potential by some authors. Harvey and Reed consider that the wedding of a realist ontology and epistemology to a dissipative systems approach 'is capable of sustaining the particularlty and plurality of the social world while preserving rational canons of scientific understanding' (Harvey and Reed, 1997: 297) while Byrne considers that complexity is essentially realist and that it 'challenges in the most fundamental way the postmodernist view of the nature of social science' (Byrne, 1998: 7).

Byrne encapsulates the way my thinking has evolved by combining realism with complexity to produce a standpoint that he calls 'complex realism'. He considers that 'For realists the world does exist and … we can know it, although the process of knowing it is a social process with social content' (Byrne, 2002: 3). He emphasizes the importance of interactions and of transformational change and commends complex realism as a powerful way of developing our understanding of the social world and of using that understanding to act within it.

1.3 The research question

It can be argued that the choice of approach should stem directly from the research question (Plano Clark and Badiee, 2010). However, I have found the decision making process to be more recursive than that. It has been an iterative process in which possible research questions were repeatedly reviewed and honed in the context of my reading. Therefore, I make no apology for explaining how the literature has influenced my choice of approach before going on to articulate the research question.

This section will not attempt to cover any substantive findings from the field of outdoor education literature but will simply extract recommendations from a few key publications. There have been three strong criticisms of previous research: first, of the fact that research tends to be centred on a particular programme and therefore does not lend itself well to generalization, second, of the fact that research seldom builds on previous work, third of the fact that there is insufficient emphasis on how outdoor education works.

Barrett and Greenaway (1995) carried out the first major review of research in the field of outdoor adventure. They found very few UK empirical studies and a lack of data concerning developmental outcomes. They also considered that the research that had been carried out tended to be isolated, inconclusive, over-ambitious and uncritical, with a lack of emphasis on the process. They therefore suggested that humanistic and qualitative approaches offered a more promising way forward.

This recommendation was influential and has been enthusiastically taken up by the majority of UK researchers since. However, it could be argued that the current strong focus on qualitative research has been to the detriment of establishing a comprehensive evidence base and that a more balanced approach would include both quantitative and qualitative approaches.

Hattie et al carried out a major meta-analysis of the effects of adventure programs which noted some dramatic effects but warned that only some programs are effective and then only on some outcomes. They considered there is a need to move from outcomes to theory and process studies in order to understand why adventure programs work effectively. They also suggested that research might investigate the relation between program characteristics and outcomes (Hattie et al, 1997: 71).

Partly in response to Barrett and Greenaway, Nichols (2000) proposed an alternative research paradigm for outdoor education, in which he was critical of the traditional experimental design and proposed greater emphasis on the mechanism by which personal growth is achieved. He also highlighted the role of intermediate outcomes. For reasons given below, I shall argue that it is unhelpful that much outdoor research concentrates on intermediate variables such as self-esteem.

In a summary of meta-analyses of research on the outcomes of outdoor education, Neill (2008b) also commented adversely on the rigour of much outcome research. Unlike Barrett and Greenaway, he recommended that future empirical studies be mixed method, in order to allow a measure of effect size to be combined with more in-depth understanding of the nature of the effect.

The National Foundation for Educational Research carried out the next major review of research in outdoor learning (Rickinson et al, 2004). They considered that there was a significant lack of UK-based research in a number of areas. They wanted to see more attention to the process of outdoor learning and specifically suggested the combined use of qualitative and quantitative studies.

More recently, a review of articles published in the three key outdoor journals deplored the fragmentation of the literature: 'In terms of coherence we were struck by the disparate nature of some research and the noncumulative development of literature' (Thomas, Potter and Allison, 2009: 26).

Finally, in a review of studies which attempt to look at the inner workings of adventure education, Shooter concluded that '... the body of empirically informed adventure education literature offers evidence that supports the fundamental effectiveness of adventure programming, but cannot yet communicate a complete understanding of why programs are effective' (Shooter, 2010: 290).

Drawing together these observations, I was determined to pose a research question which would:

- build on previous research,
- look beyond intermediate variables to real behavioural outcomes,
- look at process as well as outcomes,

- attempt to understand more about why programmes are effective,
- be generalizable across various contexts, rather than being programme-centred.

This combination of aspirations and advice from past researchers strongly suggests a mixed methods approach. Moreover, from my own learning perspective, mixed methods research represents an exciting opportunity to gain experience in a variety of research methods. More detail on the mixed methodology adopted is given in section 3.1.

Wagner (1993) categorized gaps in knowledge into blank spots and blind spots. There seems to me to be a particular blind spot around the question of how (if at all) the personal and social development stimulated by an adventure experience impacts on pupil attainment. OFSTED considered that '… learning outside the classroom contributed significantly to raising standards' (OFSTED, 2008: 5). However, as far as I am aware, there is very little empirical evidence to support this statement.

As mentioned above, many outcome studies consider the impact of outdoor education on intermediate variables, often one of a number of measures of self-concept. Not only is there only a very small (only 2-4%) covariation between self-concept and achievement (Hattie, 1992) but, as discussed in section 2.7, there is also considerable debate about the validity of self-esteem and other measures of self-belief as outcome measures (Elmer, 2001).

Concentrating on intermediate variables has been criticised for many years: 'Previous studies have concentrated upon measuring the effects of schemes in terms of psychological variables without probing what such changes might imply for trainees' subsequent lives at work and leisure' (Roberts, White and Parker, 1974: 115). It is therefore surprising that the practice is still common.

I should like to suggest a simpler, albeit more challenging approach: to by-pass the commonly used intermediate variables and try to understand more directly how that experience impacts on achievement and other aspects of classroom behaviour.

There is still very little research that attempts to relate outcomes to the process of adventure education. Shooter (2010) identifies six such studies. They provide a useful starting point and Sibthorp's (2003a) development of an instrument to gather participant perception on the characteristics of their experience is particularly helpful. However, all six studies are based on

research with older students. This reinforces the decision, explained in section 1.1, to focus on RAE for primary school pupils.

Therefore, in broad terms, my research question is:

> How (if at all) do primary school pupils change following a residential adventure education experience, how does any change relate to their experience during the residential and what implications does that have for the provision of residential adventure education?

This is tackled through a mixed methods research design with three phases:

- Phase 1 is quantitative and tests the hypothesis that there is a correlation between the extent of residential opportunities in English primary schools and school performance measures. This phase also seeks an initial insight into headteachers' reasons for organizing residentials.

- Phase 2 is qualitative: an exploratory study to discover the perceptions of primary school headteachers, parents and policy makers on what impact a residential adventure programme has on pupils' subsequent behaviour and to explore the factors that contribute to this.

- Phase 3 is quantitative and is informed by the findings of phase 2. It tests an instrument to assess the impact of a residential on pupils and tests the hypothesis that there is a correlation between that impact, their classroom attainment and their social and emotional development.

Before the research began, I did not anticipate that the first phase would show a significant correlation, not least because of the many complex influences on school performance. If that proved to be the case, I hoped the second phase would cast some light on the reasons for the fact that RAE is widely perceived to be a very powerful educational experience, despite the lack of evidence on its effect on pupils back in the classroom.

Phase 3 makes the link between the process of RAE and its outcomes. It has of course been necessary to focus the study quite narrowly. There are many other research questions that would merit attention and suggestions for future research are given in section 5.2. Therefore,

in one respect, phase 3 can be viewed as a preparatory study, both to develop and test an instrument that can be of more general use in the future and to assess the value of the outcome measures used for future research. However, it was anticipated that, even if the outcome measures prove to be of limited use and the hypotheses tested prove to be unfounded, the findings of the pupil impact survey would nevertheless be of intrinsic interest.

In the existing body of evidence that describes the added value that residential experience confers on adventure education, it has often been noted that the combination of adventure and residential experience appears to have a disproportionate impact. For example, Hattie et al (1997: 73) state '… there is a rhetoric that the adventure program is a gestalt and that the whole is therefore more than the sum of its parts'. This has not been explained adequately by previous research.

Complexity appears to have potential for understanding better the apparent synergy between the elements of a residential adventure experience. It is also consistent with the emphasis on process: '... complexity theory is more a theory of *process* than of outcomes' (Morrison, 2002: 190, original emphasis). Therefore, while it is not the only theoretical perspective used, complexity theory is used as a lens through which to view the process.

To summarize, my argument is that residential adventure education is widely considered to have a positive effect, including an effect on attainment, but there is inadequate evidence to justify this. One reason is the complexity of the developmental influences on pupils that are evident during a residential. However, that same complexity can be used to understand more about the process of personal development and shed light on the reasons that RAE has such a powerful impact. I shall argue that RAE can be seen as a complex system and that, as a direct consequence of its complexity, new behaviour emerges naturally and inevitably. I shall suggest that this includes the non-linear step change in self-confidence that is so often seen as an outcome of RAE. Quantitative aspects of the study will be used in part to contribute evidence on the complex nature of RAE. However, it is also hoped that they will produce evidence that will be of some practical use in arguing the case at policy level for greater support for RAE.

While the literature review follows conventionally as the next section, in order that findings from the interview phase could be developed inductively rather than being led by existing theory, the literature review was actually written after the analysis of the interview data.

2. LITERATURE REVIEW

Adventure education literature and theory draws on a wide variety of broader disciplines. Therefore, this review inevitably covers an eclectic range of publications, some specifically focused on adventure, many not. Section 1.3 explained the thrust of my overall argument and the rationale for my approach. In the literature review, I will attempt to identify relevant publications which illustrate the complexity of RAE and help to interpret the findings of the study. I will attempt to pull together a number of disparate areas of study and synthesize what is relevant from those. I will analyse and critique publications where appropriate and attempt to identify loose ends in order to inform the research question. This introduction summarizes the way in which the different sections of the literature review contribute to my overall argument.

I suggest that adventure education makes a distinctive and important contribution to the development of young people and is more effective than classroom-based learning in achieving some of society's aims for education. Dewey contributes a rich discussion on the role of education in society and an understanding of his theory of experience is essential to developing an awareness of the roots of adventure education. For those reasons, section 2.1 starts with a consideration of Dewey's views in some depth. It continues by considering society's current aims for education and shows how RAE contributes towards these.

In Britain, the roots of RAE were laid down in historical and cultural circumstances which were very different from the present day. However, its values and principles have proved remarkably resilient. To illustrate this, section 2.2 starts with a critique of Kurt Hahn, the most influential figure in adventure education in UK. In arguing that Hahn's views are still relevant, it is then necessary to refute claims that the concept of personal development is flawed. Finally, the section suggests some ways in which RAE has changed in recent years.

Part of my argument is that adventure education theory does not adequately describe RAE for primary school pupils. A further part of the argument is that the various elements of a residential interweave to produce synergistic outcomes. Section 2.3 provides a background to both these assertions. It outlines the key theories, touches on the holistic nature of RAE and highlights the limitations of existing theory.

Section 2.4 discusses those empirical studies that have shaped the decisions I have made in determining the direction of my own research. I have already explained how central the policy context is to my motivation for undertaking this research. Section 2.5 therefore describes the policy changes that have taken place in recent years and makes it clear why it is so important to produce evidence that is of practical use to those who are trying to argue the case for RAE.

The remaining sections are concerned with disciplines outside the narrow field of outdoor education. Wellington et al (2005) suggest that a research question will often be positioned at the intersection of a number of disciplines. That is certainly the case with RAE. It seemed inappropriate to adopt one single theoretical framework: instead, in discussion of the results, I draw on a range of theories. Within the broader educational sphere, classical developmental theory, recent work on dispositions for learning and theories of transfer of learning are directly relevant and are covered in section 2.6. Psychological theories including self-constructs and ideas from social cognitive theory are covered in section 2.7.

Finally, section 2.8 outlines some ideas from complexity theory. Experience suggests that there are many different aspects to a residential and that they are woven together to produce the particular impact for each individual pupil. Complexity theory has the potential to cast new light on the way that this might happen. Characteristics of complex systems are described, with particular reference to non-linearity and emergence.

To achieve the very restricted maximum word count required, it has been necessary to focus on a limited range of literature. Where it has been necessary to be particularly selective or to omit apparently important areas of literature, this is explained in the text. Publications selected are those which have the potential to clarify or illuminate my research question.

2.1 Adventure education in context

This section shows how Dewey's philosophy underpins the growth of adventure education, places experiential learning in the context of society's aims for education and considers how RAE contributes to the current statutory aims of education in England.

Dewey defines education as 'that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience' (Dewey, 1916: 61). That definition is in tune with adventure education's developmental approach, both in its emphasis on experience and in the importance of its role

in influencing future behaviour (Hopkins and Putnam, 1997). In terms of the societal role, he adopts a carefully balanced position. On the one hand, he clearly recognizes the social function of education and its role in inducting children into attitudes and behaviours that are required to perpetuate the society in which it takes place. However, he is highly critical of traditional educational practice, of too narrow an interpretation of education's role, of externally imposed, overarching aims and the notion of education as 'a movement towards a fixed goal' (Dewey, 1916: 42).

Instead, he lays out a holistic philosophy of education which emphasizes the many influences on a young person's learning, including the importance of activity, particularly in a social context. He deplores the separation of body and mind in educational practice. Instead, he emphasizes the central importance of experience to a young person's development and proposes criteria for what constitutes positive learning through experience. Most significant of these is whether education creates a desire for continued growth: 'The most important attitude that can be formed is that of desire to go on learning' (Dewey, 1938: 48).

His emphasis on experience strikes a clear chord with adventure education practitioners. He emphasizes the interaction between an experience and the consequences of that experience, the learning and meaning derived from the experience being contingent on the consequential feedback (Dewey, 1916: 107). One of adventure education's particular strengths is that consequences of non-optimum decisions (for example, wetness, tiredness and discomfort) are very real. Achieving a delicate balance between contradictory demands is typical of Dewey's work. Perhaps Dewey's pragmatic or instrumentalist stance pushes him towards something that will work in practice. Perhaps his early enthusiasm for Hegel's viewpoint created a lasting intolerance of dualism and a wish to bridge diverging views (Peters, 1977: 102).

An example of such synthesis lies in Dewey's emphasis on the importance of personal growth. Instead of perceiving personal development and traditional education as opposites, he suggests that 'life is development and ... developing, growing, is life' (Dewey, 1916: 41). Within adventure education, personal development is widely seen as the primary aim, very much in tune with Dewey's philosophy.

Turning to his theory of experience, this brings together two principles. One is the principle of continuity, which is in essence that a person is inevitably shaped by prior experience and that, for an experience to be educative, it must lead on to future experiences. The second principle

is the principle of interaction, that an experience is always an interaction between a person and his or her environment. Dewey describes the way in which these principles combine to form 'a theory which would do justice to the fullness, richness, and organic complexity of experience' (Alexander, 1987: 57).

Both principles are evident in day to day practice in adventure education. Continuity forms the basis of the experiential learning cycle. In fact, it is remarkable that Dewey emphasized the importance of looking back reflectively (Dewey, 1916: 110) much as Kolb (1984) did, but predating Kolb by 68 years. It is surprising that Dewey's theory is not commonly portrayed in the form of a cycle. His 'essentials of method' are:

> '... first, that the pupil have a genuine situation of experience - that there be a continuous activity in which he is interested for its own sake; secondly, that a genuine problem develop within this situation as a stimulus to thought; third, that he possess the information and make the observations needed to deal with it; fourth, that suggested solutions occur to him which he shall be responsible for developing in an orderly way; fifth, that he have the opportunity and occasion to test his ideas by application, to make their meaning clear and to discover for himself their validity.'
> (Dewey, 1916: 124)

To me this cries out for a cyclical representation, which both predates and surpasses Kolb. I feel justified in turning it into a cycle by Dewey's insistence that an educational experience should have the 'ability to direct the course of subsequent experience' (Dewey, 1916: 61) and by his expectation that a tentative hypothesis should be tested by a plan of action (Dewey, 1916: 115). I also take the liberty of including Dewey's emphasis on reflection (cited above) and his assertion that 'all experience is ultimately social … it involves contact and communication' (Dewey, 1938: 38).

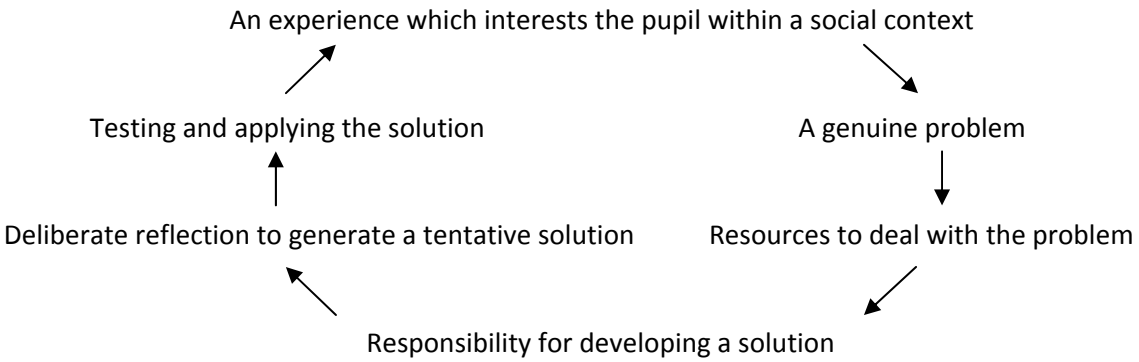

Figure 1: a cyclical interpretation of Dewey's theory

There are of course ways in which Dewey's work might not stand up to contemporary criticism. For example, the assumption that dispositions exist and can be changed through education is now contested. Moreover, he does not challenge the assumption that '... the establishing of character is a comprehensive aim of school instruction and discipline' (Dewey, 1916: 253). Challenges to these assumptions are discussed in section 2.2. Similarly, he does not agonize over the question of transfer of learning but considers that what is learned in one situation 'becomes an instrument of understanding and dealing effectively with the situations which follow' (Dewey, 1938: 44). Transfer of learning is now regarded as distinctly problematic: this is explored in section 2.6. However, although Dewey claims that 'knowledge lives first "in the muscles" - and not in the mind' (Biesta and Burbules, 2003: 11), he does not underestimate the complexity of the process needed to build on an initial experience to develop the knowledge, attitudes or behaviours that (central to Dewey's instrumentalist approach) are of use in other contexts.

Finally, there is an interesting parallel in Dewey's view of the role of the educator with the later views of Hahn. Dewey places a clear moral responsibility on the educator to steer the experience of young people in a way that maximises the educational potential (Dewey, 1938: 38). Hahn's perspective on this is discussed in the next section.

To summarize the contribution that considering Dewey's work makes to the development of my argument, he shows clearly the value of tackling education in a holistic way and emphasizes the value of a developmental approach. His emphasis on the importance of experience underpins the whole of experiential education, including RAE. The fact that he combines philosophical rigour with a very practical emphasis on what works also reinforces my methodological choice.

This section continues by noting how closely the currently defined aims of education in England appear to echo Dewey's views. As part of the most recent review of the secondary curriculum in England, statutory aims for the national curriculum were formally defined: that it should

> 'enable all young people to become:
>
> - successful learners who enjoy learning, make progress and achieve
> - confident individuals who are able to live safe, healthy and fulfilling lives
> - responsible citizens who make a positive contribution to society.'
>
> (QCA, 2010)

Although these aims could be criticised on the grounds that the very general way in which they are expressed makes them difficult to challenge, to me, they achieve an excellent balance between the needs of the child and the needs of society and are refreshingly holistic in nature. Moreover, they are the product of relatively recent consultation to which the adventure education sector has contributed. I suspect that Dewey would approve of that formulation.

However, the aims of the primary curriculum remain those in the Education Act 2002, which were strongly criticised by the Cambridge Primary Review as being 'anodyne' and 'less ... a ringing statement of intent than an afterthought' (Alexander, 2010: 179). Unfortunately, in my view, the twelve alternative aims proposed by the Cambridge Review are unnecessarily complicated, lack clarity, and focus inappropriately on the process of education rather than the characteristics that we should be aiming to develop.

Rose (2009), whose recommendations for revision of the primary curriculum were not implemented by the coalition government, recommended that the current aims for the secondary curriculum be extended to the primary curriculum. I agree and expressed that view strongly in my own response to the National Curriculum consultation in 2011.

RAE contributes particularly powerfully to the second of the secondary curriculum aims. QCA lists the following outcomes as part of that aim:

- 'have a sense of self-worth and personal identity
- relate well to others and form good relationships
- are self-aware and deal with their emotions
- become increasingly independent, are able to take the initiative and organise themselves
- make healthy lifestyle choices
- are physically competent and confident
- take managed risks and stay safe
- are willing to try new things and make the most of opportunities
- are open to the excitement and inspiration offered by the natural world and human achievements.'

(QCA, 2010)

From the policy perspective, while I wholeheartedly support the aspirations expressed by these statutory aims and outcomes, I argue that far too little is being done by central or local government to ensure that the broader, non-academic aims are being achieved consistently. Many committed teachers recognize the contribution that adventure education can make to achieving holistic development and make sure that their pupils have that opportunity.

However, many pupils do not have such an opportunity. In this study, I will explore how a variety of stakeholders perceive the way in which RAE contributes to that holistic personal development and hope to produce evidence that might enhance the case that all young people should have the opportunity to experience its powerful educational impact. I hope to show that RAE provides opportunities for young people to achieve many of these outcomes with an impact that is difficult to achieve in a classroom context.

2.2 Historical perspectives

Some awareness of the historical context is essential to understanding the role of RAE today and to my argument that the degree of support for adventure education is greater than might be expected from the available evidence for its effectiveness. However, this has to be achieved within tight word count constraints. Therefore, I propose a highly simplified three stage summary of the historical development of RAE and illustrate each stage with a very selective snapshot of arguments prevalent in each stage to give a feel for the changing environment. I argue that the three stages are:

- impelled into experience – the traditional Outward Bound approach (Outward Bound is the registered brand name of the UK's first provider of RAE),
- challenging the old – but never quite achieving mainstream educational status,
- responding to market forces – or dumbing down?

I will start with a critique of Kurt Hahn, who, through the founding of Outward Bound, has been the greatest single influence on the development of adventure education in England. Hahn's best known assertion is probably:

> 'We believe that it is the sin of the soul to force the young into opinions,
> but we consider it culpable neglect not to impel every youngster into
> health-giving experiences, regardless of their inclinations.'
> (Hahn, quoted in Hopkins and Putnam, 1993: 25)

This view has been used to underpin and justify adventure education practice for many years and, in essence, is still central to adventure education philosophy today. Yet I will show that it is inherently self-contradictory. Although I have rejected postmodernism as an underpinning philosophy, I am nevertheless using a deconstructive approach for this purpose.

In terms of semantic macrostructures (Van Dijk, 2001), the key explicit messages are:

1. It is wrong to force young people into opinions.

2. We have a responsibility to impel young people into experiences.

It is possible to infer various implicit beliefs:

1. Experiences confer benefits.
2. Rights and wrongs exist in some absolute form.
3. There are moral values which are more important than young people's sensitivities.
4. Adults' beliefs should take priority over young people's inclinations.

Turning to the local meanings, there is a wealth of interesting detail:

1. Hahn starts with three words that have religious connotations: believe, sin and soul. Does he believe literally in these terms? Does he assume that his readers do? Or is he using them for rhetorical effect? If so, is that not manipulation? And is not manipulation a close parallel to forcing the young into opinions?
2. Why did he choose that threatening phraseology? Did he think it would have more impact? Did he choose the phraseology carefully or carelessly? Did he wish, consciously or unconsciously, to be seen as a preacher or even a prophet? It is interesting that he is said by Miles and Priest (1999: 43) to have 'disciples'. Moreover, he served as a propagandist in the German Foreign Office (Richards, 1990). It is therefore not unreasonable to consider that his choice of words was deliberate. That being the case, if it is a sin to force the young into opinions, is it not a sin to communicate in preaching timbre, with the moral pressure that implies?
3. It is likely that Hahn was influenced in his dread of indoctrination by his experience in Nazi Germany. However, there is arguably an insidious power relationship implied by "impel" and "regardless of their inclinations" comparable to that in "force". There is a clear inconsistency in his apparent view that power used to influence opinion is bad but power used to encourage experience is good.
4. The value judgement that allows those contrasting interpretations is based on values held by Hahn and ignores the young person's view. How ethical it is to impose one's values on others is simply not considered. Ironically, it could be claimed that the fact that he reserves those judgements to himself is educationally pessimistic, in contrast to having confidence in young people to make sound decisions themselves. He may also underestimate their thirst for experience and adventure.

Hahn's views are a clear echo of von Humboldt's concern for the 'spiritual and moral training of the nation' (Lyotard, 1984: 32). These are precisely the views that constitute Lyotard's "life of the spirit" meta-narrative and should, according to postmodern thinking, be discarded.

Without the support of that meta-narrative for Hahn's moral certainty, the assertion loses much of its authority and has to be considered as the sum of its local meanings. At that level, the most prominent feature is the contradiction between the fact that Hahn abhors the imposition of opinions on the young and yet clearly feels it right, if not a moral imperative, to impose his own opinions forcibly (even arrogantly) on those who work with young people.

Yet Hahn's belief is clearly reflected in today's practice. Why? We impel in a more sensitive manner than we did forty years ago (Hunt, 1990). We are now as alert to psychological safety as we are to physical safety. However, there is still a deep underlying belief among outdoor educators that it is good for young people to experience challenging activities, together with an awareness that they may need to be encouraged to do so. Even Loynes, who is a refreshingly unconventional thinker, says 'I think that it is our moral imperative to provoke adventures helping young people to find out what life means, how to get along with each other and the world they are in' (Loynes, 2010: 10). Moreover, data from headteachers and parents reported in section 4.2 show that they share this belief.

It seems to me that there has been such a degree of consistent support for this approach over a period of time in which society has undergone significant change that it is likely to be underpinned by something pretty fundamental, to the extent that the belief we share with Hahn may be the expression of a basic human instinct. To my knowledge, there has been no research along these lines and exploring the question seems to have potential. Sadly, it is beyond the scope of this research than to do other than raise the question.

Since Hahn founded Outward Bound in the 1940s, adventure education has ebbed and flowed through changing policy priorities, almost but not quite achieving educational respectability. I shall be arguing that neither the current government nor the last has had policies which make optimum use of RAE. However, that must wait until section 2.5. In the remainder of this section, I illustrate the second and third historical phases, starting with a challenge to the old order.

In a provocative pair of articles, Brookes (2003a and 2003b) argues that "character building" in outdoor adventure education is a flawed concept. Now I have some sympathy with his rejection of the term "character building". As early as the 1960s, as young instructors, we squirmed with embarrassment when anyone used what was even then a very dated

expression. However, I take issue with Brookes when he extends his critique to include personal development.

To summarize his argument, he asserts that 'Character building (or personal trait development) is an explicit educational aim for many contemporary programs, and seems to be an uncontested assumption in some ... research' (Brookes, 2003a: 50). He says that cross-situational consistency in behaviour, which he suggests is equivalent in meaning to character traits, cannot be empirically demonstrated and he argues that any behaviour change observed within a programme is not predictive of behaviour in other situations.

First, to consider how he interprets personal development, he suggests that '... terms such as "personal development" ... often seem to at least imply character (personality) building (development)' (Brookes, 2003a: 51, original parentheses). However, to make the step from personal to personality is unjustified. It would be very unusual for a residential provider to claim to change personality but it is common to claim that the intense personal experience does often lead to a change in subsequent behaviour. Brookes goes on to say explicitly that personal development and character building are nearly synonymous.

I suggest that this far from true. Character building is heavily value-laden, with normative expectations. In contrast, personal development is intrinsically much less prescriptive. Moreover, there is no simplistic assumption that the end result of personal development is an enduring trait: it is widely recognized that personal development is complex and few outdoor practitioners will attempt to be specific about the process. Furthermore, there is clear evidence that personal development does take place. Section 4.2 details many examples of changed behaviour after a residential which, in the professional judgement of experienced headteachers, is attributable to the residential.

In terms of the developmental process, Brookes suggests that there is a contradiction between traits being relatively fixed and yet being malleable enough to be affected by a short programme. I have to disagree. Although I have argued above that personal development need not result in the modification of personal traits, for reasons that will be developed in section 2.8, the complexity of the process will make it more likely that unpredictable change will happen, even within a short residential programme, than in everyday life.

Returning to Brookes' argument that behaviour is dependent on the situation, I fully accept the evidence he presents in support of that. However, Shoda and Mischel (2000) show clearly that there is no contradiction between stable dispositional traits and variation of behaviour across situations. Brookes cites Shoda and Mischel and it is surprising that he does not recognize the fact that they fully resolve the paradox. They do so in a way that makes 'variability of behaviour across situations an essential reflection of the stable personality system and indeed its distinctive signature' (Shoda and Mischel, 2000: 422). Their work is covered in more detail in section 2.7.

Brookes suggests that readers of his work should check recent review articles to put the evidence he cites in a contemporary context. I have done that and found that dispositional traits are currently widely accepted among psychologists, despite the evidence on situational variation. Indeed, '... most personality psychologists today see the personality trait as the bedrock, basic unit of psychological individuality' (McAdams and Olson, 2010). Traits do change but there is an underlying stability. From age 3 onwards, even through adolescence, traits not only retain their rank order but increase in rank order consistency over the lifespan (Roberts, Wood and Caspi, 2008). Moreover, there is an interesting parallel in sociological thinking, where Bourdieu's concept of habitus refers to a set of dispositions which are 'durable' and 'transposable' (Maton, 2008: 51).

In practical terms, the debate over character has little relevance. Whether or not character is a meaningful construct, we nevertheless recognize and value particular behaviours: for example, openness to others, cheerfulness, the habit of listening, selflessness, consistency and keeping promises. These are primarily learned behaviours, even if the learning was so long ago that they are now carried out with unconscious competence. There seems little doubt that RAE helps young people, even at primary school age, to start to learn and value behaviours such as these.

In the final part of this section, I review some of the pressures that have led to a commodification of adventure (some would say dumbing down) and ask whether current practices are as effective in developing new behaviours as the traditional approach.

Sixteen years ago, Loynes (1996) noted that adventure was becoming increasingly commercialised, with packaged experiences becoming the norm, a process he called commodification. I suggest there are two related reasons for this. One is the increasing

standardisation of procedures to meet concerns over safety, strongly focused by the Lyme Bay tragedy in 1993 and the subsequent imposition of a licensing regime for outdoor providers (AALA, 2011). The other is to do with the logistics of giving an experience to large numbers of pupils using relatively inexperienced staff. This has become the standard pattern, particularly in commercial centres, where instructors are typically trained in-house rather than being nationally qualified. To achieve this safely requires a particularly controlled and standardised approach. In Williams (2004), I gave examples of the "sanitization" of activities, where artificial facilities often replace the natural environment, and argued that this has led to a lowering of expectations in order to create a more controlled situation.

One provocative commentator considers that adventure education is in 'servitude to the status quo market ideology' (Bowles, 2008: 266). A more balanced approach points out that some outdoor providers have a broad view of adventure, characterised by a long timescale of experience, many and varied challenges requiring effort, with responsibilities devolved to students. Other providers have a narrow view, with a short timescale of experience, high thrill challenges requiring little effort, with no devolved responsibility (Rubens, 1999). The author suggests that a broad view is more likely to lead to a mastery orientation towards learning (explained in section 2.7).

There is clear evidence that long programmes work better (Hattie et al, 1997). However, it is an open question as to the extent to which differences in the intensity of provision such as the degree of challenge and responsibility and the need for sustained effort differentially affect the outcomes. Despite claims that some approaches have more educational potential than others (Cooper, 2007), there is little evidence. There is an argument that, for primary school pupils, a less intense approach may be appropriate. The findings of this study throw some light on this question, which is discussed further in section 5.2.

To summarize this brief historical foray, despite the changes noted, there has been surprisingly little change in the basic approach and perceived outcomes over the last seventy years. Public recognition that adventure is important has most certainly survived. RAE is remarkably healthy today: '... adventure education is not a passing fad ... but an approach to learning that has an enduring relevance in a wide variety of educational contexts' (Hopkins and Putnam, 1993: 4). However, why it still has such a substantial degree of support from headteachers and parents is unclear. This study attempts to gather evidence that might help to resolve that enigma.

2.3 Adventure education theory and its limitations

There is a surprisingly extensive amount of literature in the adventure education field, some of it of dubious quality. It has therefore been necessary to be very selective. One self-imposed limitation is to ignore the extensive literature on therapeutic uses of adventure education.

Despite the volume of literature, there is no over-arching theory of adventure education, parallel to the situation in education generally. Instead, there is a hotchpotch of theories and models which apply to its various components but which bear little relation to each other. Baldwin, Persing and Magnuson (2004) suggest that outdoor staff draw their working hypotheses selectively from these theories to form 'folk pedagogies' which drive practice. Having spent my whole career practising adventure education and only becoming fully aware of the research community after having retired, I was astonished at the yawning gap between much research and practice. This need not be the case: as Lewin observed, a good theory can be used to guide practice. I therefore propose to place an emphasis on theories that I feel have direct practical relevance, categorizing the theories as follows:

- Aims of adventure education,
- The role of challenge,
- Interpersonal learning,
- Facilitation of experiential learning,
- Transfer of learning,
- Values,
- Process models.

Aims of adventure education

Perhaps the reason that there are relatively few theories about what adventure education could or should aim to do is that there is a surprising degree of uncritical unanimity about this. In 1975, a Department for Education and Science study conference at Dartington defined the most important aims of outdoor education as:

> 'to heighten awareness of and foster respect for:
>
> - Self – through the meeting of challenges,
> - Others – through group experiences and the sharing of decisions,
> - The natural environment, through direct experience.'
>
> (in Hopkins and Putnam, 1993: 9)

Mortlock (1984) built on and gave added publicity to these aims and, despite a lack of empirical underpinning (Nicol, 2002), they became unquestioned, received wisdom, part of the folk pedagogy referred to above. That consensus extended to the essentially developmental nature of outdoor education. In what they describe as an unexpected accord at a Finland seminar, Higgins and Loynes (1996/7) report a consensus that the educational intention is to stimulate personal and social development.

A trend that has not been remarked on in the literature to date is the fact that many private sector providers started by offering adventure holidays with a clear recreational aim. However, in order to make better use of their facilities during term time, they quickly began to sell their packages as "educational". It would be an interesting subject for research to evaluate the extent to which there is any practical difference. My personal experience in running a centre is that there was a constant need to impress on staff the importance of retaining a clear focus on the aims of each course and to modify their approach to support those aims. How much this is necessary relates to the question of whether an adventure experience will automatically confer developmental outcomes or whether it is necessary to make an explicit attempt to maximize the learning. This is discussed further in the context of facilitation below.

It is surprising that many alternative aspirations for adventure education have a relatively low profile. For example, there is relatively little emphasis on using a residential to cover specific topics from the curriculum, despite much encouragement to do so (for example, NCETM, 2006). Perhaps this is because the assumption that RAE is all about personal development is so ubiquitous. As an illustration, Hopkins and Putnam (1993, 86) are particularly explicit '… the primary outcome of adventure education is enhanced self-concept.'

A further limitation of the traditional aims of adventure education is that they ignore both societal aspirations and community related aims. In societal terms, there are a number of broader outcomes. One is the impact on health: a recent literature review on children in the outdoors states 'It is generally reported that being outdoors contributes to higher levels of wellbeing - bringing physiological benefits such as stress reduction' (Muñoz, 2009: 23). Another is the impact on disengagement and anti-social behaviour. A New Philanthropy Capital report highlights the success of outdoor activity in helping to re-engage the significant number of 16 to 18 year olds who are not in education, employment or training (NPC, 2009).

Linking RAE with post-residential follow-up in the community has particular potential. Kent (2007) reports on the significant added value from making explicit attempts to build on the learning during a residential to encourage new behaviour back in the community. In fact, one of the most exciting current developments in the outdoor sector is the coalition government's National Citizen Service, which combines a residential adventure experience with a sustained period of service in the participants' own community (Directgov, 2011).

One further function that RAE can perform is to help young people to learn to manage risk and to welcome challenge. There is a growing groundswell of media and public opinion that recognizes that risk is an inescapable aspect of life and that, instead of wrapping our children in cotton wool, we should help them to take greater responsibility for managing their own safety (Gill, 2010). It is increasingly recognized that unnecessary risk aversion is an insidious influence which should be addressed (Furedi, 1997). In today's constantly changing environment, being able to deal with uncertainty is a vitally important life skill and adventure is a very effective tool in helping to develop this.

While the breadth of possible uses of adventure education may seem to be a strength, it could also be perceived as a weakness, in that its focus becomes diluted. Findings from this study may be helpful in returning the focus from broader social issues to the impact of RAE on the classroom.

The role of challenge

Early theorizing centred on the role of adventure in catalysing the learning that is experienced in adventure education. Mortlock (1984) suggests a framework that helps us to recognize the optimum level of challenge. He describes four stages:

- play, in which pupils are operating well within their comfort zone,
- adventure, in which an effort is required to overcome a problem but pupils nevertheless feel in control,
- frontier adventure, in which pupils do not feel in control of the situation, where there is uncertainty as to the outcome and considerable effort is required,
- misadventure, in which the degree of challenge seriously exceeds pupils' ability to handle it, with the risk of physical or psychological damage.

He considers that the frontier adventure stage offers the sort of peak experience that has maximum developmental impact. Priest (1990) develops this model into what he calls the adventure experience paradigm. He goes into a little more detail than Mortlock and shows how the perceived balance between risk and competence, and therefore the perceived degree of adventure, varies from person to person. However, it is essentially the same model.

Csikszentmihalyi and Csikszentmihalyi (1999) define flow as a state of experience that is engrossing and intrinsically rewarding. It is a state easily recognized by experienced practitioners in challenging activities. However, I suspect that, at the basic skill level achieved by even the more adept pupils on a residential, it is unlikely to be experienced. I suggest that, before experiencing genuine flow, it is necessary both to have reached the stage of unconscious competence and for there to be element of voluntary, self-directed involvement, rather than supervised instruction.

For the purposes of this study, it is interesting to ask what is the most appropriate level of challenge for primary school pupils? There is no doubt that much provision takes place either at the play or adventure stage and that frontier adventure is relatively rare. The commodification described in section 2.2 is likely to have contributed to this. Mortlock considers that 'There is a marked tendency in modern society for adults to consistently underate and under-value the general capabilities of the young generation' (Mortlock, 1984: 30). Since he wrote this, I suspect that expectations have lowered further.

However, individual pupils are completely unaware of changing expectations. They live in the present and only have experience of present-day norms. In that context, it could be argued that it is not critical that the degree of challenge is at the optimum level. It may also be justifiable to give primary school pupils a more controlled experience in the anticipation that they will have the opportunity to taste the frontier adventure stage at a later age. Section 5.1 considers how important the element of challenge is for primary school pupils.

Interpersonal learning

Although evidence from this study suggests that interpersonal learning is possibly the strongest outcome of RAE for primary school pupils, there is surprisingly little emphasis on it in the literature. Brookes suggests that one of the 'absolutist tendencies' in outdoor education theory is that outdoor education is portrayed as individual, not social (Brookes, 2004).

Interpersonal outcomes are cited in many outcome studies but there is very little focus in the literature on how these are achieved. Two papers stand out as particular exceptions.

Beames and Atencio (2008) consider the role of outdoor education in building social capital. They show that the development of trust and reciprocity in an outdoor context has a positive effect in building "bonding" social capital. However, they consider that outdoor education programmes have been historically inward-looking, and that they should place more emphasis on building "bridging" social capital, with its potential for strengthening communities. Interestingly, they reflect my earlier comment on the potential of community-based programmes.

Participants in Sibthorp's (2003b) study of a three week sailing/diving course placed more emphasis on the life skills they had learned than the activity skills. Learning was achieved through social interaction, by getting to know and understand people from outside their traditional peer groups and by modelling others' behaviour patterns. The forced spatial constraints of a boat-based course catalysed the learning. Sibthorp suggests that, in researching outcomes, more emphasis should be placed on specific social skills than on more global measures such as self-esteem.

Related to the paucity of literature in this area, there have been surprisingly few studies that separate the impact of the residential element of RAE from that of the other elements. A recent review (CUREE, 2010) found only ten studies on residential learning that they considered worthy of in-depth review (all that are relevant to this study are discussed elsewhere in this thesis).

Facilitation of experiential learning

There is a wealth of literature on facilitation methods, in which the experiential learning cycle is prominent. In fact, there is an unsatisfactory conflation of the idea of experiential learning with the experiential learning cycle. In section 2.1, I have already given a feel for the complexity of learning by experience. It is clearly simplistic to subsume this within one fairly prescriptive model. However, it is easy to understand the popularity of Kolb's model in the outdoor sector.

Starting first with the principles, I suggest that experiential learning is incompatible with a concept of education that is limited to acquisition, even if that acquisition includes knowledge,

skills and values. The unpredictable nature of learning by experience makes it far more akin to Biesta's (2006) view of education as pupils coming into the world, responding and constructing their subjectivity. He suggests that this can be achieved through a pedagogy of interruption, a process of asking difficult questions and creating difficult encounters.

Challenging adventurous activities ask those questions non-verbally and the social context of RAE inevitably creates difficult encounters. Biesta's observation that '... the responsibility of the educator ... is a responsibility for something that cannot be known in advance' (Biesta, 2006: 116) sits comfortably with the uncertainly that is an intrinsic part of RAE. Not only is it necessary to deal with the uncertainty of outcome that typifies adventure but a good facilitator must be comfortable with allowing learning to take an unknown path.

Experiential learning is also a holistic process which lends itself to whole-person learning. Boud, Cohen and Walker (1993) note that whole-person learning crosses the boundaries between the cognitive, affective, conative and psychomotor domains and suggest that none of these domains should be privileged over the rest. Yorks and Kasl (2002) go further and emphasize the importance of the affective domain, particularly in learning which has the potential to be transformative. Incidentally, I propose not to digress into the substantial literature on transformative learning by Mezirow (1991) and others, because it is primarily focused on adult learners.

Jarvis is pessimistic about our ability to understand fully the process of whole-person learning because '... the whole person involves the complete mind – knowledge, attitudes, emotions, beliefs, values and the senses, and we do not know sufficient about how our learning is affected by these' (Jarvis, 2008: 196). However, some work has been done on the link between cognitive and affective learning. In a study of the impact of residential fieldwork on primary school pupils, Nundy (1998) shows that there is positive feedback between cognitive and affective learning whereby affective gain leads to deeper appreciation and understanding at the cognitive level. This boosts self-confidence further and may lead in turn to further cognitive enhancement.

However, in his study, the programme was curriculum-based and cognitive learning was directly related to the subject matter covered. In adventure based residentials, there is no such direct link. The possibility of a link between the affective learning experienced during RAE and subsequent cognitive learning has to be a more tentative hypothesis. Greenaway notes

that 'Reliving a special experience is a kind of *emotional* processing – which may turn out to be of greater lasting value than the purely *cognitive* processing of the experience that is typical of most learning cycles' (Greenaway, 2008: 365, original emphasis). I would suggest that good facilitators do bring out the emotional as a matter of course during reviews and that the additionality and energizing aspects of RAE make it an intrinsically emotional experience. That is evident in the data from this study.

There are contrasting views on the extent to which facilitation should involve front-loading the experience and reviewing it afterwards. 'Let the mountains speak for themselves' is an exhortation attributed to Rusty Baillie (James, 1980). The counter-argument is 'Let mountains speak for themselves and students may only hear the echoes of their hopes and fears – or silence' (Greenaway, 2004: 106). Priest and Gass (1999) list six 'generations' of facilitation skills. They suggest that letting the experience speak for itself dates back to the 1940s, with the implication that other approaches have superseded that. Those other approaches include debriefing to relate the experience to everyday life, front-loading to talk about potential learning outcomes and the use of metaphor.

I argue that it is inappropriate to consider that any one approach has been superseded: different experiences and different contexts demand different approaches and the holistic nature of RAE suggests that letting the experience speak for itself may sometimes be appropriate. Indeed, in arguing the case for greater responsiveness to place, Wattchow and Brown (2011: 47) suggest that 'A privileging of language and mental processing risks severing the body from its experiences.' Further comments are made in section 5.2 in light of the results of the study.

Transfer of learning

Gass considers that 'While transfer is critical to the field of adventure education, probably no other concept is so often misunderstood' (Gass, 1990: 200). Brown (2010) goes further by challenging the effectiveness of transfer and suggesting that it might be adventure education's Achilles Heel. Because of the importance of the subject and because there is much relevant non-outdoor literature, it is covered in depth in section 2.6.

Values

Nichols points out that 'A crucial component of personal growth through adventure is the values that underpin it and give it direction' (Nichols, 2000: 29). To do justice to a thorough

discussion of values would require much more space than is available. This short section is therefore simply to acknowledge the importance of values in outdoor education and to touch on a few ideas which strike a chord with other aspects of this literature review.

In a clear and carefully developed argument, Haydon suggests that education should take more account of the ethical environment, which he defines as 'the climate of values in which people live and in which young people grow up' (Haydon, 2006: 2). He makes the point that children need not only to be able to tell right from wrong but to care about which is which: in other words, to develop virtues. He suggests that, in comparison with other conceptions of value education, this is 'arguably, a richer conception that can take into account reason, feeling and emotion' (Haydon, 2006: 63). He does not differentiate between virtues and character traits.

There are three respects in which his views are particularly relevant to strands of my argument. One is the recognition of the importance of the affective domain. The second is the fact that, although he recognizes the reservations of situationist psychologists, he considers that, once acquired, virtues or traits are often stable and long lasting. The third is that many of the elements that he suggests make up the ethical environment lend themselves particularly well to being developed in the context of RAE.

He suggests that educational institutions should be a model for the sort of ethical environment that is desirable generally and I suggest that a residential outdoor centre has particular opportunities for this. For example, Nichols (2000) points out that the philosophy of many outdoor staff includes an ecological sensitivity, together with respect and awe for the natural environment. That results in an approach to sustainability in many centres that can communicate its importance to pupils more effectively than classroom work.

Arguably less relevant to the primary age group are the peak experiences that Maslow suggests help participants to appreciate 'being-values', which he describes as synonymous with being fully human (Maslow, 1964). I suggest that the sort of spiritual experiences that he has in mind are unlikely to be perceived by primary age pupils. It seems likely that adventure experiences of this sort have the greatest potential to help young people to establish and develop a system of values during the teen years 'when metaphysical (rather than empirical) questions dominate' (Allison and Von Wald, 2010: 220).

Nevertheless, there are opportunities at primary level to encourage a basic appreciation of certain values. Cooper (2010) shows clearly how outdoor leaders can help pupils to see the big picture in sustainability terms and lists six core values that are within the reach of younger pupils: reconnection, co-operation, responsibility, tolerance, simplicity and reflection. Section 4.2 includes evidence that pupils develop a number of these.

Process models

While process models form an important part of the theory of adventure education, they are in a state of active development and are therefore considered in the next section.

Limitations of adventure education theory

To summarize the argument of this section, while there have been many attempts to formulate aspects of adventure education theory, there remain significant limitations. There is no over-arching theory. Aims are surprisingly woolly. The emphasis on challenge is at a level that seems more appropriate for an older age group than primary school pupils. There is relatively little to suggest how the interpersonal dimension impacts on learning. How to judge the optimum facilitation approach is unsupported by empirical research. The extent to which transfer of learning occurs is highly contested.

This study attempts to navigate the gaps in the following ways. It considers the aims of RAE in the context of national educational priorities. It is wholly orientated towards the primary age group. It attempts to embrace the interpersonal dimension and to explore how one aspect of a residential impacts on others. It tackles the question of transfer of learning by asking exactly what happens in the classroom on return from a residential.

2.4 Selected empirical research

This section looks selectively at research that was directly relevant in coming to a decision on the research question and approach to this study. First, a mention is made of the sources that were used to identify relevant research. I then touch on a few outcome studies that report null findings, in order to set realistic expectations on what might be achievable. This is followed by summaries of the few studies that look specifically at attainment and some that focus on the primary age group. Finally, there is a summary of key studies that consider the process of adventure education.

Sources used include the small number of reviews of research that have been carried out. Cason and Gillis (1994) carried out the first meta-analysis, which clearly showed the limitations of research at that time. Although the average effect size in ten studies on school grades was a very large .61, there was a massive standard deviation of 1.53. Moreover, having rated the quality of studies, the authors found that the higher quality studies showed significantly smaller effect sizes, rendering the overall findings unreliable.

Barrett and Greenaway's excellent 1995 review and Hattie et al's comprehensive 1997 meta-analysis have already been mentioned. Barrett and Greenaway helpfully structure their review to relate the outcomes of adventure experience to the range of ingredients that contribute to the experience. While the wide diversity of research reviewed does not allow them to attempt a concise summary, they make clear recommendations for future research which have influenced the design of this study, as described in section 1.3.

Hattie et al's positive headline findings ('... adventure programs have a major impact on the lives of participants') are often quoted without their caveat that 'Only some adventure programs are effective, and then on only some outcomes, and it is probable that only parts of the programs are influencing these outcomes' (Hattie et al, 1997: 70). Outward Bound programmes were more effective than other programmes and courses longer than 20 days were more effective than shorter courses. Almost all primary school provision in UK would fall into the less effective category.

It is necessary to pluck out from this detailed work the outcomes that are most relevant to this study. For reasons that are explained in section 2.7, I will not dwell on intermediate variables such as self-concept. Instead, academic performance and interpersonal effects are most relevant for the primary age range. The two categories of effects on academic performance show impressive mean effect sizes of .50 and .45. However, most of the studies from which these derive are on programmes where the aim is to improve academic skills. The findings must therefore not be generalized to all adventure programmes. Across all interpersonal dimensions, there is a medium effect size, averaging .32, with the greatest effects relating to self-control.

A National Foundation for Educational Research study (Rickinson et al, 2004) set out to review all research published internationally in English between 1993 and 2003. Surprisingly, the authors fail to cite Barrett and Greenaway's review and omit a number of journal articles that I

consider to be important. They report uncritically on some research, failing to differentiate between high and low quality studies. Nevertheless, they argue convincingly that 'There is substantial research evidence to suggest that outdoor adventure programmes can impact positively on young people's attitudes, beliefs and self-perceptions ... interpersonal and social skills' (Rickinson et al, 2004: 42).

Several meta-analyses have been carried out since Hattie's but each has had a focus on part of the field which is not directly relevant to this study (Neill, 2008b). Similarly, qualitative research reviews since Rickinson's have been limited to specific areas (for example, Nicol, 2007). In addition to the reviews and meta-analyses, the other primary sources of data used are the three principal academic journals in the field (the Australian Journal of Outdoor Education, the Journal of Adventure Education and Outdoor Learning and the Journal of Experiential Education), together with conference proceedings and publications that have been cited in these.

Publication bias may well mean that the number of studies that report negative findings under-represent the true picture, as negative results are often unpublished. However, a number of relevant studies report null effects. An early challenge to the assumption that Outward Bound courses have a long term effect on participants came from Roberts, White and Parker (1974). There are significant methodological concerns with their work, including unrepresentative sampling and no attempt to demonstrate construct validity. However, they quite reasonably make the case for a more objective outcome measure than self-reports.

Using a recognized self-concept scale in a controlled experiment, Ewert (1982) reports that Outward Bound is relatively ineffective in changing the self-concept of adult students, particularly so in shorter courses. Kaly and Heesacker (2003) report on a large scale quasi-experiment with participants on a three week ship-based adventure programme. Using a four sub-scale measure of ego-identity and a self-esteem measure, they found a significant change on only one sub-scale of the ego-identity measure and no change in self-esteem.

Christie (2004) reports on a large scale quasi-experiment with 14-16 year old participants on a five day course: the duration of the courses that I propose to study. She used the Life Effectiveness Questionnaire (LEQ), which is an instrument specifically designed to assess the outcomes of outdoor programmes (Neill, 2008a). No significant difference was found between the experimental and control groups on the LEQ scores, although the qualitative element of

the study suggests there were positive overall effects in terms of participants' perception of their social and academic skills. It is possible that the selection of more challenging young people to participate in the programme may have biased the sampling. However, the null result and the other studies reported underline the potential difficulty of achieving definitive quantitative results and reinforce the argument for triangulation through mixed methods.

Surprisingly few studies look at attainment. Nundy's (1998) findings have already been mentioned. He reports on a very well designed mixed methods study in which a quasi-experiment shows clearly that residential field study courses can lead to enhanced learning outcomes. However, in the field study context, the course content is directly related to the cognitive outcomes tested. That is not the case in adventure-based residentials.

Dismore and Bailey's (2005) is the only research I am aware of which attempts to assess the effect of adventurous activities on the attainment of UK primary school pupils. They report on a series of day courses that aim specifically to influence academic attainment in Year 5 underachievers. Unfortunately, they restrict their research to a phenomenological approach with no attempt to quantify the outcomes. Although they report increased motivation and engagement in learning, their failure to use any quantitative data in reporting the impact on attainment is a significant wasted opportunity.

While attainment is not a specific focus, there are other relevant studies on the primary age group. Philliber Research Associates (2005) report on a very large scale study of outcomes of US summer camps for 8-14 year olds. In pre-camp, post-camp and six month follow up surveys, it shows significant increases in campers' responses to eight out of ten constructs across four developmental domains. However, there is an obvious potential bias from the study's accountability to the American Camp Association. Moreover, no information is given on the scale used or on any reliability or validity assessments carried out on it. It is therefore impossible to judge the extent to which the findings are meaningful. This is exacerbated by the absence of a control group. Bearing in mind that there were 2,294 completed paired questionnaires, I suspect that it may be a case of very large numbers giving the findings statistical significance without being practically meaningful.

The American Institutes for Research (2005) report on a well designed quasi-experiment with 11-12 year olds on a five day, residential, outdoor science school. Although the programme focuses on scientific learning opportunities, these are taught while hiking on forest trails,

giving some adventure component. The control group is achieved by use of a delayed-treatment design. They use sound and well reported methodology, including surveys of pupils, parents and teachers pre-course and six to ten weeks post-course. Pupils and parents were surveyed to measure change across five aspects of personal and social skills. Pupil assessments show significant gains in co-operation and conflict resolution although parent ratings show no significant change. Teachers rated each pupil on eight constructs: self-esteem, cooperation, conflict resolution, leadership, relationship with peers, problem solving, motivation to learn, and behaviour in class. Teacher ratings show significant gains on all eight constructs measured, in contrast with the control group which experiences a loss on every construct except leadership. This is one of the most persuasive of the studies that give direct evidence of post-course change of behaviour. However, it is not purely adventure-based.

A study by Falk and Balling (2001) is one of the few to look at 9-11 year olds. They attempt to compare the impact of a one day field trip on attitudes, behaviour and learning with that of school based activity. It is a peculiar experimental design, in that the control group also worked outdoors, albeit close to the school. Moreover, there is no attempt to control for the quality of teaching which, given the similarity in location between experimental and control group, seems important. Therefore, the reliability of the findings (that nine year olds performed better after the school-based experience and 11 year olds after the field trip) is questionable.

As the current study is concerned with the process of RAE as well as the outcomes, the remainder of this section is devoted to studies which consider the process of adventure education. Walsh and Golins proposed the first widely used model of the learning process, summarized as follows:

- learners, with varied degrees of motivational readiness, are placed into
- a novel physical environment, and into
- a social environment consisting of small groups, then given
- a set of problem solving tasks, which lead to
- a state of adaptive dissonance, to which they adapt by
- mastery, which
- reorganises the meaning and direction of the learners' experience, with
- a continued orientation towards living and learning.

(Hopkins and Putnam, 1993: 92)

Sibthorp (2003a) reports on a study that looks empirically at Walsh and Golins' model by attempting to link antecedent variables and self-efficacy outcomes through a scale devised by

Sibthorp which measures participants' self-perception of the 'Characteristics of the Experience' (CES). He finds evidence that supports Walsh and Golins' model in that participants who feel more empowered and supported during the experience realise more developmental gains. However, there is no direct link between the antecedent variables (such as pre-course motivation) and developmental outcomes. It is unnecessary to report details of the findings here as I have chosen to disregard intermediate variables such as self-efficacy, for reasons explained in section 2.7. However, it is very helpful that Sibthorp has established that it is possible to measure characteristics of the experience in a reliable and meaningful way.

A further application of the CES is reported by Sibthorp and Arthur-Banning (2004). They compare outcomes measured using the LEQ (also described above) with participants' experience of the course measured by the CES. Participants are 13-18 year olds on a three week programme. Using a structural equation modeling approach with a well designed methodology, the authors find a significant relationship between personal empowerment as measured by the CES and changes in LEQ scores. Neither the particular variables studied nor the two instruments used are appropriate for the age group in my study but the fact that the authors found a relationship between participants' perception of the experience and the outcomes encouraged me to use a similar approach.

In a recent review, Shooter (2010) considers that six studies stand out as providing an overview of the inner working of adventure education. One is Sibthorp (2003a), which has already been considered. Three relate to courses for older participants with fairly specific aims and are not considered relevant to this study. The remaining two are relevant.

Goldenberg, McAvoy and Klenosky's (2005) is one. They report on participants, most of whom were aged 14-17, on a variety of courses at a US Outward Bound School, using an interesting approach based on means-end theory. Participants completed questionnaires starting with open-ended responses to questions on what they considered to be the key outcomes from the course. The questionnaire then delved more deeply into participants' reasons for considering each outcome important. Analysis of the replies results in a hierarchical value map linking the attributes of the course that had an impact, through the consequences of those impacts, with outcomes expressed at a higher level of abstraction. Their study provides helpful confirmation that transfer of learning from a component of the course to a more abstract value-based outcome does seem to occur.

McKenzie's (2003) is the last of the studies cited by Shooter. She reports on an exploratory study of participants on a variety of courses at Outward Bound Western Canada. Participants' perception of the impact of various course components are shown to relate to three outcomes: self-concept, motivation and interpersonal skills. Although the course components used in this study are specific to the context, I have drawn on them in developing the questionnaire used in phase 3 of this study.

There have been numerous other variations on the theme of linking the process with the outcomes (for example, Hopkins, 1985, Baldwin, Persing and Magnuson, 2004, Neill, 2008a). However, space limitations preclude their inclusion.

To summarize the ways in which the empirical studies cited have influenced my thinking, they reinforce the conclusion from the previous section that the primary age group is under-researched, particularly in the UK. Many of the outcome measures used are intermediate variables, reinforcing the desirability of assessing direct behavioural change. Those studies that do provide clear evidence of post-course behavioural change are focused on learning within a specific academic area: there is little generalizable evidence of the impact of adventure per se. Finally, a number of studies show that relating outcomes to participants' perception of the impact of the course provides useful data. Those factors combine to steer my research to using pupils' perception of the impact of a course within the little researched area of provision for primary school pupils in UK, using direct rather than intermediate outcomes, with a specific focus on adventure.

2.5 Policy issues

Political and economic factors impinge significantly on the extent of outdoor provision, the type of provision and the number of young people to whom it is accessible. After a brief review of the historical development of policy over recent years, this section surveys literature that informs current policy and considers how this study might influence future policy.

In the late 1980s, outdoor and adventurous activities were a mandatory part of the National Curriculum at Key Stage 2 and local authority outdoor education centres were flourishing. However, at the same time as establishing the National Curriculum, the Education Reform Act (HMSO, 1988) created the principle of Local Management of Schools, requiring local authorities to delegate the majority of their budget to schools. This had the effect of reducing the funds available for local authority centres, starting a squeeze which has continued to the

present day, causing many to close. However, closures do not mean an overall reduction in opportunities. Although detailed figures are not available, it is thought that there has been a growth in private sector and charitable provision to match the reduction in local authority provision.

Outdoor and adventurous activities did not remain mandatory for long: they were made optional after the 1993 Dearing review. Moreover, the emphasis on literacy and numeracy combined with the publication of school performance data in 1997 (DFEE, 1997) put massive pressure on headteachers to prioritize those elements that would contribute to their league table results. It is in fact a testament to the perceived effectiveness of RAE that it continued through this period and is still so popular (The Scout Association, 2004).

Despite the emphasis on core aspects of the curriculum, the New Labour government's first two Secretaries of State were enthusiastic advocates of outdoor education (see the interview notes in section 4.2). They were able to arrange for significant National Lottery funding for a series of programmes that centred around residential adventure courses: Summer Activities for 16 Year Olds, later Uproject (Big Lottery Fund, 2006) and Get Real, later Do It 4 Real (Big Lottery Fund, 2008). It is beyond the scope of this study to comment on the evaluations in detail but both evaluations showed that the programmes made a positive contribution to participants' personal and social development. However, there was a lost opportunity in not carrying out a longitudinal study to assess whether the broader societal aims were met.

There was also a limited amount of Exchequer funding, for example for London Challenge, which was focused on raising standards in London schools and included a residential outdoor education course (Hoggart et al, 2008). However, throughout this time, the government resisted creating an entitlement to any form of outdoor learning. In 2004, the Education and Skills Select Committee carried out an inquiry into education outside the classroom (House of Commons Education and Skills Committee, 2005). They were convinced of the contribution that outdoor education makes to improving attainment and expressed considerable concern that '... outdoor education is a sector suffering from considerable unexploited potential' (Ibid: 29).

As part of their evidence to the committee, DfES had suggested that they might develop a manifesto for outdoor learning along the lines of the Music Manifesto that had recently been developed and this proposal was welcomed by the committee. A cynical interpretation might be to suggest that this was DfES' defence mechanism: an attempt to pre-empt criticism for

giving insufficient attention to outdoor education while incurring minimum expense. Whatever the motivation, the Learning Outside the Classroom (LOtC) Manifesto was published in 2006 (DfES, 2006).

It is too early to judge the success of the manifesto. However, in a follow-up report in 2010, the Select Committee criticised what was then DCSF for the very marked differential in funding levels between the Music Manifesto and the LOtC Manifesto and proposed a number of steps for improving access to LOtC (House of Commons Children, Schools and Families Committee, 2010). Shortly afterwards, the coalition government was elected. In its response to the Select Committee, the government took a very hard line, not agreeing that further central funding is needed, declining to create any form of entitlement and taking a step back from any responsibility for promoting LOtC. Instead, it was adamant that the amount of LOtC carried out in schools should be left to the professional judgement of school staff (House of Commons Education Committee, 2010).

My major concern at the withdrawal of financial support and closure of local authority centres is the impact on pupils who could not afford to attend a residential course without financial support. It may be that the proposed Pupil Premium will support disadvantaged pupils in this. However, at the time of writing, the government has not yet published guidance on what it may be used for. It is not encouraging that a Sutton Trust commissioned review of strategies for improving learning that might be supported by the Pupil Premium does not include any reference to the outdoors (Higgins, Kokotsaki and Coe, 2011). Yet, at the same time, RAE forms a major part of the government's flagship policy in support of the Big Society, the National Citizen Service scheme (Cabinet Office, 2011). Thus, the coalition government is perpetuating the pattern set by consecutive Labour governments, resisting any form of entitlement to outdoor learning at school while allocating significant amounts of money to RAE provision for 16 year olds in out of school contexts.

In contrast to that non-school based funding, outdoor education in schools in England has had a Cinderella status for nearly twenty years now. Although its contribution is widely recognized, there has been a consistent refusal to grant it any statutory basis and its proponents have had to fight a permanent rear guard action to maintain its profile. It does not help that outdoor education is something of a pawn in the power struggle between central and local government. It is interesting to note that there is a much more positive attitude to outdoor

learning in Scotland's Curriculum for Excellence (Nicol, 2007) and in Wales (Welsh Assembly Government, 2008).

Primary schools have not been mentioned in this section up to this point. One of the shortcomings of research is that there is no evidence for policy makers either to judge the optimum age at which to make a funded intervention or to consider ages at which different aims might be appropriate. I have argued that an intervention at an earlier age on a pre-emptive basis is likely to be more cost-effective than at age 16 but have lacked evidence to support this. This study will not provide comparative evidence but may help to demonstrate the degree of impact on primary school pupils.

It is clear that, in the new climate of dispersed rather than central decision making, headteachers are the key decision makers as far as RAE provision is concerned. With the current economic constraints, they need evidence that they can use to justify prioritizing a residential over other uses of time and money. One of the ways in which the results of this study will be disseminated will be on a website for headteachers.

Key policy-related papers published in the last few years include a report from OFSTED on learning outside the classroom (LOtC), which reports that LOtC leads to 'better achievement, standards, motivation, personal development and behaviour' (OFSTED, 2008: 4). While this was reassuring for the outdoor community, a more critical look at the report shows that the evidence seems to be primarily anecdotal, with no indication as to how the inspectors generalized from this to come to the explicit judgement that LOtC leads to improved achievement. It is therefore frustrating that OFSTED did not respond to repeated requests for an interview.

A number of studies have been commissioned by the government seeking to promote the LOtC Manifesto or by provider bodies seeking to understand the market better. A National Foundation for Educational Research report (O'Donnell, Morris and Wilson, 2006) assesses the extent and nature of LOtC in England. Their participation figures are calculated by extrapolating the responses to a large scale questionnaire survey that had a response rate of 18%. They claim that, because those responding were largely representative of the school population in terms of a number of indicators, the findings in the report will reflect the national picture. This argument, however, is seriously flawed. With such a low response rate, it is likely that there will be far more replies from LOtC enthusiasts than from those less

committed to LOtC, with the result that the extent of provision is likely to be heavily over-estimated.

CRG (2008) report on a DCSF funded mapping of local authority outdoor education centres in a thorough study using a mixture of telephone interviews and in-depth case studies. Although this provides a wealth of data about local authority provision, the authors make the point that substantial gaps in knowledge exist about the extent of provision in other sectors and that little is known about the factors that influence schools in accessing outdoor provision.

Power et al (2009) report on variations in LOtC opportunities in secondary schools and identify factors that contribute to the variations. The study was funded by the Real World Learning Campaign and cannot therefore be seen as completely independent. It failed to define the scope of LOtC clearly enough, with the result that, for example, some sports events are included. Moreover, it is frustrating that no standard deviation figures are included, making it impossible to judge how real apparent differences between categories are. However, the authors clearly identify considerable variation in opportunities for LOtC, with pupils in more disadvantaged areas less likely to have the opportunity to participate. They consider that, unless an entitlement to LOtC is conferred, with the significant resources and support that this implies, the uneven opportunities may well exacerbate educational inequalities.

Finally, DCSF (2010a and 2010b) consider the evidence for the impact of the government programme "Aiming High for Young People". The authors place particular emphasis on the contribution of social and emotional skills to children's future outcomes, claiming that 'analysis shows that having good social skills in early adolescence strongly supports achievement of academic qualifications' (DCSF, 2010a: 9), as well as reducing the likelihood of truancy, smoking and anti-social behaviour. They conclude that **'**Social and emotional skills may be more malleable than cognitive skills in terms of response to policy intervention' (DCSF, 2010b: 17).

Understanding what is important to schools is critical to the outdoor community in the new climate of dispersed decision making. It is really quite surprising that residentials remain as popular as they are, bearing in mind the pressures on headteachers and the organizational effort required. Perhaps teaching professionals recognize that the indirect effect of social and emotional development has the effect on achievement that DCSF suggest. Perhaps they

simply recognize that there is a need for an emphasis on the whole person to counterbalance too focused a conception of education.

In section 1.1, I made it clear that the primary motivation for this study is to attempt to gather evidence that will support the case for outdoor education. It is clear from the literature reviewed in this section that there is little hard evidence of the contribution RAE might make at primary school level. A clearer understanding of exactly what potential benefits might accrue from RAE is important in helping headteachers to develop a rationale for organizing residentials. Evidence that might influence policy makers is also vital, particularly in the context of disadvantaged pupils. That is the reason for an attempt to assess whether there is a link with attainment. However, being realistic, it is entirely possible that no link with attainment will be found. Attempting to assess pupils' social and emotional development gives an independent opportunity to spot a potentially useful relationship, should that exist.

The remaining sections in this literature review look beyond the literature that is specific to outdoor education, drawing on a number of broader disciplines that are relevant to RAE.

2.6 Broader educational theory

Humberstone (2009) suggests that research in outdoor education should refer to research and theories from major disciplines to a much greater extent. This section touches briefly on some key educational literature that is directly relevant to this study, including that on developmental theories, dispositions for learning and transfer of learning. The following two sections look at relevant psychological theory and complexity theory, with a view to considering how those theories throw light on the process of RAE and on its possible impact.

Developmental theories

It was apparent from the interviews that Piaget (1952) has been hugely influential on the generation of teachers who now hold senior posts in schools. However, his ideas are increasingly seen as presenting an incomplete picture and they can be seen as restrictive: 'Generations of schoolchildren, deprived of challenging tasks because Piaget said they were incapable of them, bear the evidence of his impact' (Egan, 2002: 106). It is particularly relevant to RAE that Piaget's approach applies to a relatively narrow range of cognitive development; as Gardner (1983) points out, it is unilineal, not pluralistic, and ignores alternative opportunities for development, which abound in the context of RAE.

Two such opportunities are the presence of challenge and the ubiquitous social situation which is characteristic of residentials. Both factors are brought together in the work of Vygotsky (1978). First, his recognition that the socio-cultural context is central to the process of development is highlighted by the central importance of the social aspects of a residential course. Second, presenting pupils with challenging activities that are just within their grasp is a clear example of the Zone of Proximal Development (ZPD) in use.

Vygotsky's work is interpreted in various ways. I do not intend to draw a parallel with the emphasis on the use of scaffolding to support learners in their ZPD but with the emphasis on social transformation described by Lave and Wenger, in which the social world is a vital element of learning. They point out that an implication of this perspective is that 'As an aspect of social practice, learning involves the whole person' (Lave and Wenger, 1996: 146). Two observations appear relevant. One is that Lave and Wenger reinforce the importance of whole-person development, as discussed in section 2.3. The other is that placing a pupil in a ZPD is only achievable within a social context where support from others is available, reinforcing the inter-dependence of challenge and the interpersonal element in RAE.

Wenger (1998) further characterizes learning as a fundamentally social phenomenon in his concept of communities of practice. A residential outdoor centre can be seen as a particularly distinctive community of practice that shares many of Wenger's principles of a social perspective on learning: the whole-person involvement, its experiential and emergent nature and its transformational impact. He makes the point that '… there are few more urgent tasks than to design social infrastructures that foster learning. Those who can understand the informal yet structured, experiential yet social, character of learning – and can translate their insight into designs in the service of learning – will be the architects of our tomorrow' (Wenger, 1998: 225). Taking an optimistic stance, the combination of residential adventure experience and community service that constitutes the National Citizen Service scheme (Cabinet Office, 2011) has the potential to achieve this.

One of the aims of this study is to consider the impact of RAE on attainment. While some cognitive learning is likely during a residential (particularly if we take cognitive in its broader sense to embrace thinking, acting and behaving), development also takes place across the affective, conative and psychomotor domains. This gives rise to two questions. One is whether there is any link between those broader aspects of learning and cognitive growth; the

other is whether there are social or emotional competences that are particularly helpful in equipping young people to thrive in real life situations. These questions are considered below.

In comparison with school life, at an outdoor centre there are very different expectations about the degree of interactive involvement between peers. Howe (2010) shows that exchanges between peers are extremely beneficial for cognitive growth. However, she goes on to show that schools actively suppress their peer group reality. In contrast, on a residential course, not only is there is substantial opportunity for peer group support and interaction, but it is positively encouraged.

Durlak et al (2011) report on a well carried out, large scale meta-analysis of social and emotional learning programmes in schools, from which they conclude that such programmes significantly improve academic performance. They only report on studies which used controlled experiments and used school records of grades and standardized achievement test scores to measure academic performance. Although they place some caveats on their results, the reported effect size of .27 represents evidence that academic performance can be influenced by social and emotional development.

Duckworth et al (2009) show that there is a clear link between self-regulation skills and academic results. They say that aspects of self-regulation such as attention, persistence, flexibility, motivation and confidence can all be improved by support and intervention. They emphasize the importance of collaborative learning and suggest that one way of improving self-regulation is by 'engaging in challenging and collaborative learning experiences' (Duckworth et al, 2009: vi).

In fact, the extensive research literature in this area shows that there is 'a strong link between the intellectual and the emotional components of learning; i.e. that affective, cognitive and conative dimensions are deeply interrelated' (Deakin Crick, Broadfoot and Claxton, 2004: 249). This is consistent with the holistic nature of the learning from residentials that is described in section 4.3. Further evidence on the relationship between self-belief and academic achievement is presented in section 2.7. In the meantime, the next section considers a range of factors that help pupils to learn.

Dispositions for learning

Crick (2007) points out that effective learning cannot take place without appropriate personal qualities, values, attitudes and dispositions for learning. She draws on Claxton (2002), who has devised an approach to developing pupils' learning power that is popular in primary schools. He describes a set of dispositions which can expand learning capacity, which he calls 'The four Rs of learning power'. These are resilience, resourcefulness, reflectiveness and reciprocity. Data from the interviews demonstrate a startlingly good match between these dispositions and the behaviours and habits that can be developed by RAE. Moreover, RAE is considered to be particularly effective at developing personal qualities, values and attitudes.

Resilience includes the qualities of determination and perseverance, being able to stick at a difficult task. That is clearly required in adventurous activities. It also embraces the idea of flow, absorption in an activity, which is common in challenging activities and has been discussed in section 2.3. Resourcefulness is defined in terms of being able and willing to learn in different ways: the experiential approach of RAE is a new approach to learning for many pupils. Reflectiveness is strongly encouraged by many outdoor centres, which actively review pupils' experiences to draw out the lessons. Finally, the need for reciprocity is central to RAE: interdependence, collaboration, empathy and listening are all routinely developed during a residential.

Claxton points out that children learn best from having to struggle through slightly difficult tasks. Knowing they can cope with difficulties is what makes them seek challenges and overcome further problems. In another publication (Claxton, 1997), he shows that unconscious intuition is an important complement to conscious reason and emphasizes that those who are most comfortable with uncertainty are better at allowing their unconscious mind to work effectively. RAE involves considerable uncertainty; learning to live with this will arguably make pupils less likely to retreat into 'cognitive mode, which is ill suited to dealing with some puzzling situations' (Claxton, 1997: 75). In fact, it could well be that one reason that children become disengaged from learning is that their natural learning style is intuitive but their school discourages uncertainty. RAE can be an antidote to that.

In a final observation on this theme, The Talent Foundation defines being smart as 'being able to successfully navigate whatever system or context you are in' (The Talent Foundation, 2007: 7) and lists those elements that contribute to smartness. As well as the factors that have already been considered, an internal locus of control, self-efficacy and taking responsible risks

are identified as important elements. Locus of control and self-efficacy will be touched on in section 2.7. Taking responsible risks is a particularly powerful characteristic of RAE, one which has the potential to counter society's insidious tendency to excessive risk aversion (Furedi, 1997).

Transfer of learning

It is an implicit assumption of the "learning power" theorists that learning from one situation can be applied to another. However, there is much that is problematic in the area of transfer of learning.

Salomon and Perkins (1989) differentiate between 'high road' and 'low road' transfer. High road transfer requires conscious abstraction of an idea from one context to another while low road transfer involves the automatic transfer of highly practised skills, with little need for thought. They make a further distinction between two types of high road transfer: forward-reaching transfer, in which elements are mindfully set aside in case they are required in future, and backward-reaching transfer, in which someone in a new situation searches for relevant knowledge that they acquired in the past.

It can be argued that all three forms of transfer are evident in RAE. Forward-reaching high road transfer occurs when a facilitator carries out a review of an activity to extract explicitly any learning points that may be relevant to the future. Pupils are also encouraged by teachers when they get back to school to attempt backward-reaching transfer in situations where learning from the residential might help. Low road transfer takes place in the unconscious application of newly learned behaviour patterns in a new environment.

Barnet and Ceci (2002) describe a taxonomy for transfer which categorizes both the content of what is transferred and the context. However, the learning that typically takes place during RAE does not fit into any of their content categories, which all have a cognitive focus. In fact, Pugh and Bergin (2006) point out that transfer has been largely investigated from a purely cognitive perspective. In the transition from a residential back to everyday life, I would argue that conscious attempts to transfer cognitive learning are far less important than unconscious behavioural change.

There are many examples of both interpersonal and intrapersonal change which are seen in the data from this study. Some involve fairly specific behavioural change such as developing

the habit of listening to others, having learned that it reaps benefits. Some involve the development of dispositions such as greater determination, stemming from having succeeded at something difficult. Others are even more abstract, such as the growth of confidence. Most are affective or conative rather than cognitive.

There are strong differences of opinion as to the degree to which transfer of learning is a meaningful construct. Within the outdoor field, Gass (1990), at one end of the spectrum, takes a straightforward approach, categorizing transfer into three categories, any of which can be experienced as a result of RAE. These are the transfer of specific skills, non-specific transfer involving generalization of learning in one context to a broader context, and metaphorical transfer, allowing transfer of learning to analogous situations. He suggests ten practical steps that can be taken to maximize the likelihood of positive transfer. The non-specific category allows for the transfer of affective or conative learning and his examples seems to me, as a former practitioner, to reflect situations that I recognize.

At the other end of the spectrum, Brown (2010) questions whether a focus on transfer in adventure education is desirable and worth emphasizing as a central construct. He claims there is little empirical evidence to support the efficacy of transfer. He emphasizes the importance of participation and interaction within a new situation and quite reasonably suggests that it would be ideal to work with participants in their communities after an outdoor experience to support change in their particular community of practice. However, in my view, he fails to explain why many pupils do exhibit a change in behaviour after a residential.

Writing from a broader perspective, Hager and Hodkinson (2009) argue that transfer is a totally inappropriate metaphor for thinking about most learning. In a carefully argued paper, they first describe four different conceptual lenses through which learning can be viewed. They suggest that viewing learning through only one of these lenses can make it difficult to understand what happens when someone moves from one context to another and claim that using a combination of more than one lens helps to make sense of this. Through one lens, learning is seen as acquisition, filling a container with knowledge, and the authors consider that this and the transfer metaphor reinforce each other to create the traditional view of learning as a “thing” that can be moved from place to place.

Their other lenses are: first, skill learning, in which it is easier to see the learning as something created in the learner’s body, second, the idea that people learn through participation in a

community of practice and third, viewing learning as transformation or reconstruction. Through the last two lenses, it is easier to understand that learning is an ongoing process in which change within the person is more important than change in the situation. That change is of course naturally transportable. The authors also recognize the importance of dispositional learning, which is largely implicit and tacit. Pulling together the different lenses, they suggest that learning should be seen as a relational web in which skills, knowledge and understanding are all integral parts of a person, which are continually open to change in ongoing transactions with the environment, in a process of becoming. This way of looking at learning is consistent with viewing learning as a complex system, something that is explored in detail in section 2.8.

On one level, it seems to me that the problematic nature of transfer is partly a linguistic issue. If, instead of looking at transfer as a metaphor, we simply allow the meaning of the word to extend to describe the developmental process, that makes it less contentious. On another level, I am sympathetic towards the ideas of Hager and Hodkinson. Personal development that occurs during and after a residential is certainly more complex than a simplistic view of transfer of learning would imply. However, if we think more in terms of development than learning, then the idea of personal growth can replace that of transfer, in a more organic process that is in tune with the complex reality of education. In section 4.2, numerous examples of change in behaviour are described and interpreted in that complex context.

In this section, I have argued that RAE provides a good example of Vygotsky's theory in action, that there is clear evidence that social and emotional factors can influence cognitive learning and that RAE is particularly effective at developing the personal qualities, values and attitudes that are conducive to developing the capacity to learn. Although I recognize that the extent to which transfer of learning takes place is contested, I have argued that, if primary school pupils' response to a residential is primarily unconscious behavioural change triggered by the many interacting aspects of the new situation, that defuses any contention. In other words, the complex process of personal development leads naturally to changed behaviour back in the classroom.

2.7 Relevant psychological theory

This section discusses the variety of self-constructs that are commonly used, with the aim of explaining my decision not to focus on these. Some ideas from social cognitive theory are also discussed in preparation for using those ideas to help to understand the data from the

interview phase of this study. It would have been logical to consider the literature on well being and positive psychology in this section: however, space constraints preclude this.

Constructs of self

A comprehensive meta-analysis of research on self-concept gives the following definition: 'Self-concepts are cognitive appraisals … integrated across various dimensions that we attribute to ourselves' (Hattie, 1992: 37). The fact that self-concepts are defined as cognitive is immediately interesting in the context of the relation between the cognitive and affective domains in RAE. Kristjánsson (2009) points out the limitations of the dominant cognitive paradigm of self-concept and argues that integrating the affective components of self allows for a fuller understanding of the relationship between people's self- perception and the outward characteristics they display.

Returning to Hattie's meta-analysis, it shows that, while there is a weak link between self-concept and achievement, it is too weak to demonstrate causality. For me, the key message from Hattie's work is that it is useless to demonstrate (as so many studies do) that outdoor programmes enhance self-concept, without linking this with some form of theory or mechanism to explain how (or whether) this results in modified achievement or behaviour. Hattie himself concludes: 'It is time to turn to discovering the antecedents, causal mechanisms, and consequences of the relations between self-concept and achievement …' (Hattie, 1992: 254).

It is increasingly recognized that self-concept is multi-dimensional (Hattie et al, 1997: 70) and self-esteem, self-efficacy and self-confidence are all more specific self-constructs. Self-esteem is differentiated from generalized self-concept in that it is related to the goals that people value: low ability at a task that someone considers unimportant will not adversely influence self-esteem. However, although the two are theoretically distinguishable, any distinction '… is not manifest in present tests that purport to differentially measure the two constructs' (Hattie, 1992: 171).

Elmer (2001) points out that self-esteem correlates well with other measures of self-belief. Judge et al go further: they consider that a higher order latent trait forms a common core to self-esteem, locus of control, neuroticism and generalized self-efficacy, and suggest that 'the uniqueness of measures of these traits is overwhelmed by their commonality' (Judge et al,

2002: 707). However, progress towards convergence appears to be slow and they consider there remains a real need for synthesis of the various ways of looking at the self.

Self-esteem suffers from a perception that it is self-evidently "a good thing". Moreover, the self-esteem "movement" in the USA in particular is identified with a deliberate policy of non-criticism and artificial inflation of pupils' perceptions of their ability (Hirsch, 1999). Although there has in UK been a recent backlash against this dogma, it '… has appeared to do little to undermine the influence of this cultural myth' (Furedi, 2004: 158).

Elmer debunks many of the myths associated with self-esteem. His approach is rigorous and healthily sceptical in many respects. However, it is surprisingly vague in others. For example, he fails to give a clear definition informed by current discourse. Instead, he does little more than develop James' 1890 definition: 'success divided by pretensions' (Elmer, 2001: 4). He points out that the instruments commonly used reliably measure something fairly stable, although it is far from clear exactly what that is. That lack of clarity and contested nature of self-esteem suggests one should be cautious about using the construct.

While self-esteem is concerned with judgements of self-worth, self-efficacy is concerned with judgements of personal capability (Bandura, 1997). Perceived capability is domain specific and academic self-efficacy has a closer link with academic achievement than other self constructs (Bandura et al, 1996). An aspect of Bandura's theory that is particularly relevant to RAE is his observation that mastery experiences play a particular role in developing self-efficacy. Achieving success in a difficult task can 'instil a more generalized sense of efficacy that extends well beyond the specific treatment situation' (Bandura, 1977: 194).

Kristjánsson (2007) suggests that self-confidence is more relevant than self esteem for most pupils. He cites evidence from Valentine that there is a much stronger link between self-confidence and school performance than between self-esteem and school performance (Kristjánsson 2007: 260). This is intuitively appealing to me as I have always believed enhanced self-confidence (defined as belief or assurance in oneself, trusting one's abilities, judgements, or decisions, either in general or in relation to a specific situation or activity (Colman, 2009)) to be the primary outcome of adventurous activity. Exploring this seemed to have potential and I made personal contact with Valentine to find out more.

Having done so, it was disappointing to find that Kristjánsson does not seem to have represented Valentine's work accurately. In fact, in the published article that derives from the thesis quoted, there is no mention of self-confidence (Valentine, DuBois and Cooper, 2004). Moreover, further reading (eg Locke, 2005, Kleitman and Stankov, 2007) suggests that self-confidence is variously interpreted and insufficiently well defined within the psychology literature to form the focus of future research.

Nevertheless, Kristjánsson makes a helpful contribution towards a realistic understanding of the limitations of self-esteem. He is very critical of the scales used to measure self-esteem (which have always seemed simplistic to me) and questions the ontological status of self-esteem, concluding that 'the precise status of self-esteem as a psychological entity remains unclear' (Kristjánsson, 2007: 254). He suggests that the concept of global self-esteem is irrelevant to education but that domain-specific self-esteem is more relevant.

Valentine, DuBois and Cooper's paper reports on a meta-analysis of the relationship between various aspects of self-belief and academic achievement. Like Kristjánsson, they report that academic self-concept is more strongly related to achievement than global measures of self-belief. Even so, the effect size is small (.12). However, in a re-analysis of the evidence, Marsh and O'Mara (2008) conclude that academic self-concept has consistent moderate reciprocal effects with educational attainment (up to .22), whereas self-esteem has almost none.

Although there have been many studies which demonstrate a link between adventure education and self-esteem, there is no theoretical reason to believe that it might affect the very specific academic self-concept which is directly linked with attainment. Moreover, there is significant overlap and a very unsatisfactory degree of differentiation between the range of available self-constructs. The lack of clarity, the limitations of the measures used and the questionable status of the constructs are factors in my decision to study pupils' change in behaviour directly rather than using one of the self-constructs as an intermediate variable.

Some aspects of social cognitive theory

This section considers three aspects of psychological theory that are directly relevant to the data observed during the study: the impact of different beliefs about intelligence, the question of intrinsic motivation for learning and the cognitive-affective approach to personality theory.

Dweck (1999) challenges common beliefs about the link between intelligence, praise and attitudes towards learning. She has found that the theories that people have about intelligence have a dramatic effect on their response to difficulties. Entity theorists believe that intelligence is fixed; they value their performance in a task and, faced with difficulties in achieving the desired performance, they blame themselves, avoiding attempting anything that might risk failure. In Dweck's words, they demonstrate helpless behaviour. In contrast, incremental theorists believe that intelligence is malleable and can be developed; they have a positive response to temporary setbacks and value learning rather than performance. Dweck calls their approach a mastery orientation.

Her experiments demonstrate that theories of intelligence **cause** people to respond to difficulties in a helpless or mastery orientated way. She also considers that people have similar beliefs towards aspects of their personality and towards maintaining relationships. Moreover, she has shown that these beliefs can be changed. I will argue that pupils who realise through RAE that they can change significant aspects of their behaviour are more likely to adopt an incremental theory. For example, realizing through experience that determination in the face of a challenging activity can lead to success may lead to a more determined approach in the face of difficulties in the classroom, helping pupils to realise that they can develop beyond their current ability.

Dweck has shown that children who receive praise that focuses on the child as a whole ("What a clever girl!") are more likely to develop helpless behaviour than children who receive praise for their effort or for the process of achieving results ("You did well to work that out."). Interestingly, it has, since 1966 to my personal knowledge (when I started work as an instructor), been part of the outdoor community's ethos to praise effort more than results. There is an unarticulated value system that includes tacit judgements of how much pupils might be able to achieve. Simply taking pupils deeper into their ZPD in this way might be an underlying reason for the high impact of RAE.

In the same way that Dweck contrasts entity theorists' extrinsic focus on results with incremental theorists' intrinsic focus on learning, Deci and Ryan compare extrinsic with intrinsic motivation. Their theory of motivation is based on an assumption that self-determination is an innate psychological need, leading to the conclusion that **'**Children are intrinsically motivated to learn, to undertake challenges, and to solve problems' (Deci and

Ryan, 1985: 11). Rewards and external 'controlling' inputs can undermine intrinsic motivation, while choice and the growth of competence enhance it.

Intrinsic motivation is central to maintaining the thirst for learning that is common in younger children but all too often suppressed by the controlling structures inherent in classroom education. Deci and Ryan consider the concept of activity is central to the process of development: 'It is by acting on their surroundings, by exploring, testing, succeeding, and failing, that children develop their capacities' (Deci and Ryan, 1985: 114). Well managed RAE carefully avoids controlling and demotivating elements but does allow pupils to explore, test, succeed and fail, allowing pupils' awareness of their growing competence in a new activity to reinforce their intrinsic motivation.

One of the attractions of social cognitive theory is that it reconciles the apparent contradictions between a personality being stable but nevertheless capable of change and recognizes that dispositions and situations are both important (Mischel, 1993). It also takes account of interactions between the cognitive and the emotional. Shoda and Mischel's work is particularly relevant to the question of transferability in adventure education in that it provides a clear explanation of how '... people have stable 'behavioural signatures' visible in patterns of cross-situational variability' (Shoda and Mischel, 2000: 407). It is also fascinating that, in effect, they describe a complex system without ever mentioning complexity theory.

They look on the personality system as a dynamic network of relationships between units of the system that guides and constrains the activation of thoughts and feelings. Variability of behaviour across situations arises naturally as a result of the interactions between components of the system. They conceptualize the Cognitive-Affective Personality System as a network of cognitive and affective units joined in a neural network. The units encapsulate a person's construal of the self and of situations. A given situation activates a sub-set of those units which triggers behaviour characteristic of that situation. The network itself grows dynamically, in a way that reflects an individual's learning history: thoughts, feelings and response to experience become inputs that can alter the strength of interactions between units and therefore modify the individual's response to future situations. Thus 'variability of behaviour across situations [is] an essential reflection of the stable personality system and indeed its distinctive signature' (Shoda and Mischel, 2000: 422).

Behavioural change can be triggered by proactively activating alternative mental-emotional representations. This is reminiscent of a common technique in sports coaching: imprinting a movement pattern by practising components of a skill. It is clear that behavioural patterns developed in an experiential learning situation can lead to behaviour change in other situations, effectively allowing for proactive, self-guided change. In view of the degree to which their theory helps to resolve the transfer issue in RAE, it may not be a coincidence that the empirical research that underpins the theory was carried out in a residential summer camp (Shoda, Mischel and Wright, 1994).

Complexity is seen throughout their work. One example is that the characteristics of their network mean that a relatively small change in initial conditions can produce a large change in outcomes. Another is that the relationship between individuals is treated as an emergent property of that interpersonal system, rather than a simple product of two individual personalities (Mischel, 2004). Complexity is covered in more detail in the next section.

2.8 Complexity theory

This section aims to outline enough complexity theory to understand how the processes that take place during a residential can be seen as a complex system. Higgins (1996) has suggested that chaos theory provides a good analogy for the process of personal development. I agree, but intend to go further and argue that complexity theory also helps to illuminate the process. First, it is necessary to differentiate between the two.

Smitherman Pratt expresses the difference succinctly: 'Essentially, complexity theory is the study of order emerging from disorder, while chaos theory is the study of disorder emerging out of order' (Smitherman Pratt, 2008: 125). Chaos theory is primarily about deterministic chaos caused by the non-linear interaction of a relatively small number of equations (Cilliers, 1998). The behaviour of a chaotic system can be extremely complicated but is, in theory, predictable, given knowledge of the initial conditions. In contrast, complexity theory is generally held to be non-deterministic, and has been defined as 'a system that is comprised of a large number of entities that display a high level of nonlinear interactivity' (Richardson and Cilliers, 2001: 8). However, it has been suggested that 'Emergence is not the absence of causality; rather, it is a web of causality so intricate that the human mind cannot grasp it' (Stewart, 1998: 5). Whichever of these is more accurate, complex systems behave in an unpredictable way and give rise to some unexpected phenomena.

Both chaos and complexity theory are non-linear. Linear systems can be studied in a reductionist, Newtonian way. Non-linear systems, in which causality is far from obvious, cannot. Social processes are clearly much more subtle than a simple linear system. Studying them through the lens of non-linear chaos and complexity theory can therefore cast new light on the processes.

Before considering complexity and non-linearity in more detail, I intend to outline some concepts from chaos theory: phase space, attractors, phase shifts and a cusp catastrophe. Phase space is an abstract "space" in which all possible states of a system are represented, with each possible state corresponding to a point in phase space (Byrne, 2002). A plot of the variation of the system over time shows its evolution. Within phase space, an attractor is a stable state into which systems that are initially located within its basin of attraction eventually "fall". Attractors can be single points in phase space or a moving cycle or strange attractors, where a new form emerges with each iteration. They have been used to model social systems including educational contexts.

As an example of the application of chaos and complexity theory, Gilstrap (2005) has used the concept of attractors to show how metaphors drawn from these theories can be used to facilitate the understanding of organisational dynamics and leadership in HE institutions. He shows how the introduction of external energy can push a social system into a far from equilibrium state with the result that there is a transformation to a higher and more complex level of development. He uses the metaphor of a strange attractor to illuminate the process of reaching a shared vision. Positive feedback arising from information flow contributes an influx of external energy, leading to a shared vision which has an emergent character rather than being a result of traditional strategic planning.

Particularly relevant to RAE is the process of moving from one attractor to another, known as a phase shift. This phrase derives from the non-linear change of phase from solid to liquid or liquid to gas at a substance's melting and boiling points. A similar non-linear change can be seen in many human contexts and I argue in section 5.1 that the development of self-confidence can be seen as a phase shift.

Catastrophe theory is a particularly good way of illustrating such a phase shift. Van der Maas and Molenaar (1992), who use it to model transitions between Piaget's stages, describe catastrophe theory as the study of the equilibrium behaviour of mathematical functions that

exhibit discontinuous jumps. The cusp catastrophe is the most commonly applied: the stable surface of a cusp catastrophe is illustrated in figure 2.

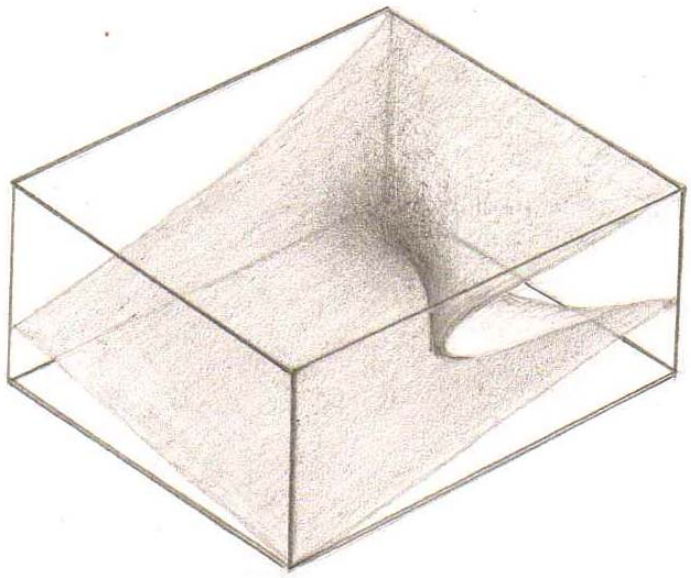

Figure 2: cusp catastrophe

In itself, this is meaningless but allocating the axes to particular social and psychological constructs helps to visualise phase shifts as applied to human behaviour. I use this in section 5.1 to illustrate the role of self-confidence in catalysing achievement.

Returning to complexity, numerous authors list characteristics of a complex system (eg Cilliers, 1998, Morrison, 2002, Davis and Sumara, 2008). Drawing on all these, the most important characteristics from the perspective of this study are the richness of interaction between the many elements involved, non-linearity, recursive feedback loops, "bottom up" emergence (adaptive self-organisation in which the system develops without centralized control), the degree of disequilibrium needed and the unpredictability of the system's behaviour.

Richness of interaction is present within any social context. However, the scope for interactions for the participants on a residential is significantly greater than in a classroom context. Section 4.2 illustrates this.

Non-linearity has a number of implications. First, it implies that the behaviour of the whole cannot be reduced to the sum of its parts (Nelson, 2004). Second, it guarantees that small changes can have large results (Cilliers, 1998). Third, it opens up the potential for

transformative change (Nowak, 2004). Referring to the diagram of a cusp catastrophe above, moving from the lower surface to the upper surface involves a non-linear "leap". Section 4.2 demonstrates clear evidence of such non-linear change in behaviour.

Recursivity within the system helps to create the instability that is needed to produce such leaps. Negative feedback is commonly used in cybernetic control systems, where the feedback acts as a stabilizing influence on the system to return it to a desired state. In contrast, positive feedback is a particular feature of complex systems which can have a destabilizing effect. Gilstrap's (2005) research described above has shown that positive feedback in an educational context can increase the connectivity within a group of people, leading to emerging self-organisation of the system. Evidence clearly shows that the connectivity during RAE is considerably greater than in a classroom context.

Emergence is a particularly exciting property of complex systems in which new behaviour or collective properties occur spontaneously and automatically simply as a result of the complex interactions within the system, rather than in response to specific causal factors (Haggis, 2008). This contributes to the dynamic and evolving character of a complex system. Nowak et al (2000) apply the concept of emergence to self-belief, showing that it reconciles the fact that the self consists of many diverse cognitive and affective elements with the more global way of looking at the self, embodied in notions such as self-esteem.

Autopoiesis is a particular form of adaptive self-organisation, in which the complex system maintains its structural organisation in holistic terms while allowing component parts to change. Maturana and Varela (1980) consider that autopoiesis is both necessary and sufficient to define a living system. They suggest that there is a circular relationship between the autopoietic beings within a social system and the system itself, in which each determines the properties of the other. An interesting implication of the concept of autopoiesis is that the notion of development belongs to a different domain to that of an autopoietic living system. Development is in the domain of the observer: all that matters to the organism is maintaining its integrity in a changing external context. That might explain why the process of personal development is so difficult to measure.

Disequilibrium is essential for the survival of complex systems: they must be open to their environment and capable of importing energy from it, forming a dissipative system in which energy imported from the environment is converted into added complexity (Byrne, 1998). Doll

(2008) shows that systems must retain just the right amount of imbalance to maintain their creative and transformational potential. Complexity theory suggests that the optimum balance between stability and adaptability is on the edge of the phase change between the two. Indeed, Kauffman (1995) considers that complex adaptive systems might automatically evolve to the edge of chaos. The importance of maintaining an imbalance clearly implies an unpredictability which is characteristic of complex systems. Section 4.3 discusses the role of disequilibrium in RAE.

Osberg (2005) considers the implications of describing education in complex terms. She compares the linear, deterministic view of education as planned enculturation with the complexivist view, in which education shapes the subjectivity of the pupil in a flexible way, responsive to their emerging identity. The latter approach is completely consistent with the open-ended, pupil-centred approach of RAE. In a discussion forum, Greenaway (OUTRES, 2010a) emphasizes the unpredictability of adventure education, which is arguably a product of that pupil-centred approach.

In the same forum, Reed (OUTRES, 2010b) points out that groups operating in an adventure context are clearly complex systems and encourages the use of non-linear models for groupwork. However, there are very few references to complexity in the outdoor literature. Watts (2006) suggests that an increase in perceived risk might precipitate a phase transition in a pupil. Gough (2011) describes the tendency among environmental researchers to reduce the complexity of the objects of their inquiries and ends with a question rather than a conclusion: '... how might understanding our worlds and selves as open, recursive, organic, nonlinear and emergent make 'a different practice' possible for environmental education research?' (Gough, 2011: 13). In section 5.2, I ask a similar question of residential adventure education practice.

Davis and Sumara (2008) make the point that 'Experience ... is better understood in terms of triggers than causes' (Davis and Sumara, 2008: 13) and point out that small events can trigger significant changes. They consider that 'it is ridiculous to conceive of education in terms of top-down, ends-driven structures' (Ibid: 135). RAE practitioners are unusual within the educational profession in having the confidence to operate without top-down structures and to give pupils the space to allow those triggers to work their magic. In an earlier paper, Davis and Sumara (1997) show that what is important in a complex system is the relationship between the components rather than the components themselves, in a parallel with the

operation of neural networks (Cilliers, 1998). Evidence from phase 3 of this study appears to bear this out.

Giving practical advice to practitioners in how to embrace complexity in their practice, Davis and Simmt (2003) emphasize the need to allow pupils to work at their own level, the importance of shared experiences, the value of decentralized control, being proscriptive rather than prescriptive (setting limits but allowing maximum freedom within those limits) and encouraging pupil to pupil interactions. Section 5.2 builds on this advice in drawing together the implications of this study for RAE practitioners.

As a final observation on complexity, it 'articulates a notion of causality that is multi-factorial' (Haggis, 2008: 165). Haggis points out that it is impossible to isolate key factors because all the factors work together with no factor being more important than any other factor. That seems to be reflected in the results of phase 3 of this study, reported in section 4.4.

For the numerous reasons given in this section, I consider that complexity theory is very helpful in trying to understand the way in which the rich interactions experienced during RAE lead to unexpected outcomes. However, Morrison suggests that '… complexity theory will be useful for explaining what it is good at explaining, but poor at explaining everything. Single theory explanations for multiple problems are simply inadequate' (Morrison, 2002: 190). That is why complexity is only one of a number of perspectives used in this study. However, it is one that has particular potential to cast a new light on the process of RAE.

3. RESEARCH APPROACH

3.1 Methodology

In section 1.3, I outlined the factors that led me to adopt a mixed methods approach and summarized the proposed three phases. My aim is to weave together those phases into a coherent overall structure. In the nomenclature for mixed method studies suggested by Morse (1991), I am using a QUAN-QUAL-QUAN structure. To recap:

- Phase 1 is used to set the scene. It tests the hypothesis that there is a correlation between the extent of residential opportunities in English primary schools and school performance measures. It also seeks an initial insight into headteachers' reasons for organizing residentials.

- Phase 2 is an exploratory study to discover more about the learning process that takes place during a residential and about the observable outcomes. This is achieved through a series of semi-structured interviews and focus groups, with the data analysed using a grounded theory methodology.

- Phase 3 builds on the findings of phase 2 by developing and testing an instrument to assess the impact that different aspects of the residential have on pupils. It then uses that instrument to test the hypothesis that there is a correlation between that impact, pupils' classroom attainment and their social and emotional development.

This is an example of the 'researcher-as-methodological-bricoleur' (Denzin and Lincoln, 2005: 649). Kincheloe and McLaren (2005) argue that bricolage should not simply be seen as a mixing and matching of methodologies but that researchers adopting it should develop conceptual coherence. I am attempting to achieve a coherent research model by allowing each phase to build on the previous phase.

Starting with a medium scale correlational survey on a random sample allows generalization. It will establish whether there is a relationship between the extent of residential opportunities offered by a school and the school's outcome measures, across all English primary schools. However, it will not establish causality. If a correlation is found, this may well be explained by underlying causal or intervening variables (Black, 1999).

Whether or not a correlation is found, the qualitative phase will explore the perceptions of headteachers and others on how (if at all) the influence of a residential adventure experience becomes apparent after the residential. Morse (1991) points out that a qualitative approach is particularly useful where the concepts concerned are immature and there is a need to develop theory, which is very much the case in this instance.

Wellington (2000) notes that the design of a qualitative study frequently emerges as you go and it was difficult to predict what sort of data might emerge from the qualitative phase. As the third phase is contingent on the data from phase 2, its detailed design was left open until the findings of phase 2 had been analysed.

In planning to make optimum use of a mixed methods approach, I have had regard to the view that methodological eclecticism involves 'selecting and then synergistically integrating the most appropriate techniques' (Tashakkori and Teddlie, 2010: 8). I intend to follow the authors' advice: that synergy may be achieved by a deliberate attempt to compare and contrast the QUAL and QUAN data.

It was tempting to attempt a quasi-experiment to establish whether there is any measurable difference in post-course behaviour between pupils who had attended a residential and a control group who had not. However, this was discarded for several reasons. First, if phase 1 does not show a correlation, there is neither an empirical nor a theoretical basis for assuming there may be a relationship. In this case, the research will be clearly exploratory and a quasi-experiment is not the optimum approach (Cohen and Manion, 1994).

Second, there is considerable uncertainty about the best post-course measures to use and specifically whether the attainment measures commonly used by primary schools have enough discriminatory power. It was therefore thought sensible to carry out more exploratory research in the first instance, which might act as a pilot for future experimental research.

Third, such a study would yield little insight into pupils' experience on a course. With the research design actually used, even if no relationship is found between the pupil impact measures and the outcome measures, it was nevertheless thought likely that the pupil impact measures would produce data that are of interest in themselves.

Hodkinson and Macleod (2008) point out that there are strong affinities between the type of research method used and different ways of understanding learning and that choice of methodology may well skew research into learning in different ways. An implication is that using a mixed methodology may create its own problems in terms of reconciling different perspectives. This has been apparent in the need to think carefully about how to include a quantitative element in the search for complexity.

Morrison (2002) argues for the use of methodological plurality in researching complexity. Looking at RAE at least partly through the lens of complexity places constraints on the sort of quantitative analysis that can be considered. However, it is now widely accepted in this field that qualitative and quantitative research traditions should, where appropriate, be combined (Haggis, 2008: 150), although exactly what methods might be used is problematic.

Radford (2006) argues that an 'analytical reductionist' approach, which seeks to establish links between input and output variables, does not work in social research. However, there are quantitative methods that are considered to be appropriate for exploring complex systems (Byrne, 2002). In the end, I have decided to use a quantitative approach to attempt to identify the link between process and outcomes but with a sensitivity to the likelihood that complex processes are in operation. Methods used are discussed in section 3.4.

Onwuegbuzie and Leech (2004) point out that mixed methods allow the researcher to combine macro and micro levels. This is my intention: to start with a broad overview of impact at school level and to focus down, first through adult perceptions and then to achieve an understanding of the impact on individual pupils.

I am determined that the research should be of some practical help to the outdoor community. With this in mind, one reason for adopting a quantitative approach is the credibility of the research in the political arena. Whether one likes it or not, policy makers are influenced more by quantitative than qualitative research. While UK policy is not as absolute as that dictated by the widely deplored US "No Child Left Behind Act" (Lincoln and Cannella, 2004), there is nevertheless an increasing emphasis on a "scientific" approach (Furlong, 2004).

However, it is clearly impossible to do justice to the richness and complex reality of education without trying to understand the personal perspectives of those involved. This argues strongly for a qualitative approach. Mixed methods are a means of resolving this dilemma.

Between methods triangulation is an inherent part of this structure. Jick (1979) points out that triangulation using mixed methods is particularly effective because the strengths of one method offset the other's weaknesses, allowing both generalizability and in-depth interpretation and understanding. Cohen and Manion (1994) point out the particular relevance of mixed method triangulation in cases where phenomena are relatively complex and where a more holistic view of educational outcomes is sought. Both factors apply here.

There is an argument that triangulation assumes that there is a 'fixed point' to be triangulated and that this might not be appropriate in a complex environment (Selter-Kelly et al, 2011). Instead, the authors use crystallization from a variety of angles of approach. In practice, I suggest that there is likely to be little difference, the important thing in either case being to make a conscious attempt to compare the findings of each of the different methodological approaches with each other.

O'Cathain (2010) argues that an inclusive framework should be used to assess the quality of mixed methods research, rather than using the distinct quality criteria that are prevalent in the qualitative and quantitative traditions. Gorard goes a step further by suggesting that the binary distinction between QUAL and QUAN is unhelpful and that 'The q-word dichotomy has ... no relevance to design' (Gorard, 2010b: 243).

While these aspirations may be in the long term interests of the evolution of mixed methods research, as an apprentice researcher, I feel the need to develop a degree of professionalism in both disciplines, which implies working within the accepted norms. Quality criteria are therefore considered separately in the method sections for each of the three phases. However, O'Cathain's criteria have been used as a helpful check list, particularly where they relate to the synergistic aspects of using both QUAL and QUAN.

For a similar reason, I am adopting a guarded approach to another of Gorard's more radical views, that a logic error undermines the whole of statistical significance testing (Gorard, 2010a). I find his argument persuasive. Nevertheless, I have continued to use significance testing in a conventional manner in order that readers less sympathetic towards Gorard's view will accept the validity of my findings. However, I have attempted to follow Gorard's advice that figures should be used with care and judgement.

Ethical considerations

BERA guidelines (BERA, 2004) specify the researcher's responsibilities to participants, sponsors of research and the community of educational researchers. The question of sponsors does not arise in my case. Responsibility to the community of researchers is primarily a matter of personal integrity; while this is a key value of mine, it is not thought necessary to expand on it here. The following remarks are therefore concerned with my responsibility to participants.

Voluntary, informed consent is relatively easy to achieve in phases 1 and 2, not least because participants are adults, who should be quick to understand the aims of the research and its implications. In phase 1, it was made clear to schools that their responses will be compared with publicly available data on school performance but that no school will be individually identified. Participants were assured that any wish not to participate would be respected.

In phase 2, as well as the need for informed consent, there is the potential for breach of privacy of pupils or school staff, requiring more comprehensive assurances. Before the interview, the nature of the research was explained, participants were assured that participation is voluntary, they were assured that all data would be treated as confidential and they were assured that their anonymity would be preserved unless they voluntarily waived this. All participants signed a consent form based on the University's template before the interview. This is appended as Appendix 1.

Phase 3 is more complicated, both because of the more personal nature of the data that are sought and because children are involved. Parents of those pupils who participated fully in phase 3 were sent a consent form which explained the nature of the research and made it clear that, as well as completing questionnaires about the impact of the residential and on their social and emotional development, the results would be compared with the school attainment records. They were assured that data would be treated as confidential and that no individual pupil or school would be identified in the thesis. The consent form is appended as Appendix 2.

It is a requirement of the BERA guidelines that children should be involved in decisions that affect them. Therefore, as well as seeking parental permission, the purpose of the survey was explained to pupils in appropriately accessible language and they were asked to consent to taking part, making it clear that participation is voluntary.

In addition to those pupils who participated fully in phase 3, it was necessary to administer the pupil impact survey on a stand alone basis to a larger sample of pupils, in order to test its validity. It was not necessary to request those pupils' names and the questionnaires were completed anonymously. For those pupils, in order to reduce the burden on participating schools, the case was made to the University Ethics Committee that parental permission need not be required. This argument was accepted. For those pupils therefore, voluntary informed consent was sought verbally from the pupils themselves.

3.2 Method – phase 1

To recap, phase 1 was to test the hypothesis that there is a correlation between the extent of residential opportunities offered to pupils in English primary schools and school performance measures. It consisted of a simple survey of headteachers and a comparison of the responses with publicly available school performance measures.

Choice of survey questions

Initially, I intended to ask a number of questions about the extent of learning outside the classroom carried out by the school and to break this down into a number of sub-categories. However, there were two reasons for simplifying the survey.

First, it was difficult to specify the questions accurately enough to achieve validity; efforts to do so would have led to a very cumbersome set of questions and, even then, with no guarantee that all respondents would answer them in the same way. Second, during the literature review, I have been very critical of studies that draw inappropriate conclusions from a poor response rate and was determined to achieve a reasonable response rate. My target was an ambitious 75%.

To minimise the risk of inaccuracy, there was only one quantitative question in the pilot, one which headteachers should be able to answer without the need to refer to any records. To achieve a good response rate, I kept the survey as simple as possible, so simple that it would be possible to follow up non-respondents and receive an answer over the telephone. The quantitative question used was:

> During the whole of their time in Key Stage 2, how many nights away on residential activities will your current year 6 pupils have had the opportunity to experience?

It was phrased in inclusive terms to allow for unusual residential provision such as camping in the school hall. It asks about opportunity rather than uptake. There are three reasons for that: first, asking about opportunity is far more likely to achieve reliable answers, second, data on uptake (where opportunity exists) are already available and third, asking about opportunity avoids bias caused by varying ability to pay. There may still be uncertainty in how to respond in some situations, for example, where a sub-set of pupils have the opportunity to attend more residentials than others. However, the interviews showed that schools generally attempt to be as inclusive as they can.

There was a further qualitative question which asks the main reasons that the school offers this opportunity. Answers to this were used to help to develop the range of questions to be used during the interviews.

Ethical considerations were addressed by reassuring schools that they would not be individually identified.

Choice of school performance measures

There are two publicly available databases which contain data on school performance. Both have a range of different measures. Specific measures selected were those which measure the school's contribution to pupils' classroom attainment.

OFSTED reports contain an assessment of pupil achievement (OFSTED, 2010c). This takes into account pupils' attainment and the quality of learning and progress. It remained reasonably stable over the transition between inspection regimes that took place in September 2009. It consists of a grade chosen from 1 (outstanding), 2 (good), 3 (satisfactory) and 4 (inadequate).

Schools are inspected at different frequencies, depending on their performance at the previous inspection (OFSTED, 2010c). The most recent inspection report for a particular school may therefore be several years old. This was one of the reasons that the survey (which took place in January 2011) asked about year 6 pupils' experience in the whole of Key Stage 2, which was the period from 2007 to 2011.

One problem with OFSTED judgements is that the grade awarded is known to be correlated with deprivation (OFSTED, 2010a: 37). The second database was chosen in an attempt to take into account such variations in the school population: DfE's achievement and attainment

tables (DfE, 2009a). As well as the raw Key Stage 2 test results, these contain a measure of Contextual Value Added (CVA). This is a statistical measure designed to adjust for and eliminate the impact of external factors, leaving as close an estimate as possible of the school's impact on pupil achievement. It has limitations which are discussed in a separate section below.

A deliberate decision was made to use the 2009 tables, as the 2010 tables were affected by industrial action to boycott the Key Stage 2 tests. To have limited the sampling frame to those schools which did not boycott the tests would have introduced potential bias and using slightly dated CVA scores is consistent with the fact that OFSTED reports are spread over a number of years.

Sampling

Bearing in mind that it was intended to generalize the findings of phase 1 to all English maintained primary schools, the obvious starting point was to take a random sample from that population. However, the distribution of OFSTED gradings for pupils' achievement in primary schools over a three year period (OFSTED 2008, 2009 and 2010) is as follows:

Outstanding	12%
Good	50%
Satisfactory	34%
Inadequate	4%

Table 1: distribution of OFSTED gradings

A simple random sample would have led to an unsatisfactorily small number of schools graded outstanding or inadequate and was therefore discarded. The next procedure considered was to use a quota sampling process to select an equal number from each of the four categories. However, there are significant difficulties in generalizing from a quota sample (Black, 1999) and this also was discarded.

Even though it required more work, the method chosen was stratified random sampling. Inspection data are available in spreadsheet form as summaries of the inspection results on an annual basis (OFSTED 2008, 2009 and 2010). The three tables for 2007/8, 2008/9 and 2009/10 were amalgamated and screened to remove 188 duplicates, either a result of duplicate

inspections or apparent mistakes in the tables which created ambiguity in identifying schools. In this process, care was taken to remove the more dated inspection. That left 15,477 schools out of a total of 16,871 in the DfE database, Edubase2 (DfE, 2010). As these constituted 91.7% of the total, they were considered sufficiently representative of the population of maintained primary schools in England.

Schools were ordered by the grading on the achievement measure and a random number generator was applied (in Excel) to give all the schools in each of the four OFSTED categories an equal chance of selection. As the gradings are ordinal data, it was necessary to use a non-parametric statistical analysis to investigate the correlation between these and other variables and the Spearman rank correlation was chosen.

A power calculation was carried out to determine the sample size. It was not anticipated that the relationship would be strong. Therefore, a target correlation coefficient of r = .22 was used. This was chosen because $r^2 = .05$, meaning that it would be possible to identify a shared variance of 5%. The target was consistent with Cohen's proposed convention for effect sizes in correlations, which suggests that a correlation of .1 is small, .3 medium and .5 large (Cohen, 1988: 79).

Aiming for a power of .9, with α=.05, a one-tailed Spearman correlation requires 196 responses (Kraemer and Thiemann, 1987). A one-tailed test can be justified in the light of the clear OFSTED judgement that '... learning outside the classroom contributed significantly to raising standards ...' (OFSTED, 2008: 5). Allowing for a 75% response rate, 260 schools were sampled, 65 from each grade.

Having selected the schools in this way, CVA values were added. It was found that CVA values were missing in the case of 21 schools, disproportionately from good and outstanding schools. Inspection of the population of those schools showed that they were nearly all smaller schools (which may have contributed to the disproportionality). In view of this, to eliminate those schools which did not have a CVA value would introduce a potential bias. It was therefore decided to retain the 260 schools identified by stratified random sampling and live with the fact that only 239 had CVA values.

Limitations of the CVA measure

Because the CVA is based on a prediction of pupils' performance in Key Stage 2 tests based on national patterns (DfE, 2009b), it is presented as a 95% confidence interval. There is a substantial volume of literature which is critical of over-interpretation of performance measures (eg Wilson and Piebalga, 2008). In terms of validity, the CVA measure is the subject of particular criticism, since its apparent ability to differentiate between schools is spurious: schools can only be differentiated if their confidence intervals do not overlap (Jesson 2007). Confidence intervals for the schools sampled are shown below.

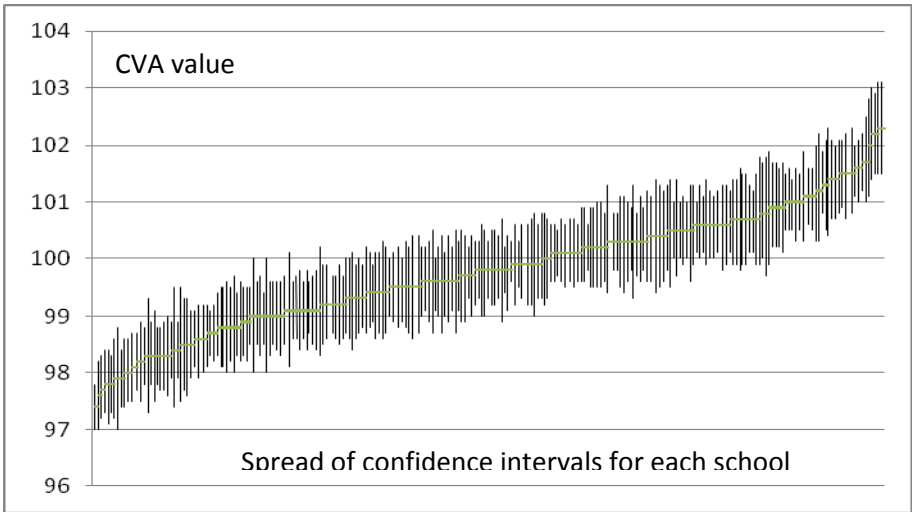

Figure 3: distribution of CVA values for the schools sampled

Tempting though it may be to use the raw CVA values as interval data, it is statistically only possible to separate schools into three groups: those which are above average, below average and those whose confidence intervals overlap 100, which cannot be differentiated from average.

In an attempt to achieve a finer breakdown, the confidence levels were adjusted to eliminate the '... common statistical misconception ... that two quantities whose 95% confidence intervals just fail to overlap are significantly different at the 5% level' (Goldstein and Healy, 1995: 175). However, it still remained impossible to define more than three categories without discarding a great deal of data. The raw confidence intervals shown in figure 3 were therefore used to define three ordinal categories for the analysis, above average, average and below average, thus addressing the concerns over validity.

Some commentators are even more critical of CVA measures. For example, Gorard claims that the results of CVA are largely spurious, primarily because they are disproportionately made up of relative error terms (Gorard, 2010c). However, it was decided to go ahead with the comparison, with the intention of addressing the critique in more detail if a correlation were found.

Mechanics of distribution

To maximize the likelihood of a good response rate, the questionnaires were personally addressed to the headteacher of each school. Headteachers' names were taken from DfE's Edubase2 and cross-checked against the school or local authority website. There were five schools in which the headteacher's name could not be corroborated in this way and they were telephoned to establish the correct name. The checking process revealed one school that had closed and one that had merged. These schools were replaced by the next schools on the randomly selected list in the appropriate categories. Questionnaires were sent with a stamped addressed envelope for return.

Pilot

A purposive sample of ten Devon and ten Cornwall schools was chosen to pilot the survey. As well as asking for feedback on the format of the questions, the pilot survey also invited respondents to tick a box if they were willing to spare the time for an interview. The rationale behind the selection of schools is that they would all be within reasonable travel distance for those interviews. Within each of the counties, a range of school sizes was chosen to be representative of all schools and a mix of city, town and rural schools was chosen. The pilot questionnaire was posted in late December 2010.

Thirteen responses were received (65%). One pointed out that some residentials take place after Key Stage 2 SATs week and any effect would therefore not have any impact on the CVA score, which is contingent on the SATs results. In response, the quantitative question was split into two, by asking about residential opportunities before SATs week and after it. The final version of the questionnaire is shown as appendix 3. It was posted in mid-January 2011.

Validity and reliability

A number of factors relating to validity and reliability have already been dealt with above. Further considerations are discussed below using the typology of validity suggested by Black (1999).

To assess construct validity, it is necessary to ask whether the instruments used measure what they are supposed to measure. It is also necessary to be clear about exactly what I am trying to measure. There are clear questions about the construct validity of SATs and, indeed, about the nature of achievement and how valid it is to use a summary judgement as OFSTED do. If I were to use phase 1 to establish whether there is a link between the extent of residential opportunities and pupil achievement, then it would be necessary to establish the degree to which the two measures used are a valid measure of pupil achievement.

However, this is not the intention. The performativity culture has led to a degree of reification of the measures, which are significant to schools in their own right, regardless of how accurately they reflect achievement. I therefore simply intend to establish whether there is a link with the performance measures.

Questions relating to internal validity include whether it is possible to infer causality and the degree to which extraneous variables can be eliminated. There is no attempt to establish causality. It is impossible to do so using this research design. Moreover, it is impossible to eliminate extraneous variables. Analysis will include an attempt to explore the influence of relative deprivation, measured by the proportion of pupils who are eligible for free school meals. However, the range of influences on pupil achievement is so broad that it is almost inevitable that there will be an influence from confounding variables.

Two arguments can be used in defence of this situation. First, the claims of phase 1 are very modest: it is simply being used to set the scene. Second, inclusion of a qualitative element as phase 2 of the research allows the complexity of the influences on pupil achievement to be considered.

In terms of external validity, the choice of a representative sample has already been dealt with and the survey questions are so simple that unexpected interaction effects with any one sample group are unlikely. They are in fact so simple that issues of criterion or content validity do not arise. Statistical validity has been dealt with above.

Reliability of the survey is assured by its simplicity. Reservations have of course been expressed about the subjective nature of the judgments made by OFSTED inspectors (Alexander 2010: 338). However, OFSTED devotes substantial attention to consistency and reliability (OFSTED, 2009). Interpretation of the judgements will be discussed further in the

results section. Finally, the CVA measurement is based on statistical relationships drawn from a national dataset of some 600,000 pupils in each year group (DfE, 2009b). While the question of how it should be used remains contentious, the limitations on its reliability embodied in the inherent confidence intervals are well explained.

3.3 Method – phase 2

Forming the qualitative core of the research, phase 2 is an exploratory study to discover more about the learning process that takes place during a residential and about the observable outcomes.

Choice of approach

A number of possible approaches were considered. A phenomenological approach would have the advantage that, by focusing on 'the things themselves' (Crotty, 1998: 78), one could strip away the pre-conceptions and assumptions that seem to be attached to conventional views of how RAE works, perhaps as a consequence of the anecdotal nature of much of the early evidence and the myths that have arisen from this (Brookes, 2003b).

Going a step further, a hermeneutic approach has the potential to uncover to an even greater extent the meaning of the experience to the participant (Crotty, 1998). However, both a phenomenological and a hermeneutic approach are firmly in the interpretivist camp and do not lend themselves to the pragmatist philosophical stance that I have adopted (Kvale and Brinkmann, 2009).

Rather more practical considerations dictate my reasons for discarding a number of methodologies. An observational or ethnographic approach would have the potential for being able to understand participants' perspectives in real depth (Cohen and Manion, 1994). However, such an approach would necessarily imply working with a small number of participants and would therefore logically focus on one specific programme. One of the criticisms of outdoor research is that it 'cannot be generalised to other situations because of its programme-centred nature' (Barrett and Greenaway, 1995). If this criticism is to be heeded, then it is necessary to discard these approaches.

Although there are benefits to a case study approach, such as the ability to look at the learning situation from a number of different perspectives, by definition it is based on a specific case. It must therefore be rejected for exactly the same reason. Finally, an action research approach is

attractive, not least because of its potential for developing practice (Carr and Kemmis, 1986). However, having now retired from work, the practicalities would be disproportionately difficult.

Grounded theory is not simply what is left over after other approaches have been discarded but is positively appropriate for a number of reasons. First, its inductive approach is particularly well suited to an exploratory study (Glaser and Strauss, 1968). Second, there is a distinct lack of clarity in the way residential adventure education works and a consequent need to develop conceptual categories without necessarily having recourse to existing theories. Grounded theory's bottom up approach to theory development is particularly attractive in a field where theory is sparse. Corbin and Strauss (2008) point out that it is necessary to decide whether to attempt to create rich descriptions of situations or attempt to develop theory. My preference was to do the latter, which suggests a grounded theory approach.

At the planning stage, a third consideration was that grounded theory's constant comparison technique is very appropriate to the study of two contrasting groups, which was particularly relevant to my wish to compare attitudes of headteachers who are committed to RAE with those who are not. Outdoor education research is understandably focused on participants and it was thought that there is potentially a great deal to be learned by exploring the perceptions of non-participants. However, as explained below, that aspiration was dashed by the difficulty of finding non-enthusiasts.

There are now a number of different approaches under the grounded theory banner. After Glaser and Strauss first proposed grounded theory in 1968, their views diverged. Glaser (1978) maintains a relatively purist approach, emphasizing the need to tackle the analysis with a minimum of predetermined ideas. Although he proposes a helpful set of guidelines for analysis, his approach seems to me to be unnecessarily rigid.

In contrast, Corbin and Strauss (2008) are less prescriptive about the approach. Their emphasis on the fluid, evolving nature of the process seems particularly compatible with a pragmatic philosophy. Glaser and Strauss do in fact make it clear that a grounded theory approach is compatible with a range of epistemological standpoints including pragmatism.

Flick (1998) points out that there is no longer an absolute prohibition within a grounded theory approach on applying existing theory, although not doing so has the potential to allow new

conceptual categories to emerge. Corbin and Strauss welcome the researcher drawing on personal experience, although they discourage constraining the study within an existing conceptual framework as this might hinder a creative interpretation of the data.

Charmaz argues that grounded theory should emphasize the need to identify the social processes in play and, interestingly, calls for grounded theory to return to its pragmatist roots (Charmaz, 2006: 184). Her emphasis on relevance and usefulness fits well with my wish for practical utility. Practicality does not of course imply that the process is mechanistic: I agree that '… qualitative data analysis is a creative endeavour involving intuition and empathy and cannot be reduced to a mechanical process' (Webb, 1999: 328).

Rubin and Rubin (2005) propose a hybrid approach to analysis in which transcripts are coded "as you go" to allow theory to emerge, as is normal in grounded theory research. However, they suggest that concepts and themes are identified taking into account the interviewer's prior knowledge and existing theory as well as allowing theoretical categories to emerge from the data. This is the approach that was taken. As indicated in section 1.3, in order to allow maximum scope for the inductive emergence of theory, writing the literature review was deferred until after the analysis of the interview data.

Participant selection

Having decided on the approach, it was necessary to consider who to interview. It is vital to consider pupils' perceptions at some stage during the study. However, that is not proposed in phase 2 for two reasons. First, bearing in mind that, at this exploratory stage, there is little to guide the researcher on potentially fruitful avenues of approach, it is helpful to maximize the likelihood of potential insights from others. Drawing on the professional experience of headteachers, with their tacit knowledge gleaned from experience with many young people, seems more likely to reveal such insights than drawing directly on the experience of a single set of young people. Second, the process being studied is a subtle one and it is anticipated that primary school pupils will not have reached the stage of formal operations (Piaget, 1952) necessary to deal with the abstract concepts involved.

I therefore decided to focus primarily on interviews with headteachers but also to involve some parents, to see if an alternative perception emerged. While one to one interviews with headteachers were appropriate, it was thought that a focus group would be a less threatening environment for parents. Because there is a clear policy agenda underlying my motivation for

carrying out the study, I also sought interviews with two policy makers who have had an influence on outdoor education provision during their time of office.
Purposive sampling is normally used for the qualitative element of mixed method studies (Teddlie and Yu, 2007). Some participants were volunteers from schools involved in the pilot of phase 1. Others were selected from a list of users of RAE provided by local authority outdoor education advisers. All were geographically restricted to Devon and Cornwall so as to make the travelling time manageable. In order to ensure representativeness, a mixture of large and small schools was selected, from city, town and rural locations.

In an attempt to identify headteachers who are sceptical about the value of RAE, 31 schools that had not applied to Devon or Cornwall County Council for permission to do a residential were contacted. Not one of those headteachers was prepared to say that they believe that residential visits are not justified or feel that the costs outweigh the benefits. I therefore interviewed only one headteacher who does not currently offer residentials. Even then, the reason was purely one of cost constraints.

There was no pre-conceived number of interviews. Instead, as it is standard practice in grounded theory, it was decided to continue until theoretical saturation is achieved (Glaser and Strauss, 1968).

Interview format

The need for a degree of focus on specific questions coupled with the desirability of responding flexibly to participants' responses suggested a semi-structured interview approach (Wellington, 2000). Questions asked were those thought most likely to produce responses that would illuminate the research questions and were fine tuned during the pilot interviews. They covered the following broad categories:

- type of residential provision offered and value for time and money,
- observations about the pupils on return (this formed the core of the interview and probing, without leading participants, was used to obtain a comprehensive picture),
- possible ways of measuring behaviour change,
- aspects of the residential that have a particular impact,
- the particular role of group interaction,
- how RAE is linked to classroom activity.

Modified question schedules were prepared for parents and policy makers.

In terms of detailed advice on how to carry out the interviews, I was attracted by the responsive interviewing approach of Rubin and Rubin (2005). This is 'intended to communicate that qualitative interviewing is a dynamic and iterative process, not a set of tools to be applied mechanically' (Rubin and Rubin, 2005: 15) and aims for a solid, deep understanding of what is studied. They fully recognize the interviewer's role in constructing meaning and the consequent need for researchers to examine and record their own thinking process.

Interviews were recorded on a digital recorder, transferred to computer and transcribed verbatim using Express Scribe software. Transcriptions were analysed using NVivo software. Full details of the analysis are given in section 4.2.

Trustworthiness

Various sets of criteria have been proposed for assessing the trustworthiness of qualitative research. In their classic work, Lincoln and Guba (1985) suggest credibility, transferability, dependability and confirmability. More recently, they emphasize authenticity, including fairness to the views of all stakeholders and catalytic and tactical authenticity: the ability of a given inquiry to prompt social and political action (Guba and Lincoln (2005). I propose to discuss some specific areas of concern before returning to the broader criteria.

There is undoubtedly bias through the selection of participants. Headteachers either volunteered to participate or were recommended by their county outdoor education adviser. In either case, they are likely to be particularly enthusiastic about residentials. As reported, there was an unsuccessful attempt to balance this with less convinced participants. It is necessary to consider whether the failure to achieve that balance matters in the context of the aims of the study.

My conclusion is that it does not matter, for two reasons. First, this phase is deliberately asking an open-ended question, inviting examples of impact. Less enthusiastic participants may well have come up with fewer examples or suggested better ways of using the time or money. However, that is largely irrelevant to the main aim of the phase, which is to gain as broad as possible an idea of the possible impact. Second, I acknowledge that enthusiastic

headteachers may overstate the degree of impact but consider that this is unimportant in the context that pupils themselves will be asked to assess the impact during phase 3.
There is also a clear geographical bias in that all the schools where interviews were held were in Devon or Cornwall. However, there is no attempt to generalize the findings of phase 2 to a wider population. This phase is simply exploratory.

One problem in researching an area that I know well is the danger that I hear what I want to hear. Undoubtedly, there has been an element of listening out for evidence that supported aspects of my argument (for example that RAE is a complex phenomenon). In defence, I can only state that I tried to represent participants' views fairly and comprehensively and invite the reader to judge how successful I have been from the thoroughness of the account in section 4.2.

Related to this is the question of whether I should consciously "bracket out" my own perceptions. I made a positive decision not to do this, partly because the views of headteachers and parents are already "second hand" from the pupil's perspective. There is therefore an inevitable lack of authenticity, in that I am not attempting to convey an authentic, pupil's viewpoint. However, I have already explained the reasons for not interviewing pupils and have the reassurance that their views are represented in phase 3.

Few adverse effects or problems were cited. That is partly a result of the sampling bias discussed above. It is also partly because I did not ask about problems or barriers to participation. This is because they have been adequately considered elsewhere (eg Power et al, 2009). However, I did take care to express my questions in neutral terms, without implying that I was "expecting" either positive or negative responses.

When coding the transcriptions, I considered inviting a second person to do the same and using a measure of inter-rater reliability. However, I thought this to be unnecessary for two reasons. First, codes were used as a means of organizing data rather than summarizing data: when reporting, I went back to the original transcription and attempted to describe this in sufficient detail to convey participants' views without significant loss. Second, there is at least as much synthesis as analysis in writing an account of this phase and the inevitably subjective nature of the synthesis would negate the added objectivity of double coding.

Becoming absorbed in the detail of conducting interviews or analyzing data, it is very easy to lose sight of broader quality issues. To guard against that, I had a periodic diary note to make a deliberate attempt to stand back from the research and review the degree to which trustworthiness criteria were being met. Lincoln and Guba (1985: 327) suggested that keeping a reflexive journal is helpful in making judgements across their four trustworthiness criteria. I have kept a regular diary and quote from this in section 5.3.

Returning to the criteria, Lincoln and Guba suggest a number of ways of achieving credibility. One is to invest sufficient time to learn the "culture". With many years' experience in the sector, that was not a problem; however, it does run the risk of allowing pre-conceived ideas to dominate, as discussed above. A second way is to seek participant confirmation; I have done this and report the limited response in section 4.2. A third way is triangulation, particularly important in this study, as discussed in section 3.1.

Transferability is arguably not a matter for the researcher: '... the burden of proof lies ... with the person seeking to make an application elsewhere' (Lincoln and Guba, 1985: 298). However, the mixed methods design does support an element of transferability: while there has been no attempt to generalize the findings of this phase beyond the sample used, phase 1 does have an element of transferability.

Dependability can be assured either by having an inquiry team of more than one person or inviting an external person to carry out an audit. Clearly, neither of these options is practical in this context, although it could be argued that the role of supervisors has similarities to that of an auditor. Lincoln and Guba (1985: 361) argue that credibility is impossible without dependability; therefore, if credibility is demonstrated by triangulation, dependability is assured. I consider this to be rather a weak argument but must nevertheless rely on it to demonstrate the dependability of this study.

Confirmability can be demonstrated by asking whether the findings are grounded in the data. This is part of the rationale for separating the two in the results section. Section 4.2 gives a descriptive account of the interviews while section 4.3 discusses the consequent findings. It is hoped that separating the data from the findings in this way helps the reader to judge whether the findings are grounded in the data.

It is hoped that fairness to the views of all stakeholders has been achieved by the range of participants in the study. Finally, my wish to produce evidence that will catalyse political action to increase opportunity has been fundamental to the design of the study. That assures its catalytic and tactical authenticity.

3.4 Method – phase 3

Phase 3 aims to build on the findings of phase 2 by developing and testing an instrument to assess the impact that different aspects of the residential have on pupils. It then uses that instrument to test the hypothesis that there is a correlation between that impact, pupils' classroom attainment and their social and emotional development.

Pupil impact questionnaire

It was recognized from the start of the research that it is essential to consider pupils' perceptions as part of the research and section 3.3 explains why that was delayed until after the interview phase. There is little in the literature to help directly with the formulation of a suitable instrument. Sibthorp (2003a) compared pupils' perception of the experience with changes in self-efficacy. However, his questions were much too hard for primary school pupils. Mackenzie (2003) compared the impact of course components with a number of self-reported outcome measures. Her questions were also orientated towards considerably older participants.

In designing the questionnaire, it was therefore decided to rely primarily on participants' responses during the interview phase. Statements chosen are designed to measure the key constructs that emerged from the interview phase. Three statements are used for each construct and the statements are phrased in language that should be comprehensible to 9 to 11 year-olds.

Before being piloted with pupils, the draft questionnaire was sent to a number of people and helpful advice was received from one academic (in addition to my supervisors), a primary school teacher, a primary school headteacher and two outdoor education centre heads. Language used was thought to be comprehensible but two of the respondents picked up confusion in the way the main question was phrased. This was therefore changed.

There was evidence from the interviews that reflection had some impact on pupils but not enough for me to include it in the draft. However, one respondent thought that it was

important to assess the degree of reflection during a residential and I therefore included it as a construct, omitting instead three control statements that were to have been used to spot pupils who were insufficiently careful or discriminating in their answers. The constructs finally used are:

- Independence
- Challenge
- Interpersonal – supporting each other
- Interpersonal – awareness of others
- Additionality/novelty
- Teacher relationships
- Instructor relationships
- Whole group impact and shared experience
- Reflection

In the belief that it would be unwise to use too discriminating a response scale with that age group, a four point scale was used. Pupils were asked to indicate how much each of the statements applied to them on the following scale:

- Not at all
- A little
- Quite a bit
- A lot

It could be argued that "Not at all" is ambiguous. Taking as an example the statement "I learned not to get cross with people", pupils could choose this reply either if they learned nothing about controlling their temper or if they never got cross with people in the first place. However, in both of these cases, the experience will have had no impact, which is what the questionnaire sets out to measure. The questionnaire is appended as Appendix 6.

A school agreed to pilot the questionnaire at a time when I could be personally present to discuss the questionnaire with the pupils. Parents had been slow about returning their consent forms, so the ten pupils who were available for this pilot were fewer than anticipated. However, after hearing their response, I considered that the number was sufficient. I had two broad questions for the pupils: first, whether they found any of the statements difficult to

understand or difficult to decide on, second, whether there were aspects of the residential that they thought were important that I had not asked about.

No difficulties in understanding were reported. Some pupils found it difficult to judge which answer to give to certain questions but there was no pattern in their response. Some suggestions for additional questions were made but these were all at a relatively superficial level (for example, response to the food). It was therefore decided that there was no need to modify the questionnaire based on the pupils' feedback.

Analysis of the pupil impact survey was carried out by using a principal components analysis to identify the main components of impact.

Comparison with outcome measures

As well as the intrinsic interest in discovering what aspects of a course have most impact on pupils, the degree of impact was compared with outcome measures. Two hypotheses were tested:

- that positive change in academic attainment will be greater for pupils with greater self-perceived impact,
- that positive change in social and emotional adjustment will be greater for pupils with greater self-perceived impact.

These were tested by seeing if there is a correlation between the components of impact as measured by the pupil impact questionnaire and the difference between measures of attainment and social and emotional adjustment carried out before and after the residential. The pre- and post-course measures of social and emotional adjustment were also compared with each other to see if there was any significant change.

Choice of outcome measures

Bearing in mind the pressures on schools, it was thought necessary to minimize the additional burden of data collection. Therefore, rather than use a tailor-made measure of attainment, it was decided to use the formative assessments that are carried out by most primary schools, at termly intervals. These consist of teacher assessments against the national standards in reading, writing and mathematics. They result in a score for each subject.

During the interviews, headteachers commented that they do observe differential progress at different times. However, whether the assessment measures have sufficient discriminatory power to show any correlation with the impact of a residential was very uncertain at the planning stage. Because of the timing of residentials, it was impossible to achieve a standardized time period between pre- and post-testing but the closest formative assessments before and after the residential were used.

Data from the interviews suggested that residentials may lead to measurable improvements in pupils' social and emotional behaviour. A literature search was therefore carried out to identify a suitable instrument to measure this. The Life Effectiveness Questionnaire (Neill, 2008) is a well established instrument that has been designed specifically to evaluate outdoor programmes. However, although the author claims it can be used with younger pupils, it has not been fully tested with under-12 year-olds and the language in which a number of the statements were expressed seems inappropriate for that age group.

Schonert-Reichl et al (2009) give a helpful review of tools for measuring social and emotional healthy living for 5 to 12 year-olds. From the instruments cited in their review, the Strengths and Difficulties Questionnaire (SDQ) was chosen (Goodman, 2001). This is an instrument with well established psychometric properties which was particularly attractive because it is a one page questionnaire expressed in simple language; the questionnaire is appended as Appendix 7. It is designed to assess the psychological adjustment of children and generates scores on five scales:

- emotional symptoms
- conduct problems
- hyperactivity-inattention
- peer problems
- prosocial behaviour

Although it was slightly more pathologically orientated than I would have liked, the prosocial scale was of particular interest. The self-report version was designed for 11 year-olds upwards but Muris et al (2004) report that it can provide useful information in children as young as 8 years old. Normative data are available from British children. Schools were asked to administer the SDQ before and about two weeks after the residential.

Sampling

Participating schools came from three sources. Two headteachers who took part in the interview phase and the teacher who was asked to comment on the draft questionnaire volunteered to help. The remainder were recommended by members of the Association of Heads of Outdoor Education Centres, an association to which I belong. This had the advantage that no fewer than nine schools that used eight different residential venues are represented, avoiding the programme-centred criticism expressed in section 1.3. Although a large variety of schools spread throughout England are represented, as this phase is purely exploratory, there has been no attempt to choose a random sample.

Two different sample size calculations are necessary. First, for the correlations, Preece (2002) has shown that scales can reasonably be treated as interval data and handled using parametric statistics. For this phase, a correlation coefficient of .3 is appropriate. This gives a 9% shared variance, which is at the bottom end of Cohen's medium effect size range (Cohen, 1988). On this basis, aiming for a power of .8 at $\alpha = .05$, one-tailed, would require a target sample size of 73. Second, a substantially larger sample size is needed in order to carry out a principal components analysis on the pupil impact survey data. Working on the guideline of 10 times as many participants as variables (Field, 2009) suggests a sample size of 270. Those pupils were asked to complete the questionnaire anonymously, with the simpler ethical consent procedures described in section 3.1. Neither target sample size was actually achieved but the numbers achieved were sufficient to give statistically significant results.

Validity and reliability

Black (1999) defines three forms of validity and makes it clear that the emphasis required on each depends on the aims of the study. In the case of the pupil impact questionnaire, construct validity is clearly important and that was assessed by principal components analysis, which also established the degree of discrimination between the constructs. While there is no directly comparable instrument through which to assess criterion validity, testing the correlation with outcomes measures nevertheless acts as an indirect test of concurrent criterion validity. In terms of content validity, the degree to which the questionnaire covers the range of possible impacts is assured by the interview responses that were used to generate the list and by piloting the questionnaire.

It could be argued that that a self-perception instrument is too subjective. However, this can be countered by the argument that the primary impact of outdoor education is affective, making an approach that attempts to quantify feelings particularly appropriate.

Validity for the SDQ is comprehensively addressed by Goodman (2001). There is an added degree of concern about using it on a pre-test, post-test basis, in that, when two scores are subtracted from one another, the measurement error in each is added, giving a higher percentage error (Gorard, 2010c). The same criticism applies to the use of formative assessment scores on a pre-test, post-test basis. However, Rogosa and Willett (1983) show that, unless individual differences in the change scores are small, the reliability of this approach is respectable. They point out that, while there is an inevitable regression to the mean effect, alternative approaches do not necessarily eliminate this.

Another area of concern is that attainment is criterion referenced and, once the criterion level has been reached, pupils will not subsequently be downgraded. This means that no difference scores will be negative and they are unlikely to be normally distributed. It was decided that a non-parametric correlation would be used if that was the case.

Whether or not formative assessment scores are a valid measure of attainment is of course open to challenge. However, the argument that was used in phase 1 also applies here: whether or not they are valid measures, they are what pupils and schools are judged on and any correlation between them and RAE is therefore of interest.

Reliability of the pupil impact questionnaire was assessed by calculating Cronbach's alpha, at the level of the individual constructs. Although Goodman (2001) reported satisfactory Cronbach's alpha scores for the SDQ, for a proper check on reliability, it is necessary to carry out a similar check on the individuals who have replied to the questionnaire during the current study. This was done.

4 RESULTS

4.1 Results – phase 1

Data analysis was carried out using SPSS. Some comparisons could be made without the survey data and are therefore based on the whole sample. Findings are:

- Reassuringly, bearing in mind that they are both measures of school effectiveness, OFSTED grades were highly correlated with CVA scores using a Spearman rank correlation (rho = .525, p (one-tailed) <.01).
- Consistent with the findings of OFSTED (2010a), OFSTED grades were inversely correlated with the proportion of free school meals using a Spearman rank correlation (rho = - .371, p (one-tailed) <.01).
- There was no significant correlation between size of school and OFSTED grades, CVA scores or the proportion of free school meals.
- There was no significant correlation between CVA scores and the proportion of free school meals.

Other results were dependent on data from the survey. Out of the 260 questionnaires sent out, 154 (59%) were returned without prompting. All non-respondents were telephoned and a further 91 responded to the quantitative questions over the phone (the qualitative question was omitted). Fifteen schools were either not contactable or declined to answer by phone. These were circulated with an abbreviated follow up questionnaire which contained the quantitative questions only. Four of these were returned. The overall response to the quantitative questions was therefore 249 (95%). The eleven non-respondents were equally distributed across the OFSTED categories.

The distribution of the number of nights away offered by the various schools is shown in figure 4.

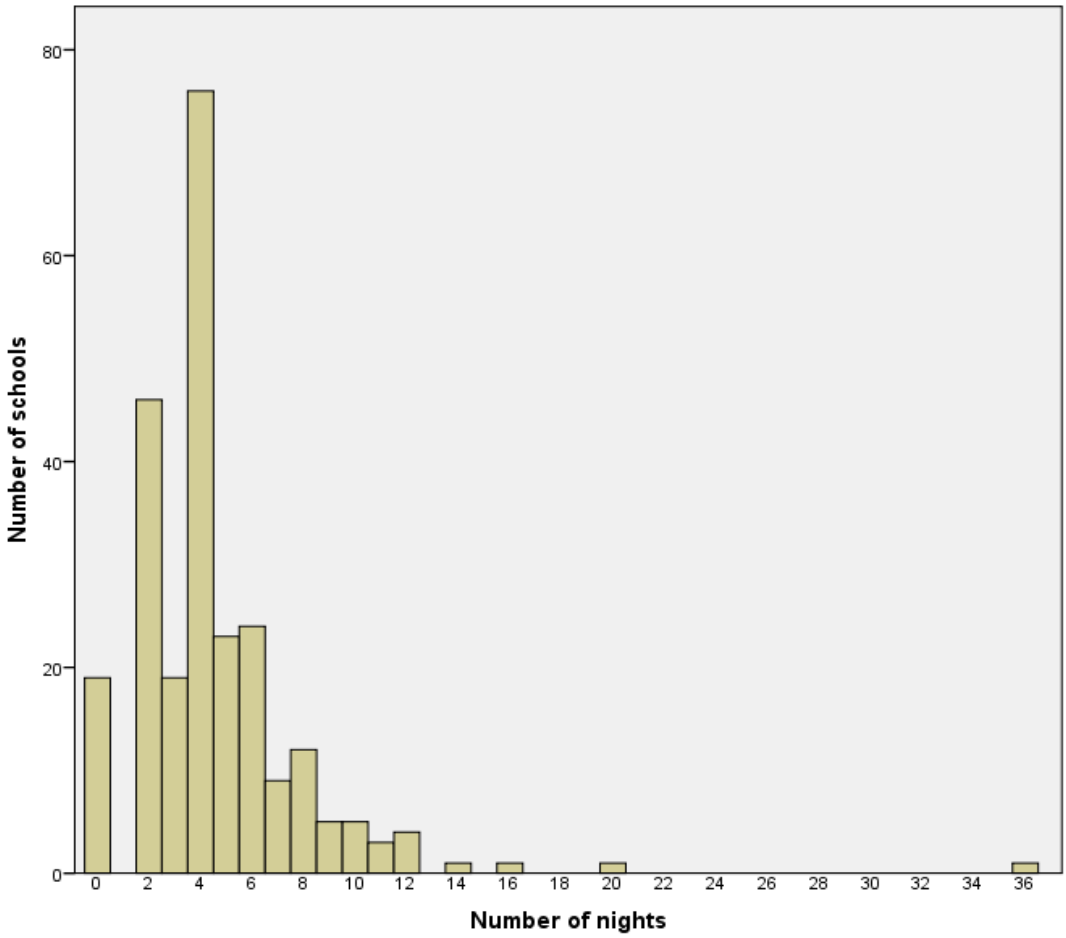

Figure 4: Distribution of the number of nights' residential experience offered

A surprisingly large number of schools in the sample offered at least one residential (over 92%). In generalizing from this figure to the population, it is necessary to allow for the fact that the sample was selected in order to answer my primary question as to whether the extent of residential is correlated with OFSTED results and is not a random sample of all English schools.

This is done by weighting the proportion of schools in each of the OFSTED categories that do at least one residential by the national proportion of schools in those categories, as shown in table 2 below.

OFSTED grade	Number of schools that do at least one residential	N	Proportion of schools that do at least one residential	National proportion of schools in each category	Weighted proportion
Outstanding	62	63	98%	12%	95%
Good	59	62	95%	50%	
Satisfactory	58	61	95%	34%	
Inadequate	51	63	81%	4%	

Table 2: Weighting calculation for the proportion of schools that offer at least one residential

A confidence interval for this proportion was derived from the following formula for the calculation of a standard error in the case of a stratified sample:

$$SE = (1 / N) * \text{sqrt} \{ \Sigma [N_h^2 * (1 - n_h/N_h) * p_h * (1 - p_h) / (n_h - 1)] \}$$

where N is the total population,

N_h is the population in stratum h,

p_h is the proportion of successes in stratum h,

and n_h is the number of observations in the sample in stratum h (StatTrek, 2011).

Rounded to the nearest percentage point, it is possible to say with 95% confidence that between 90% and 100% of English primary schools offer at least one residential to their pupils.

This shows a clear increase in the proportion of schools that offer residentials in comparison with the most recent reliable previous data available for primary schools, when 86% of primary schools in England and Wales offered at least one residential (The Scout Association, 2004). In 2006, NFER reported that 80% of English primary school headteachers surveyed organised a UK based residential but their response rate was so poor (24%) that the results are questionable (O'Donnell, Morris and Wilson, 2006).

The mean number of nights away offered by the sample schools is 4.55. From figure 4, it will be seen that there is an outlier school that offers 36 nights away. To confirm the accuracy of this figure, further elaboration on their questionnaire showed that they do indeed offer this over four years from year 3 to year 6 and some pupils take up the option of attending all 36.

There was no significant relationship between the extent of residential opportunities offered and size of school. There was no significant relationship between the CVA scores and the extent of residential opportunities offered, either in total or before Key Stage 2 SATs.

Rather to my surprise, there was a small but statistically significant correlation between the extent of residential opportunities offered and the school's OFSTED results (rho = .169, p (one-tailed) <.01, using a Spearman rank correlation). However, this is so small as to be of little practical value, accounting for only 3% of the shared variance. The mean number of nights offered for each OFSTED grade are shown in table 3. This table also shows the mean proportion of free school meals in each of the categories. There was a statistically significant inverse correlation between these and the extent of residential opportunities offered (rho = -.289, p (one-tailed) <.01, using a Spearman rank correlation).

OFSTED grade	N	Mean number of nights away	Mean proportion of pupils with free school meals
Outstanding	63	5.41	12%
Good	62	4.32	20%
Satisfactory	61	4.48	22%
Inadequate	63	3.91	27%

Table 3: Mean number of nights away and proportion of free school meals by OFSTED grade

In view of these findings, a partial correlation was carried out between the extent of residential opportunities and OFSTED results, controlling for free school meals. When this was done, the apparent relationship between residential opportunities and OFSTED results became insignificant.

A correlational study cannot indicate causality but it is interesting to speculate about possible reasons for the findings. One interpretation is that schools from deprived communities that have a high proportion of pupils on free school meals cannot raise enough money from parents to run as many residentials and, at the same time, are unable to 'break the cycles of low achievement that often blight such communities' (OFSTED, 2010a: 37). In other words, deprivation could be the root cause of both phenomena. However, the situation is likely to be more complex.

There are other possible underlying variables that might cause a school both to organise residentials and achieve better OFSTED results. One possible factor might be a "can do" attitude in better schools and a determination to offer any educational experience that is thought to be of value to the pupils. Another might be a greater emphasis on "whole child development" which could lead to both outcomes. However, neither of these factors would explain the fact that the effect of deprivation cancels out the apparent link between residentials and OFSTED results.

An alternative explanation is possible. In discussing the fact that there is a strong relationship between deprivation and poorer outcomes for learners, OFSTED highlight the contribution of the "London Challenge" initiative to improving outcomes in low-performing schools. They see a clear causal relationship between this and outcomes, 'finding that London schools had improved dramatically' as a result of the initiative (OFSTED, 2010a: 37). While one must be sceptical about the ability of OFSTED inspectors to attribute such causality, it is interesting to note that London Challenge includes an outdoor residential.

Linking this with OFSTED's claim (cited in section 1.1) that learning outside the classroom contributes significantly to raising standards, it is conceivable that residentials do stimulate an improvement in attainment which is recognized by OFSTED by the award of higher rankings. If this is the case, then the fact that parents in more deprived communities cannot afford to support residentials may be a contributory factor in the schools' poorer average OFSTED performance.

Phase 1 of the study clearly cannot help to decide between the alternative possibilities. Indeed, it can be argued that the complex, unpredictable and non-linear nature of the process (Gough, 2011) makes it inappropriate to try. That supports the case for a qualitative component, in which the impact of residentials can be explored in more depth, to gain a richer understanding of how they influence the subsequent behaviour of pupils. Regardless of the uncertainty about the meaning of the finding, the fact that the extent of residential provision is clearly linked with deprivation is very helpful in terms of arguing the case politically for financial support for those pupils who would otherwise not be able to afford the experience.

It is interesting that, discounting the link with deprivation, there is a link between the extent of residentials and OFSTED results but no significant link with CVA scores. One interpretation is that residentials do not contribute significantly to SATs results but do contribute to other

outcomes which are valued by OFSTED inspectors. This possibility will be discussed further in the context of the interview responses in section 4.2. Another interpretation is of course that CVA scores are 'largely spurious' (Gorard, 2010c: 759).

Turning to the replies to the question about the reasons that the school offers the opportunity of attending a residential, a rich and varied range of reasons were given. A list of the coded summaries of the free text replies, with frequencies, is given in Appendix 4. The codes were analysed in a number of different ways. First, in order to see whether the degree of specificity of the aims varied according to OFSTED results, the replies were coded onto the following categories:

- Explicit educational aims
- Broadly expressed educational aims
- Non-educational aims

and these were scored 2, 1 and 0 respectively. No correlation was found between either the sum of these scores or the average of the scores and schools' OFSTED results.

In a second analysis, replies were divided into personally orientated aims and socially orientated aims. No correlation was found between this breakdown and either OFSTED results or the proportion of free school meals. Finally, for qualitative reporting purposes, replies were analysed into the following categories:

Reasons for organizing residentials	Number of replies
Emphasizing the experience itself, including broadening pupils' experience, allowing them to experience adventurous activities and challenge, giving them an opportunity they would be unable to get at home and staying away from home, often for the first time	109
Social development, including teambuilding, the development of teamwork skills and relationships, co-operation and relationships with staff	108
Developing specific personal qualities, including independence, confidence and self-esteem	106
Curriculum related, including personal, social and emotional development and curriculum enrichment	68
Non-educational aims, including fun and a reward	28
Other aims, including easing the transition to secondary school	26

Table 4: Reasons for organizing residentials

There were some interesting contrasts with responses from a recent NFER survey of teachers (Pyle, 2010), which focused on all learning outside the classroom experiences, not just residentials. Asked about the importance of the factors in Table 5 below when organizing such an experience, the percentage of primary school teachers replying very important or quite important is given in the second column. The percentage of respondents to this study who mentioned those factors is given in the third column.

	NFER study	This study
Personal, social and emotional development gains for the young people taking part	98%	88%
Improving literacy, numeracy or other core skills of the young people taking part	85%	None
Giving students new experiences away from the classroom environment	99%	71%
Delivering specific, subject-related learning outcomes, linked to the National Curriculum, for the young people taking part	89%	44%
The opportunity to develop peer group relationships or student/teacher relationships	91%	68%
Remotivating pupils who are disengaged in the classroom environment	94%	None
An end of year incentive/reward for the young people taking part	45%	5%

Table 5: Comparison with NFER survey responses

Differences may be because this study used a free text response format and low priority items were therefore not mentioned at all. It may be a reflection of differences in priorities between teachers and headteachers. It may be a reflection of the different opportunities offered by a residential. Reasons for organizing residentials are discussed in more detail in the context of interview responses in section 4.2.

4.2 Results – phase 2 – descriptive summary

Part of the rationale for including an element of qualitative research was to add 'richness and colour' to the description of residential adventure education (Wellington, 2000: 19). The degree to which interview participants provided rich and colourful accounts has exceeded expectations: the interviews have produced an almost overwhelming quantity and variety of data. It has been necessary to be very selective in summarizing the data.

A total of fifteen interviews were carried out, as follows:

- 2 pilot interviews with fellow students (who were also parents of children who had attended residentials) to seek feedback on interviewing style and sensitivity,
- 2 pilot interviews with headteachers before developing an interview schedule,
- 2 pilot interviews with headteachers after developing an interview schedule,
- 5 interviews with headteachers who used residentials, one together with the school's Educational Visits Co-ordinator,
- 1 interview with a headteacher who did not use residentials,
- 1 interview with a focus group of three parents,
- 2 interviews with policy makers (two ex-Secretaries of State for Education).

It was hoped that it would be possible to interview an OFSTED inspector with particular expertise in learning outside the classroom. However, despite several attempts to make contact in different ways, there was no response. As they are public figures, the two ex-Secretaries of State waived the anonymity that was offered to them. They are The Rt Hon David Blunkett MP and Lady (Estelle) Morris of Yardley. All interviews with the exception of the four pilot interviews with headteachers were recorded and transcribed verbatim. Transcriptions were analysed using NVivo. The principle of theoretical saturation (Glaser and Strauss, 1968) was used to determine the number of interviews to be carried out: there was a clear reduction in the number of new insights from the last few interviews.

In coding the observations made, a relatively purist grounded theory approach was taken, allowing the categorization to emerge inductively without reference to pre-selected concepts. After carrying out the initial categorization, some time was spent consolidating and rearranging codes into different categories, taking into account memos made while transcribing the interviews. During this phase, particular reference was made to Kvale and Brinkman's (2009) advice on coding and Corbin and Strauss' (2008) advice on analysing interviews.

This produced the following categories:

Reasons for using residentials

- emphasizing the experience itself
- social development
- developing specific personal qualities
- curriculum related

- non-educational aims
- other comments

Contributors to the impact

- challenge
- social
- independence
- reflection
- support
- novelty
- success and achievement
- contrasts with school
- a combination
- other contributors

Outcomes

- attitudes
- cognitive aspects
- confidence
- other intrapersonal outcomes
- interpersonal outcomes
- persistence/resilience
- specific outcomes
- whole class outcomes

Organisation and policy issues

- organisation
- pre- and post-course
- policy perspective

Transfer of learning

- measuring
- transfer

Participant perceptions

- headteachers' perceptions
- parents' perceptions

Details of the comments made in each category are shown in appendix 5. In addition, an overview of each participant's main points was précised into a short summary. Both the

summary and the detailed coding categorizations were then compared to start to identify concepts and connections that might be helpful in understanding the process and outcomes. At this stage, existing ideas and theories were brought in where appropriate.

A word count analysis was carried out using the facility in NVivo. A number of matrix coding queries were also carried out in NVivo to establish whether there were systematic differences between the replies of headteachers and parents or between schools with different characteristics. However, because there was such a rich diversity of data from all participants, neither of these approaches proved helpful in identifying any clear patterns.

This process resulted in two broad areas of synthesis. One is a description of participants' understanding of the process and outcomes of RAE. The other is a more discursive exploration of the broader conceptual ideas generated from the data, their relationship to existing theories and the new theoretical ideas that emerge. This section deals with the data descriptively, the next discursively.

Finally, as a way of checking out the validity of my findings, I sent them in draft form to the headteachers who were interviewed, with an invitation to comment. No observations were received in return and, in view of the time that headteachers had already contributed, I did not feel able to press them for a response. However, it is reassuring that there were no negative comments.

Reasons for using residentials

As with the replies from phase 1, the commonest reason for organizing residentials was an emphasis on the experience itself. There is an interesting conviction, shared by both headteachers and parents, that the experience is intrinsically worthwhile. Headteacher A said "The best thing a parent can do for their child is buy them experiences." There are several facets to this belief:

- simply being away from home is important and a school residential is often the first time pupils have spent a night away from their family,
- outdoor adventure experiences are believed to have a particular impact,
- they are valuable in learning to manage risk – as Headteacher B pointed out, "Life's a risky business" and adventurous activities provide an excellent example of how sensible precautions can reduce risk to an acceptable level,

- the opportunity to learn new skills itself is not trivial – because the nature of learning is very different to the classroom and has more potential to engage children,
- the experience is one that it is simply impossible to provide at school and one that children do not normally get at home, particularly in more deprived areas.

Social development was the second most frequently mentioned reason. Within this category are several rather different aspirations:

- getting to know each other better – both pupil to pupil and pupil to teacher,
- one particularly helpful application of this is at the start of the school year, in a "bonding" process,
- learning about how to relate effectively to other people,
- being with a male role model was felt particularly helpful for children from female single parent families.

There was less emphasis on developing specific personal qualities than in the phase 1 replies. Confidence building and encouraging independence were both given some emphasis but independence was far less prominent than in the phase 1 survey. This seems to be because the interviews drew out how complex the motivations for and outcomes of RAE really are.

As an illustration, there were no fewer than 29 reasons which were mentioned by only one or two participants. These included curriculum-related aims (predictably rare), facilitating the transition to secondary school, a "jolly", a celebration and something which has become tradition. Although they were not widely shared, there were some interesting observations:

- a recognition that it can be "personal passion" that drives the provision of RAE,
- the fact that the formal structure of schooling can be a barrier to learning for some,
- a general feeling that, although disadvantaged or non-academic pupils may benefit particularly, the benefits are widely seen across the whole range of pupils,
- different ways of looking at some of the potential outcomes – for example Headteacher C views the interpersonal aspects of the experience as developing values rather than awareness or social skills,
- a hint of the way in which the various contributory factors might interact with each other – Headteacher D said "I've grown to think that the whole experience is what matters".

Contributors to the impact

Two factors were very frequently cited: the importance of challenge and the social context. Being faced with a challenging situation was widely recognized as a particularly formative experience. Challenge can of course be presented in various ways: for example, through dramatic or musical performance or working with people with serious social disadvantage. However, challenge is most commonly presented on school residentials through adventurous activities, which provide both a physical and a mental challenge.

For pupils to succeed in something that they thought initially they would not be able to do was thought to have a particularly powerful impact. Overcoming fear is one aspect of this: Headteacher A said "The best learning happens when you take a risk and you're a bit scared and when you're grappling mentally." Having the persistence to continue with an arduous task is another aspect: Parent A thought what had most impact was when the children were able to say "It was tough but we've done it." How tough it should be is of course a key question for practitioners, which will be discussed in section 5.2.

In terms of transformative impact, there are several factors that make the response to challenge possibly the most significant single element in RAE:

- several participants mentioned the enjoyment that children get from meeting challenges – however, the sense of achievement is more than simple enjoyment – Headteacher B's insight that "It's a buzz you give yourself" gives a sense of the intrinsic motivation that is quite different from the extrinsic motivation inherent in conventional reward systems,
- many pupils find something they are good at, often for the first time – what Headteacher E called "a chance to shine" has a lasting effect on pupils' confidence back at school,
- these factors combine to make the experience highly memorable - that memorability is arguably highly significant in achieving transfer of learning.

Many pupils will of course find that the social context itself is also a challenge. However, taking an overview of the evidence, it is more than that: it appears to be absolutely central to the learning process that occurs on residentials. Ways in which the social context catalyses the learning will be discussed in a later part of this section. In the meantime, the following observations made by participants show some of the ways in which it has a specific impact:

- shared experience plays a clear role in building the social capital which then persists after the residential – Parent B used the phrase “a common language of experience”,
- if pupils are to succeed in the activities, it is often imperative that they co-operate with each other – the need for listening might become apparent for the first time and the fact that pupils are reliant on each other for their safety demands real responsibility,
- simple aspects of the communal situation creates the need for qualities such as tolerance, compromise and sharing – Parent B spoke of the process of socialisation – “how to treat people, how to be with people, how to take your role in that micro-society”,
- new relationships are easily forged in the stimulating environment of a residential and existing relationships are cemented,
- one of the most frequently mentioned points was how hugely supportive and encouraging pupils are to each other and the degree to which that has an ongoing positive impact on relationships.

It was interesting that headteachers flagged up a number of limitations of the school environment. Headteacher A pointed out that “children of this age need hands on experience” and that it is difficult to provide a comparable degree of challenge in the classroom environment. Headteacher E talked about pupils who cannot avoid being discouraged by classroom work but excel in the new environment, saying that “their whole personality changes and you see them in a totally different light”. Headteacher F thought that the new environment was particularly useful for children who did not take to classroom work and that it would often “allow them to blossom”.

In terms of independence, for pupils to be away from home and having to look after themselves was thought to have a very significant impact. The phrase “cotton wool” was used several times and there was a clear feeling that a residential acted as a counter-balance to the tendency of parents to over-protect their children. Simply having to eat new food (or go hungry) was perceived to be helpful by both headteachers and parents.

Although some aspects of the experience were thought to be particularly powerful, it was widely recognized that no one thing was **the** magic ingredient. Instead, there were numerous illustrations of the way that factors combine to create the impact. While the word synergy was

not explicitly used by any participant, that is the clear impression left by their comments. In the words of Parent B, “It’s layers of things – I don’t think you can isolate the ingredients”.

Headteacher C expressed this clearly: “It's the whole combination of everything they've experienced - the new activities, the approach of trying something a bit different, a bit new, having their peers around them, the reflection, the encouragement from peers, and the success and the feeling that gives them - all of those things ... everything has an impact.”

Outcomes

Particular care was taken to ask for specific examples of changed behaviour that participants attribute to the residential. However, this was only partially successful: 107 specific outcomes were described but 84 of the responses were in general terms.

Confidence was the most frequently cited outcome. It is of course a loosely defined concept. However, in terms of what it means in practice, Parent B thought that it’s “a can do philosophy” and Parent C pointed out that, while her daughter would previously have been reluctant to tackle something, she now says “Well I can give it a go”. Headteacher B pointed out that this attitude is apparent in the classroom, where pupils are “up for anything”.

Participants used a range of examples, some subjective, others more concrete, to illustrate their understanding of confidence. These included a growth in “presence”, “puffed out chests”, ”their aura”, a positive outlook, self-belief, a willingness to engage more in the classroom, to offer answers, engage in dialogue, to have a go or tackle new things. Some also noted an added degree of “cockiness” and an increased tendency to “challenge the boundaries”.

It is interesting to note that confidence seems to be affected by group influences: to be almost infectious. Headteacher G observed that “Kids homogenize and, where there are instances of positive achievement, they homogenize upwards”.

As well as confidence, a number of other attitudinal changes were noted. Higher aspirations and a positive attitude to learning were noted back in the classroom. Headteacher C noted that “they want to be given a task - they want their next task”. Pupils are more able to cope with change, for example the transition to secondary school: Headteacher A said “They relish preparing for the next stage in their lives”.

Another intrapersonal outcome cited by a number of participants was a growth in maturity. Like confidence, maturity seems to be a label that participants were comfortable to use but it is a particularly loose and ill-defined concept. Exactly what it means for the primary school age group is explored in the next section.

Persistence and tenacity are not areas that immediately sprang to participants' minds. However, on probing for outcomes in different categories (without leading participants to specific outcomes), there seems to be a definite contribution to resilience back in the classroom. Headteacher F said "They actually take responsibility for problems ... and actually sort of battle through in a sense", ascribing this to the challenges they experienced during the residential.

Despite the findings of phase 1 of this study, there was a widely held view that a residential experience does make a difference to subsequent classroom attainment. Headteacher C thought that both independent work and groupwork improved. Headteacher A noted that project work following the residential is "probably the highest quality children's work they do here". Parent B noticed an increased "will to learn" and Parent A noted greater self-motivation: "They get on with it rather than being told to do it". Headteacher B acknowledged that many factors impact on attainment but suggested that the confidence gained on the residential contributed to accelerated subsequent progress.

Social aspects of the learning have a real impact on subsequent interpersonal behaviour. The added empathy, consideration and understanding that becomes apparent on a residential does "subtly tie them together" (Headteacher F) in a way that creates ongoing stronger relationships and helps the class to gel back in the classroom. Parent D said that, on return, "It's not just a class – they come back like a family".

As well as pupils' relationships with each other, there is a clearly enhanced relationship with staff. Both headteachers and parents noted that the subsequent classroom relationship is improved. Having seen their teachers as human beings, pupils view them in a new light. At the same time, teachers get to know pupils better: as member of staff H said, the feeling in the class is "almost like starting afresh". The outcome is a more trusting relationship in which teachers find it easier to help a child with problems and to deal with more difficult children. Headteacher D said that the enhanced relationship "definitely does spill over into the rest of the schooling".

Organisation and policy issues

At first sight, it is surprising that parents are so willing to pay for their children to attend residentials (with the exception of parents who would find it difficult to fund the experience, who are often supported by the school). In my role as Director of a residential outdoor centre, I have talked to scores of parents' meetings and consistently found parents very willing to fund the experience. The current interviews have reinforced that impression.

It is of course easier to persuade parents to support a residential if this is part of the culture of the school. Parents will often know other children who attended in previous years and have seen the impact at first hand. To attend becomes an expectation: Headteacher F said that "There's a pride in the sense that they've gone through this rite of passage almost". On being quizzed as to what persuaded an apprehensive daughter to attend her first residential, Parent A said very simply "Big sister went".

Exactly what makes a residential attractive to pupils could be the subject of a study in its own right. It is interesting that fun and enjoyment were only very sparingly mentioned by participants even though they are prominent in providers' advertising materials. Clearly, pupils do generally enjoy themselves very much. However, I would suggest that it is a deeper form of enjoyment than they might have anticipated, related more to achievement than pure pleasure.

Health and safety concerns were refreshing by their absence. While these were very much to the fore a few years ago, it is reassuring that those interviewed did not consider them to be an issue.

At policy level, the interviews with David Blunkett and Lady Morris were extremely helpful in contributing ideas to my real life lobbying activity. Although many of the points they made are of limited relevance to the central focus of the research, they are relevant to the implications of the research for practice within the outdoor sector and will therefore be drawn on in the discussion in section 5.2.

Both David Blunkett and Lady Morris are clearly convinced of the value of outdoor education. Interestingly, David Blunkett alluded to its holistic nature: "It changes their horizons ... because they're seeing, experiencing, feeling both physically and emotionally something entirely new." Both thought that society has a fairly traditional view of outdoor education. Lady Morris

thought that many people associate it with good discipline: she said “I think society as a whole thinks it’s character forming - toughens them up”.

They were both refreshingly candid about their hopes for a major initiative that took place during their tenure and about the fact that it was only partially successful. This was “Summer Activities for 16 Year Olds” (DfEE, 2001), a Lottery funded programme that featured RAE and continued in different forms for a number of years. Although it was not known at the time, David Blunkett’s intention was that it would lead to a much more universal programme linked with communities, volunteering and citizenship, very much along the lines of the current “National Citizen Service” (Cabinet Office, 2011). In the end, this aspiration was not achieved as “the political fervour went out of it” in the context of many competing initiatives. Lady Morris recalled that the motivation for establishing the programme was social rather than educational: “I don't think it got in through the educational standards route - I think it got in through the social cohesion route“.

Their observations on how research findings influence policy making were helpful. Lady Morris agreed with my suggestion that, although education is supposedly evidence-based, much educational policy making is almost serendipitous. David Blunkett pointed out the importance of relating research to the policy agenda at the time. There are clear implications for future research which are addressed in section 5.2. For this study, it is clearly important to make the link between RAE and broader educational development.

David Blunkett articulated that link: “raising self-confidence and self-esteem ... has a material impact in my view on how youngsters see themselves in other curriculum areas and can raise standards”. Both were clear that education should be about more than academic progress: Lady Morris criticised the unnecessary false dichotomy: “It's not ***either*** a progressive, liberal, more flexible, non-measurable education ***or*** getting five GCSEs, it's got to be both”.

A central concern among the outdoor education community is that, in England, there is no entitlement to outdoor education and, judging by their response to a recent Select Committee report (House of Commons Education Committee, 2010), a negligible chance that the current government will create one. The implication of the findings of this study for policy in this area will be discussed in section 5.2.

Transfer of learning

Predictably, there was neither a consensus on the degree to which transfer of learning occurs nor a clear idea of how it might occur. A key question is how the primarily affective learning that takes place on a residential might impact on later cognitive learning.

Many participants were convinced that there is an effect: Headteacher A said "The connection between cognitive learning and this kind of adventure, risk taking - there's something fairly critical about that - fear of failure, overcoming fear, succeeding or part succeeding - just has an application in every area of learning we ever do".

Headteacher B pointed out simply that "the better place that you're in emotionally, the more you're likely to learn". There was widespread agreement that the added personal resource (whether described as confidence, self-esteem or can do attitude) does lead to better academic results. As well as applying the lessons of success, one interesting observation was the importance for more talented pupils of experiencing failure. Too often, the very able coast through school and having to struggle in order to succeed prepares them for when they hit up against real cognitive challenge, often much later.

Participants did not make sweeping claims but they were convinced that there is a direct impact on attainment in a proportion of pupils. However, it was recognized that isolating the influence of the residential from other influences on attainment is very difficult.

There was a range of views on how important it is to make explicit attempts to relate the learning on the residential to the classroom situation. Some thought that it is vital to encourage reflection on the residential back in the classroom in order to embed the learning. Others tended to use incidents that occurred on the residential on a one to one basis to remind pupils how (for example) the way they struggled but succeeded when climbing might relate to the difficulty they are currently experiencing with classwork.

One of the arguments that used to be used for prioritizing the provision of outdoor education for secondary school pupils is that they are better able to understand the personal development that they are experiencing. Indeed, conventional theory suggests that primary school pupils are unable to conceptualize what is happening to them (Piaget, 1952). Participants were asked about how much they thought pupils understood about the developmental process and whether learning was conscious or unconscious.

Again, there was a lack of consensus on this. At one end of the spectrum, it was thought that it is a very subtle effect and that pupils were unaware of what is happening to them. In contrast, Heateacher A expressed a strong view that "if you teach them with a really good social and emotional curriculum, right through, to talk about their feelings and manage their feelings, I think primary children are well able to [conceptualize what's happening to them]".

Participant perceptions

An account of the interviews would not be complete without commenting on the strength of feeling expressed by many participants. My field notes on one interview record "an overwhelming impression of an emotional conviction that it **is** worthwhile". Staff member H considered: "It's an essential part of a child's education". Headteacher A thinks it's "a life-changing experience" and effects were generally thought to be lasting.

An indication of the conviction, together with an implied rationale for offering the experience is clear in the words of Headteacher B: "It's a big wide world out there and actually if you are prepared to stand up for yourself and have go and try something a bit more challenging – brilliant".

Inevitably, the nature of the sampling method chosen for this phase will bring bias. It is reasonable to assume that those who agreed to participate are likely to be more convinced of the value of RAE than those who did not. However, it is interesting that no headteacher contacted was willing to say that they do not believe that residential visits are justified or feel that the costs outweigh the benefits. I managed to interview one headteacher at a school that does not currently offer residentials but, even there, the decision was made purely on cost grounds and there was a clear belief that residentials are beneficial.

As discussed in section 3.3, few adverse effects or problems were cited. That is partly a result of the sampling method used and the consequent enthusiasm of participants. It is also partly because I did not ask about problems or barriers to participation. This is because they have been adequately considered elsewhere (eg Power et al, 2009).

Headteacher E summed up the traditionally acknowledged impact of RAE: "The parents have made comments ... 'I don't know what you did to my child when you were away but they've come back a different child' - and that's to do with independence and confidence".

Whether it is possible to complement the qualitative evidence by establishing quantitatively whether there is a link between residential experience and subsequent attainment is another matter, which will be addressed in section 4.4.

4.3 Results – phase 2 - conceptual generalizations

Two key areas of interest seem to emerge from the data: aspects of the process of RAE and its outcomes. Discussion will embrace the following ideas:

Aspects of the process

- complexity - the complex nature of the interacting influences,
- the nature of the learning environment, including:
  - additionality - the distinctive characteristics that an adventure based residential has in comparison with the classroom environment,
  - excitation – the way in which pupils are energized by the experience,
- energizing influences, including:
  - challenge,
  - the social dimension,
- catalytic factors, including:
  - the importance of the affective nature of the experience,
  - holisticity – the combination of a "whole person" philosophy of education with the holistic nature of the learning from a residential experience,
  - the way in which the factors interact with and reinforce each other,
- cementing factors, including:
  - memorability,
  - the intrinsic nature of the reward and its effect on motivation.

Outcomes

- confidence,
- interpersonal awareness,
- maturity,
- interaction effects, in which whole group behaviour emerges,
- transformative effects – the step change which is often observed.

A further set of questions arose from thinking about parents' perceptions, in particular their support and enthusiasm for residentials. It would have been interesting to explore the extent

to which that reaction is an instinctive one, particularly in the context of the need for the young of a species to experience risk and the lack of opportunity for that in today's over-regulated society. However, there were so many other interesting avenues to explore that it was decided to omit this line of enquiry.

Aspects of the process

The sheer volume and diversity of the data suggest that what is going on is far from simple. For example, what can be inferred from the fact that participants have expressed so many different reasons for organizing a residential and so many outcomes? It will be argued that the process is inherently complex, that the complexity makes it impossible to understand the impact of RAE in terms of its discrete components and that some aspects of its impact can be better understood in terms of complexity theory.

Before attempting to look at its complexity, it is helpful to explore the individual elements of the process, while respecting Gough's observation that 'Complexity offers us a way to think about relationships between inputs and outcomes that does not impel us to seek evidence of causal relationships between them' (Gough, 2011: 6). Morrison (2002: 9) makes a consistent observation by pointing out that a complex system can only be understood holistically. Complexity will become apparent through the way the individual elements weave together and interact to produce synergistic outcomes.

It is possible to conceptualize the nature of the learning environment as the sum of two interacting elements:

- additionality – what the residential environment has to offer that is unavailable in the classroom – differentiated in both space and time,
- excitation – borrowing a metaphor from the scientific sense of the word: used when energy injected into a system has an impact on the state of that system.

Apart from the obvious physical characteristics of a residential environment, it is a new place: a new space. Simpson (2007) identifies new space as a critical dimension for learning. New space is not only a new physical space but a new interpersonal space. It is free of established habits and hierarchies: a place where pupils and teachers can see each other differently, where pupils see new aspects of each other and get to know each other better.

It also carries a different quality of time. Instead of being constrained by the compartmentalisation of school programming, there is a new open-endedness to the day, without the possibility of retreating to the security of home at the end of school. Fleming (1998) points out that detachment from everyday life and the continuity represented by 24 hour a day involvement contribute to the impact of a residential. "Time out" means more than simply time spent in a new environment: it means the time to see someone in a new light, to see behind the superficial behaviour, to gain a fuller understanding of the person's thoughts and feelings. That time also helps to create an openness to the possibility of personal change. On its own, the additionality in both space and time helps to generate this possibility. However, it is through interaction with excitation that it achieves its power.

Excitation – being energized – creates new opportunities. In quantum theory, it enables a quantum leap to a new energy state. In personal development terms, it can have a similar effect. In section 5.1, I will use a cusp catastrophe model to illustrate this. By excitation, I do not mean the simple excitement that children experience in a new situation. I have in mind a broader concept: the synergistic sum of the energizing influences of the different elements of the residential. Exactly how it is synergistic will become apparent later in this section.

An injection of energy of this sort can be seen as creating a far from equilibrium situation. This is precisely the environment in which a complex system demonstrates new, emergent behaviours (Prigogine, 1996). Doll (2008: 188) discusses the need to maintain just the right amount of disequilibrium for an open system to be continually active. In fact, Morrison (2002: 13) points out that 'disequilibrium is essential for survival'. To achieve an optimum degree of disequilibrium is part of the craft of an outdoor facilitator. Although the use of the term in outdoor education is contested (OUTRES, 2011) several participants talked about taking pupils out of their "comfort zone".

There are undoubtedly raised energy levels among pupils on a residential course. It can be argued that the exposure to what is different and strange, the openness to change, to becoming "other", and the complexity of the interaction between the elements of the course helps to maintain that feeling of change, in a self-sustaining process of positive feedback.

So what are the energizing influences? Two factors were identified by interview participants as particularly important contributors to the impact of RAE and it is suggested that these are

the key energizing factors, other factors playing a catalysing and cementing role. The two energizing factors are:

- challenge,
- the social dimension.

Challenge came out strongly from the interviews as a very powerful energizer. Much has been written about how the degree of challenge relates to developmental outcomes. To recap section 2.3, Mortlock (1984) describes four stages of adventure and suggests that maximum benefit is to be had at the third, 'frontier adventure' stage and Csikszentmihalyi (1990) coins the word 'flow' to describe the state of absorption experienced when the balance of challenge and skill is optimal.

I wonder, however, to what degree these theories are appropriate to primary school children on perhaps their first adventure experience? Although challenge is central to the impact of RAE, it could be argued that, bearing in mind the complex web of other influences that I am attempting to describe, the holistic aspect of the experience is at least as important as pitching the degree of challenge at the right level. There would certainly seem to be a threshold level below which the level of challenge is too low to provoke development. However, it could be argued that a "sprinkling" of challenges mixed in with the other important elements of a residential may be more effective than a sustained focus on challenge.

If that is the case, it has practical implications in the debate about what represents quality in outdoor education. Loynes deplores the commodification of outdoor education and considers that packaged experiences 'disempower the participant' (Loynes, 1996: 56). Since he wrote that article, packaged provision has become the norm. However, as phase 1 of this study suggests, it is more popular than ever and I suggest that would not be the case unless headteachers see clear benefits.

Cooper (2007) contrasts commercial activity centres' emphasis on fun and quick thrills with traditional outdoor education centres' more thoughtful approach. However, there has been no empirical research to relate the two approaches to the quality of outcomes. To do so is beyond the scope of this study: it is a worthwhile project in its own right. Nevertheless, there appears to be sufficient evidence to suggest that the complexity of the contributors to the

outcomes should cause us to view the role of challenge in the context of other reinforcing and catalysing factors.

Uncertainty is one of the elements of challenge. Indeed, uncertainty of outcome is central to the concept of adventure (Mortlock, 2009: 155). That creates a very different learning environment from most classrooms: one in which Biesta's pedagogy of interruption can be used to good effect. If learning is seen as responding to 'what is unfamiliar, what is different, what challenges, irritates or even disturbs', it allows the pupil's unique subjectivity to emerge (Biesta, 2006: 68). Higham, Freathy and Wegerif (2010) have in fact built on Biesta's ideas to propose a 'pedagogy of challenge'.

The social dimension appears to be both an energizer in its own right and a catalyst. To be thrown into close contact with others for 24 hours a day will of course create its own challenges. It will also, whether or not this is challenging to participants, create an accelerated learning environment. Interactions are likely to be more frequent than they are in the classroom, pupils are expectantly open to new experiences and those experiences come thick and fast. That combination provides fertile ground for rich interaction. Moreover, positive feedback following success abounds.

Section 2.8 described the way that the emergence of self-organisation and non-linear changes are facilitated by rich interaction between a large number of elements. Recurrency loops which offer positive feedback are typical in such situations. I suggest that the rich interactive environment of a residential adventure course that became clear from the interview responses, its constantly changing, open-ended nature and the positive feedback that is an integral part of the experience not only allow non-linear change to occur but make it inevitable that it will occur.

There are two ways in which social aspects of the experience contribute to catalysis. One is the wonderful degree of support and encouragement that is typically provided by pupils to each other. Without any doubt, this helps pupils to achieve challenges which they might otherwise not achieve. The other aspect is the recognition that comes with success. That is vitally important both in catalysing and consolidating a pupil's new self-belief and in ensuring that the new respect that is often seen carries over from the residential back to the classroom.

These energizing and catalytic effects are of course in addition to the more straightforward interpersonal learning opportunities. Interview participants thought that the opportunity for teachers and pupils to see each other in a different light was important (to a greater extent than I had realised). Developing behaviours that help in interpersonal situations, developing trust and empathy and simply getting to know each other better are among the direct outcomes.

In the literature review, it was suggested that both the element of challenge and the central importance of the social dimension are reflected in the work of Vygotsky (1978). Pitching the challenge at a level which stretches pupils but is just achievable is a direct application of the Zone of Proximal Development and Vygotsky's insight into the way that personal development is mediated by socio-cultural factors is exemplified by the catalytic effect of the social dimension in RAE.

Moreover, Vygotsky recognizes the complex nature of development and the many factors that affect it: 'We believe that child development is a complex dialectical process characterized by periodicity, unevenness in the development of different functions, metamorphosis or qualitative transformation of one form into another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters' (Vygotsky, 1978: 73).

One reason that the process of RAE is consistent with Vygotsky's view of development (and one of its strengths) is that developmental goals are not explicitly defined but left open. Exactly how the individual will develop emerges from the situation and outdoor facilitators are comfortable with that uncertainty: '... the responsibility of the educator ... is a responsibility for something that cannot be known in advance' (Biesta, 2006: 116). A consequence is that the developmental process is better described in terms of complex emergence than in linear combinations of contributory factors.

Other catalysing factors include:

- the affective nature of the learning on a residential,
- its holisticity,
- the way in which the factors interact and reinforce each other.

Headteacher B described a “snowball effect” in which pupils’ emotional reaction to having succeeded at something difficult reinforces the cognitive impact. In other words, rather than simply thinking abstractly that success in one activity might increase the likelihood of success in another, the emotional connotations mean that pupils **know**, viscerally, that they **can** succeed. How that reinforcement might take place is clearly a complex question. However, the existence of the link between affective and cognitive learning is known: ‘It was concluded that positive changes in affective learning appear to lead to positive changes in cognitive learning’ (Nundy, 1999: 193).

Whether it is helpful to make explicit attempts to make pupils conscious of that link is an open question. Participants in this study had divergent views. As noted in section 2.3, there are similarly divergent views in the literature on whether the mountains should ‘speak for themselves’ (James, 1980). My reaction to the views expressed in this study is that, for this age group, the snowball effect is likely to have such a strong influence that the added value of making the link explicit is likely to be smaller than it is at secondary level.

Holisticity is evident in two respects. First, the personal development orientation of outdoor education has a clear focus on whole person development. Second, pupils experience a wide range of stimuli throughout the residential, as described in the paragraphs on excitation above. For school A, whole child education is a key part of their ethos and that fitted particularly well with the residential. Interestingly, that school also uses Claxton’s ‘Learning Power’ (Claxton, 2002) as a central theme.

Claxton points out that ‘[Being a good learner] is about the whole person: their attitudes, values, self-image and relationships, as well as their skills and strategies’ (Claxton, 2002, 15). Many of the outcomes of RAE are qualities that Claxton recognizes as being key to the development of learning power. These are covered later in this section.

Although the way in which the various elements of a residential interact is a catalysing rather than a cementing function, discussion on this is nevertheless postponed until after considering two factors that play a particular role in cementing the learning back in the classroom. They are:

- memorability,
- the intrinsic nature of the reward and its effect on motivation.

A common theme from interview participants was how long lasting the memories of a residential are and how they provide a "common language of experience". Several participants commented that feedback from adult ex-pupils shows that a residential is one of the most memorable aspects of their school career. Memorability appears to be an important factor in achieving transfer of learning. It also appears to be linked to the affective nature of the learning and the added impact that this imparts.

Headteacher B's observation that "It's a buzz you give yourself" highlights the intrinsic nature of the reward. Pupils are not competing for gold stars or praise from the teacher. They simply know that they have achieved something difficult and experience a degree of satisfaction that is arguably deeper than their response to extrinsic reward. Craig notes the importance of this in developing confidence: 'It is the feeling of having mastered something, not the actual achievement, that is important' (Craig, 2007).

Intrinsic reward is more likely to lead to intrinsic motivation. As noted in the literature review, Deci and Ryan propose a self-determination theory of motivation in which 'Children are intrinsically motivated to learn, to undertake challenges, and to solve problems' (Deci and Ryan, 1985: 11). The open character of RAE, without pressure towards specific learning outcomes, helps to reinforce pupils' intrinsic motivation.

This relates to the work of Dweck (1999), who contrasts 'mastery orientated' students, who value learning for its own sake and are resilient in the face of difficulties, with 'helpless' students, who are more concerned with their performance than their learning, and respond badly to difficulties. She shows that helpless students were likely to be 'entity theorists', who consider that intelligence is fixed and immutable. In contrast, mastery orientated students are likely to have an 'incremental theory', which holds that intelligence is malleable and that they can change it and therefore influence their own attainment.

It is suggested that RAE has the capacity to prove to pupils in a convincing and memorable way that they **are** capable of change, that they **can** do things that they thought impossible and that this may influence them towards an incremental view of their abilities, with a greater resilience towards academic challenges and clear implications for their future learning.

Finally, to return to the way in which the elements of a residential experience interact to catalyse and reinforce the outcomes, here is my own synthesis of a number of observations from the interview data to show how that recurrent interaction might work:

> The new environment and its energizing influence creates an openness to new experiences. Working in small groups, pupils want to do well in the eyes of their peers and are therefore persuaded to have a go at something difficult. Support from fellow pupils contributes to success. The emotional impact of overcoming fear creates an obvious sense of achievement. That raises the aspiration of those who might be dubious and gives them the confidence to try. They succeed in turn and the effect is a self-sustaining process of raising achievement.

The self-reinforcing nature of this virtuous circle could explain what staff member H saw as "a whole shifting of the peer group". That can be seen as a form of self-organizing emergence, with parallels to autopoiesis (Maturana and Varela, 1980).

Haggis (2008) considers that, in a complex context, it is impossible to isolate key causal factors because all the factors work together, in a multi-factorial and de-centred way. Evidence from the interviews suggest that is certainly the case with RAE. Further links with complexity will be evident in discussion of the outcomes.

Outcomes

This synthesis is the product of several false starts. Interestingly, with every iteration, it has become simpler. It is possible to list many outcomes of RAE: a scan of the literature shows 35 conceptual categories in which change has been observed. Indeed, my initial coding for this study had no fewer than 182 separate categorizations of outcome. It is necessary to consider what underlies the apparent diversity.

As discussed above, one factor is that most RAE does not have specific learning objectives but has the open-ended objective of personal development. Another is that, even with similar input experiences, each pupil will find different aspects challenging and will respond to these in a different way. However, the diversity could also be taken as evidence that some form of complex process is at work. Davis and Simmt (2003) show that a proscriptive rather than prescriptive approach (allowing freedom within defined boundaries) creates an open learning environment in which complexity is more easily seen.

Among the characteristics of complexity are that 'uncertainty and openness prevail' and 'similar initial conditions produce dissimilar outcomes' (Morrison, 2002: 9). Interestingly, Morrison also notes that '... complexity theory is more a theory of *process* than of outcomes' (Morrison, 2002: 190, original emphasis). This is consistent with the fact that I have found synthesizing the evidence on outcomes much more difficult than the evidence on the process.

There are a number of reasons for simplifying. First, it is not in the spirit of complexity thinking to break down the outcomes in an atomistic way. Second, when thinking about the outcomes that participants described, the extent to which outcomes interrelated with each other was continually apparent. Third, it is consistent with the holistic nature of personal development.

Therefore, while there are of course many more specific outcomes, it is proposed to describe the effects in a rounded way and to synthesize participants' comments into only three broad categories of outcome:

- confidence,
- interpersonal awareness,
- maturity.

In discussion, it is proposed to bring out two characteristics of the development:

- interaction effects, in which whole group behaviour emerges,
- the step change which is often observed.

There is a risk of inconsistency between such a broad categorization and my stated aim of discarding intermediate variables in favour of directly observable behaviour change. Had I been intending to operationalize and measure the broad outcomes, there would have been clear inconsistency. However, as phase 3 uses an instrument which focuses down on behaviour, it is appropriate here to remain general, without a detailed analysis of the concepts.

Confidence is conceptualized as a mixture of attitudes and dispositions. It brings together many of the aspects of personal resource that participants observed. It manifests itself in behaviour that participants identified as:

- independence,

- emotional security,
- ability to cope with uncertainty,
- openness to experience,
- positive attitude to learning,
- can do attitude,
- getting stuck in,
- up for anything,
- purposefulness.

I feel justified in selecting confidence as the label for one of the key outcomes as it is not a construct which is well developed in psychological discourse. Nevertheless, the person in the street seems to recognize it and finds it a helpful description. In section 2.7, I explained why I did not intend to focus on any of the various self-constructs as intermediate variables. However, even though I argue that using intermediate variables is unnecessary, it is nevertheless helpful to use the word confidence as an over-arching description of one of the key outcomes of RAE.

Interpersonal awareness embraces a number of subtly different experiences and competences:

- seeing teachers in a new light and developing a new relationship with them,
- making new friends and seeing fellow pupils in a new light,
- experiencing possibly new behaviours such as trust, support and empathy,
- learning how to behave in an interpersonal situation in a way that encourages positive relationships.

It is interesting that a number of participants emphasized the benefits gained from an improved teacher pupil relationship. The complex way in which children's perceptions feed back into that relationship is recognized: 'Children are both producers and consumers of their child-teacher relationships' (Seltzer-Kelly et al, 2011: 9). RAE is clearly a helpful opportunity for children to form new perceptions.

Mischel (2004) suggests that the relationship between individuals is an emergent property of the interpersonal system rather than a simple combination of the two individual personalities. He and his colleagues emphasize the role of psychologically active features of a situation in

social-cognitive analysis of situations (Shoda, Mischel and Wright, 1994). It is clear to see how the new situation inherent in RAE and its affective and memorable nature easily create psychologically active features which catalyse that emergence. Shoda and Mischel's (2000) more specific work on the Cognitive-Affective Personality System is exemplified in the way in which the affective aspects of RAE interact with and reinforce the cognitive learning. Moreover, the dynamic way in which their conceptualized network grows, allowing experience to influence future behaviour, suggests a mechanism through which a residential might impact on subsequent classroom behaviour.

Perhaps the clearest illustration of emergence is the phenomenon that was described as a "whole shifting of the peer group". Given a critical mass of pupils having an intense, shared experience, it is not at all surprising to see the emergence of the collective behaviours that participants have described, such as greater whole group empathy and willingness to try something new. Thus, emergence can be seen on several levels: the emergence of confidence, the emergence of new relationships and the emergence of whole group behaviour.

Maturity is different from the other outcomes. It is not a self-contained characteristic but is inseparable from the components of confidence and interpersonal awareness. Asked what it meant to them, participants tended to refer to both of those components. It could simply be thought of as an indicator of the sum total of a pupil's attitudes, dispositions and competences. The increase in personal resource as a result of RAE that is evidenced in greater confidence and openness to others leads inevitably to a growth in maturity.

That combination of confidence and openness to others can be seen as a form of vitality: a feeling of being alive and receptive towards change. Mortlock (1984: 59) suggests that the hallmark of vitality is 'an open attitude to all the problems of life, and an optimistic approach to them'. While primary school pupils will not instantly achieve such a state of being as the result of a one week course, it may nevertheless start them on the road towards it.

For primary school pupils, maturity also reflects a reduction in the need for nurturing. However, it may not be easy for parents to recognize this and an enforced break from parental support would seem to be helpful in developing maturity. There were several examples during the interviews of parents being reluctant to "let go" and it seems that a formalized opportunity such as a residential facilitates that letting go. This was seen by several participants as a rite of

passage. Unfortunately, there is insufficient space to discuss this in the context of the literature on rites of passage (Van Gennep, 1960).

One of the most dramatic outcomes of RAE, and possibly the reason why it receives such support from teachers and parents, is the transformative effect, the unexpectedly large step change in confidence, the quantum leap that has been described. Exactly why this occurs is unclear. Headteacher B thought that "a big challenge is rewarded with that big jump in confidence". I suggest that it is more fundamental than that: it is a natural consequence of the complex system that underpins RAE.

Cilliers (1998) points out that non-linearity guarantees that small changes can have large effects. Synergy is strongly evident: 'In effect, a complex system is not just the sum of its parts, but the product of the parts and their interactions' (Davis and Simmt, 2003: 138). Non-linear change can be regarded as a phase change in which new behaviour quite unlike the old is suddenly "crystallised". Interestingly, one of only three references to complexity that I have found in the outdoor literature is on the subject of phase transitions (Watts, 2006). The step change is discussed further in section 5.1.

Whether or not these outcomes cause a change in attainment or in social and emotional competence is as yet unproven. However, evidence from this phase suggests that a residential does have a clear impact on behaviour in the classroom. Moreover, I suggest that any sensitivity about calling this transfer of learning is completely defused by viewing it, as Hager and Hodkinson (2009) do, as a complex, organic process of personal development, in which the pupil becomes, effectively, a different person by the end of the experience and will therefore naturally respond differently to his or her environment.

One possible mechanism by which changes catalysed by RAE might impact on the quality of subsequent work comes through the impact on the personal qualities which contribute to learning power (Claxton, 2002). There is a close match between the outcomes noted in this study and those qualities. RAE contributes to each of Claxtons 'Four Rs of learning power':

- resilience – there is a clear impact on perseverance and determination stemming from having achieved something difficult,
- resourcefulness - participants reported on pupils' eagerness to tackle something new and willingness to get on with things without being told,

- reflectiveness – a reflective review of performance is a standard part of many outdoor courses,
- reciprocity – interdependence, collaboration, empathy and listening can arguably be learned more effectively on an outdoor course than anywhere else.

It is interesting that Claxton reflects Lady Morris' observations on RAE: 'In one sense, BLP [Building Learning Power] is not just unfashionable, but decidedly old-fashioned. It is concerned with the development of *character.'* (Claxton, 2002: 57, original italics). The contested nature of the concept of character has been discussed in the literature review and there is no intention to debate that further here. However, it is included to illustrate the similarly holistic nature of both BLP and RAE.

In summary, I intended to encapsulate the essence of this discussion into a neat diagram. However, that proved impossible without simplifying the process in a way that loses its essence. Having tried and failed to do this, it was reassuring to recall having read that '... the linear narrative and the Euclidean image are inadequate to depict the emergence and the behavior of a complex form' (Davis, Phelps and Wells, 2004). Please forgive therefore the somewhat circuitous nature of my narrative and the absence of a simple diagram. My excuse is that residential adventure education is a complex system.

4.4 Results – phase 3

As well as enlisting the help of two headteachers from the interview phase, I sought the help of colleagues in the Association of Heads of Outdoor Education Centres to identify schools which were running residentials for years 4, 5 or 6 during the 2011 summer term. They suggested a total of thirty-three schools, all of which I contacted. Predictably, only a proportion of these agreed to help: in the end, nine schools participated. Those schools had attended eight different venues, which spanned charitable, local authority and private sector providers and self-organised provision.

A total of 232 pupils attempted the pupil impact questionnaire. However, quite a number omitted one or more questions: a total of 184 answered all the questions required for the principal components analysis. Many of the missed responses seemed to arise because pupils failed to follow across horizontally from question to answer: in the version of the questionnaire that has been made available for future use, extra spaces and guide lines were inserted to minimize errors.

Since the statistics used for analysis of the comparison data work satisfactorily with smaller samples, bearing in mind the extra work involved in providing the attainment or SDQ data, only some the schools involved were asked to contribute these. Attainment results were received for 35 pupils, 24 of whom had completed the pupil impact questionnaire fully. Completed pre- and post-course SDQ questionnaires were received from 31 pupils, 25 of whom had completed the pupil impact questionnaire fully.

Pupil impact - descriptive statistics

Strength of agreement with the pupil impact statements was measured on a four point scale, coded from 0 to 3, with 3 representing the strongest agreement. Attitude measurements are ordinal data, to which the mean and standard deviation do not strictly apply. However, Gardner points out that the distinction between ordinal and interval scales is not clear cut and concludes that 'In practice, because of the robustness of parametric techniques, treating ordinal data as if they were interval would be unlikely to lead to improper conclusions' (Gardner, 1975: 51). Therefore, I suggest that it is not inappropriate to use the mean and standard deviation to give a feel for the relative strength and unanimity of pupils' responses to the different statements.

		Mean	SD
Additionality 1	I did things I had never done before	2.31	.93
Additionality 2	Being in a new place was exciting	2.59	.66
Additionality 3	I liked having new things to do	2.72	.54
Awareness 1	I learned to listen to other people	2.30	.69
Awareness 2	I learned not to get cross with people	1.59	.99
Awareness 3	I got to understand other people better	2.13	.82
Challenge 1	I was scared but overcame my fear	1.57	1.12
Challenge 2	I did things I thought I couldn't do	1.98	1.03
Challenge 3	I learned not to give up	2.44	.77
Group 1	I helped my group to solve problems	2.22	.70
Group 2	I learned how to work in a team	2.38	.75
Group 3	Working with other people was easier than on my own	2.37	.79
Independence 1	I learned to look after myself	2.04	.81
Independence 2	I managed OK being away from home	2.62	.67
Independence 3	I found out I could do things on my own	2.15	.83
Instructor 1	Our instructors helped us to learn	2.67	.59
Instructor 2	Our instructors expected us to try hard	2.25	.75

Instructor 3	My instructor was good at getting us to do things	2.66	.57
Reflection 1	I learned things about myself	1.72	.93
Reflection 2	We had time to think about how we were doing	1.81	.84
Reflection 3	We thought about what we had done	2.16	.73
Support 1	I helped my friends more than I do in school	2.13	.72
Support 2	We had to look after each other	2.28	.76
Support 3	I learned to trust my friends	2.49	.74
Teacher 1	I saw my teachers in a different way	2.14	.82
Teacher 2	I got to know my teachers better	2.00	.85
Teacher 3	It was easier to talk to my teachers than it is at school	2.12	.87

In order of strength of agreement (with mean)

Additionality 3	2.72
Instructor 1	2.67
Instructor 3	2.66
Independence 2	2.62
Additionality 2	2.59
Support 3	2.49
Challenge 3	2.44
Group 2	2.38
Group 3	2.37
Additionality 1	2.31
Awareness 1	2.30
Support 2	2.28
Instructor 2	2.25
Group 1	2.22
Reflection 3	2.16
Independence 3	2.15
Teacher 1	2.14
Support 1	2.13
Awareness 3	2.13
Teacher 3	2.12
Independence 1	2.04
Teacher 2	2.00
Challenge 2	1.98

Reflection 2	1.81
Reflection 1	1.72
Awareness 2	1.59
Challenge 1	1.57

In order of degree of unanimity (with standard deviation)

Additionality 3	.54
Instructor 3	.57
Instructor 1	.59
Additionality 2	.66
Independence 2	.67
Awareness 1	.69
Group 1	.70
Support 1	.72
Reflection 3	.73
Support 3	.74
Group 2	.75
Instructor 2	.75
Support 2	.76
Challenge 3	.77
Group 3	.79
Independence 1	.81
Awareness 3	.82
Teacher 1	.82
Independence 3	.83
Reflection 2	.84
Teacher 2	.85
Teacher 3	.87
Additionality 1	.93
Reflection 1	.93
Awareness 2	.99
Challenge 2	1.03
Challenge 1	1.12

The first remarkable feature is that every single statement has, averaged across all participants, received more support than would be the case if replies were evenly spread across all points on the scale (1.5). I had expected a relatively large impact but the fact that the mean for all statements is above 1.5 is surprising. A series of chi-square tests showed that the distribution of responses to every statement except Challenge 1 differed significantly from a uniform distribution (for $\alpha = .05$) across all four points of the scale.

It is less surprising that the additionality and instructor statements generate the strongest support. They were also the most unanimous, something that makes them less useful from the perspective of discriminating between replies. The challenge statements had the highest spread of responses, showing that they were very significant for some and much less so for others.

Principal components analysis

All the statements were included in an initial principal components analysis (PCA) using SPSS. On checking the correlation matrix, no statement had a correlation coefficient greater than .9 with any other statements. However, the following statements all had fewer than four correlations greater than .3.

Additionality 2
Additionality 3
Challenge 1
Independence 2
Instructor 2
Instructor 3
Support 1
Teacher 1

They were therefore omitted and the PCA re-run. After this, the determinant of the correlation matrix was .002, giving Haitovsky's $\chi^2 = .35$, with 171 degrees of freedom. This is not significantly different from zero, raising the possibility of some multicollinearity. This is a justification for using PCA rather than factor analysis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is .895, which gives an excellent degree of confidence that the sample size is adequate. Bartlett's test of sphericity is highly significant ($p < .001$), indicating that the

relationships between the variables are sufficiently strong. These findings confirm that PCA is appropriate (Field, 2009).

Up to this stage, the PCAs were carried out using Kaiser's criterion: selecting on eigenvalues greater than 1. However, the average of communalities was only .53, suggesting Kaiser's rule may not be appropriate. To explore the alternatives, both a three factor solution and a four factor solution were forced. The three factor solution gave a worse average of communalities (.47) and explained only 47% of variance, compared with 53% with the four factor solution. Moreover, the scree plot levelled out after four, not three factors. Therefore, the final analysis was done by forcing a four factor solution.

After a varimax rotation, two clearly identifiable components were identified, together with two other less clearly identifiable components. A factor loading cut-off value of .4 was used, based on Stevens' recommendations for this sample size (Field, 2009: 644). Using this, none of the statements were duplicated in the first two components. Two statements were duplicated in the third and fourth components. Factor loadings are as follows:

	Component 1	Component 2	Component 3	Component 4
Group 3	.727			
Awareness 1	.643			
Awareness 3	.626			
Group 2	.591			
Awareness 2	.578			
Reflection 3	.574			
Reflection 2	.504			
Support 2	.499			
Reflection 1	.436			
Challenge 2		.812		
Additionality 1		.800		
Challenge 3		.464		
Instructor 1		.429		
Teacher 2			.735	
Teacher 3			.687	

Independence 3	.500
Reflection 3	.425
Challenge 3	.409

Group 1	.774
Independence 1	.480
Reflection 1	.418
Support 3	.410
Challenge 3	.404

By referring back to the content of the statements that make up the different components, it is possible to generalize their meaning as follows:

- Component 1 Living with others
- Component 2 Challenge
- Component 3 Teacher relationships
- Component 4 Learning about self

The first three seemed to have a fairly obvious meaning. It was less easy to ascribe a meaning to the fourth. However, close inspection shows that the component includes four of the seven statements that include the phrase "I learned" and that they are all orientated more to the self than to others.

Although it is possible to give each component a specific meaning, it is interesting that they all draw from several different statement categories, illustrating the breadth of impact that is perceived by pupils.

Reliability analysis

Cronbach's alpha calculations give the following results:

- Component 1 .820
- Component 2 .709
- Component 3 .704
- Component 4 .724

In every case, all values if any one item is deleted were less than the value with all items present and all items were therefore retained. A conventionally accepted minimum figure for acceptable reliability is .7 (Field, 2009). All four components were above this, with component 1 being particularly reliable. The scale as a whole is therefore considered to have satisfactory reliability.

Attainment measures

Three schools provided their formative assessment results in reading, writing and maths for the beginning and end of the period spanning the residential. Results were received for 35 pupils, 24 of whom had completed the pupil impact questionnaire fully. One school provided these in average point score (APS) format and the other two in National Curriculum sub-levels. The levels were converted to APS scores using the recognized DfE conversion scale (Primary Progress Toolkit, 2011) and the difference between start and finish of the period calculated. Before carrying out a correlation, the normality of the data was checked. There is no significant kurtosis in the attainment data but there is a significant degree of skewness ($p = .015$). There is also a very significant degree of kurtosis and skewness ($p < .005$) in pupil impact component 2 but the other three components are normally distributed. In view of the skewness of the attainment data, a non-parametric statistic was used throughout.

Using Spearman's rho, a significant correlation was found between attainment difference scores and component 1 (rho = .357, p = .043, one-tailed). A marginally significant correlation was found between attainment difference scores and component 3 (rho = .343, p = .050, one-tailed). There was no significant correlation between the attainment difference scores and pupil impact components 2 or 4.

SDQ analysis

SDQ scores were used in two ways. First, the pre- and post-course scores were compared. Second, the difference scores were compared with the pupil impact factors. Completed pre- and post-course SDQ questionnaires were received from 31 pupils, 25 of whom had completed the pupil impact questionnaire fully.

Although the published psychometric data for the SDQ reports acceptable reliability, it is good practice to carry out reliability tests on the data derived from the sample actually used. Cronbach's alpha figures were therefore calculated and found to be surprisingly low:

Emotional symptoms scale	.642	Removal of item 1 increases alpha to .651
Conduct problems scale	.625	There was no item whose removal increases alpha
Hyperactivity scale	.746	There was no item whose removal increases alpha
Peer problems scale	.736	Removal of item 2 increases alpha to .768
Prosocial scale	.543	Removal of item 4 increases alpha to .651

The three items whose removal increases alpha were removed, after which two were above the acceptable level of .7 and two were above .65. However, the conduct problems scale was not really reliable enough to use. A normality check was carried out on each of the four remaining scales and on the difference data. A Kolmogorov-Smirnov test shows that the hyperactivty pre-, post- and difference scores and the emotional symptoms difference scores are normal but all the other sets of data are not normally distributed. Therefore, with the exception of the hyperactivity data, it has been necessary to use non-parametric statistics. As the interview phase had suggested that there may be improvements in behaviour, one-tailed tests were used in this part of the study.

A paired-samples t-test was carried out on the hyperactivity data, showing that there was a significant improvement (reduction) in perceived hyperactivity from pre- to post-course ($p = .004$, one-tailed) with a medium effect size of .46. A Wilcoxon signed-rank test was carried out on the remaining data. There was a significant improvement in prosocial behaviour from pre- to post-course ($p = .002$, one-tailed) with a large effect size of .64. There was no significant difference in the other scales.

Each of the usable SDQ sub-scales was compared with each of the pupil impact factors using Spearman's rho. Four significant correlations were apparent. However, it is necessary to be critical about the validity of these correlations, partly because of the SDQ's less than ideal reliability figures and also because a proportion of multiple correlations will appear significant purely by chance. Looking at the strengths of the relationships, the sub-scale reliability figures and the scatterplots for the four correlations, only one appears to be strong enough and robust enough to allow for potentially spurious data. This is the correlation between the "living with others" factor and changes to the emotional symptoms scale (rho =. 517, $p = .006$, one-tailed). This is an unexpected finding, which is discussed further in section 5.1.

Variation of pupil impact across providers

As an incidental point of interest, an analysis of the variation in the degree of impact across the different categories of provider was carried out. The categories are charitable, local authority and private sector providers and self-organised provision. Quite surprisingly, there was a very significant difference in impact, with one category making much more impact than the others.

However, in view of the fact that this was not flagged up as an area for analysis to those who helped by providing data, it would be unethical to give any details. It is mentioned here as a possible area for future research using the pupil impact instrument.

5 CONCLUSION

5.1 Discussion

Before embarking on a discussion, it may be helpful to summarize the primary findings from each of the phases of this study.

From phase 1,

- 95% of English primary schools (±5%) offer at least one residential, a clear increase from the most recent reliable previous data, 86% in 2004.
- There is a small but significant correlation between the extent of residentials offered and a school's OFSTED grading.
- However, there is also a clear inverse correlation between the proportion of free school meals and the number of residentials: schools with more disadvantaged pupils offer fewer residentials. It is well known that such schools also have lower OFSTED gradings (OFSTED, 2010a).
- After controlling for free school meals, the correlation between residentials and OFSTED gradings disappears.

From phase 2,

- Residential adventure education is a complex process, with many interacting influences.
- Aspects of the process, explained in detail in section 4.3, include:
    - The nature of the learning environment, which contributes additionality and excitation.
    - Key energizing influences: the element of challenge and the social dimension.
    - Catalytic factors including the importance of the affective nature of the experience, its holisticity and the way in which factors interact with and reinforce each other.
    - Cementing factors including the memorability of the experience and the intrinsic nature of the reward.
- Outcomes include:
    - Confidence,
    - Interpersonal awareness,
    - Maturity,

    - Interaction effects, in which whole group behaviour emerges,
    - Transformative effects: a step change.
- Viewing residential adventure education as a complex system allows the possibility that the non-linear, transformative step change is a natural and inevitable consequence of the emergence that arises from the complex nature of the system.

From phase 3,

- The impact of a residential on pupils is made up of many different aspects of the experience which combine to create the impact.
- However, the impact can reliably be separated into four components:
    - Living with others,
    - Challenge,
    - Teacher relationships,
    - Learning about self.
- There were significant correlations between the pupil impact components "Living with others" and "Teacher relationships" and the differences in attainment between pre-course and post-course assessments.
- The sample showed a significant improvement in prosocial behaviour after a residential.
- The sample showed a significant reduction in hyperactivity after a residential.
- There is a significant correlation between the impact factor "Living with others" and a reduction in adverse emotional symptoms after a residential.

Referring back to the research questions, the findings summarized above answer the detailed questions specified for the three phases, including testing the hypotheses that were proposed. This section and the next discuss the implications of the findings for our understanding of residential adventure education and for its provision.

As discussed in section 3.1, good mixed methods research will achieve synergy through integrating the qualitative and quantitative elements, by comparing and contrasting data from the two approaches. I have tried particularly to adhere to O'Cathain's (2010) criteria for interpretive rigour. To me, the most striking combination of findings from phase 1 is that there is no evidence that residentials are linked with school outcome measures, yet they are more popular than ever, even in the current economic circumstances. It is clear that there is

no simple relationship with school performance, which suggests that headteachers value the contribution that residentials make for other reasons.

Both phase 1 and phase 2 showed that there is huge variation in headteachers' motivation for organizing residentials and that there is no consistent rationale. I would argue that headteachers have a tacit understanding that RAE can confer significant benefits but, because of the complexity of the process, find it difficult to express the rationale clearly. Instead, there seems to be a rationalisation of the decision, sometimes using relatively superficial reasons, which do not always have a developmental underpinning.

Phase 2 confirmed that residentials do indeed offer a rich variety of learning opportunities, opportunities that are not present in a classroom environment. The outcomes that headteachers and parents consider important are holistic rather than specific skills or competences. Nevertheless, that holistic growth is seen to have clear implications for classroom behaviour after the course. Looking at the process that takes place during a residential, it was possible to identify a number of elements that interact with each other to produce a complex system, with the non-linear, emergent characteristics that that implies.

Asking pupils themselves during phase 3 confirmed that the impact of a residential is multi-dimensional. The four components of impact that they perceived were consistent with those that had been suggested by their parents and headteachers. A particularly persuasive element of triangulation was that the two most important contributors (the social dimension and challenge) were the same in both the qualitative interview phase and the quantitative survey phase.

It was a pleasant surprise that it proved possible to confirm the hypothesis that there is a correlation between the impact of a residential on individual pupils and their attainment. This lends support to OFSTED's assertion cited at the start of this thesis. Interestingly, attainment is specifically associated with the two components of pupil impact that involve relationships with others. It is of course impossible to ascribe causality to this correlation. However, the finding is encouraging from the perspective of using attainment measures in future research, discussed in section 5.2.

Phase 2 had suggested that the social and emotional impact of a residential might be particularly strong, which led to the use of an instrument to measure aspects of social and

emotional development as part of phase 3. This confirmed the hypothesis that there would be an increase in prosocial behaviour after a course but it was unexpected and interesting that there seemed to be a reduction in hyperactivity. It is also interesting that there seemed to be a link between adverse emotional symptoms and the impact of a course in terms of living with others. This is of course exploratory research and these are only preliminary findings: research focusing on the findings more closely is necessary before any definitive conclusions can be reached. Indeed, to reinforce the synergistic potential of mixed methodology, further research would need to include qualitative research to understand what the tentative findings mean in more detail.

Several questions arise as a result of the findings:

- How important are the various contributors to the impact of RAE?
- How can the transformative impact be better understood?
- Does the research cast any light on the mechanism of transfer of learning?
- To what extent do the findings support the classical model of adventure education?
- What are the implications for providers and policy makers?
- What are the implications for future research?

This section considers the first four questions; the last two are considered in the next section.

It is clear from both the qualitative and the quantitative parts of this study that RAE is a complex process in which the components interact to produce synergistic outcomes. Whilst at a superficial level, this statement may seem to be stating the obvious, viewed from the perspective of complexity theory, new insights are possible.

A consequence of approaching RAE in this way is that it is unhelpful to think either in terms of discrete components or in terms of linear combinations of those components. Drawing together the evidence from phases 2 and 3, complexity is present at two levels. At a detailed level, the generalized descriptions of the impact, living with others, challenge, teacher relationships and learning about self, are all composite components. At a higher level of abstraction, those components can be seen to act recursively, mutually reinforcing each other.

For example, living with others provides an environment in which pupils are given the confidence to tackle something difficult and are supported by their peers in dealing with that challenge. One person's success encourages others to tackle the challenge and the shared

experience and “buzz” of achievement leads to an enhancement of the group’s energy level, increasing the potential impact of living with others, and thus creating a self-reinforcing cycle. Similarly, learning about self occurs from having successfully met a challenge. That learning is likely to influence the way that pupils interact, both with their peers and with their teachers, leading to further potential impact both in terms of living with others and teacher relationships. That in turn can encourage an openness to experience and a willingness to accept future challenges. Such recursive relationships can be seen as the behaviour of autopoietic beings in a social system described by Maturana and Varela (1980), in which each determines the properties of the other.

It is clear that any attempt to reduce that complexity to diagrammatic form, even with numerous feedback loops, will inevitably be a simplification. Moreover, that would not explain the phenomenon of emergence, which, as has been seen in section 2.8, arises automatically as a result of the interactions within a complex system. I argue that this study has revealed sufficient qualitative and quantitative evidence to be confident that RAE is a complex system. Therefore, having noted the behaviour of complex systems in other contexts, we can simply accept that emergence will spontaneously and inevitably occur.

An immediate implication is that we can expect non-linear step change. The dramatic growth in self-confidence that is apparent in many pupils should no longer be seen as puzzling but as a natural and unsurprising consequence of the complex system.

Whether that increase in self-confidence represents a mechanism for influencing subsequent attainment and, if so, how, is a more difficult question. Phase 3 has produced clear evidence that attainment is correlated with the impact of a residential in terms of living with others and teacher relationships (although this does not of course imply causality). Having gone to some length to establish the complex inter-relationships between aspects of a residential, it is necessary to consider critically whether it is appropriate to focus down on the specific components that correlated with attainment. It could be argued that, if the components of impact interact with each other as I have argued, it is inappropriate to separate out the specific components. However, it is interesting that both the components that correlate with attainment are to do with interpersonal relationships.

As discussed in sections 2.3 and 2.6, there is substantial evidence in the literature that broader developmental learning does impact on attainment in a number of contexts. This study has

produced initial evidence that this may also be the case with RAE. That is despite the fact that I only attempted indirectly to make a quantitative assessment of whether an effect on attainment can be observed, for reasons explained in section 3.1. A direct quasi-experimental approach may well produce definitive evidence of causality.

Although this study does not set out to explain the mechanism underlying transfer of learning, one idea from catastrophe theory may help to illustrate a possible interpretation of the non-linear way in which a growth in self-confidence might affect attainment. Figure 5 shows the cusp catastrophe, which has been introduced in section 2.8. For the purposes of this illustration, I have labelled the axes attainment, teaching input and confidence.

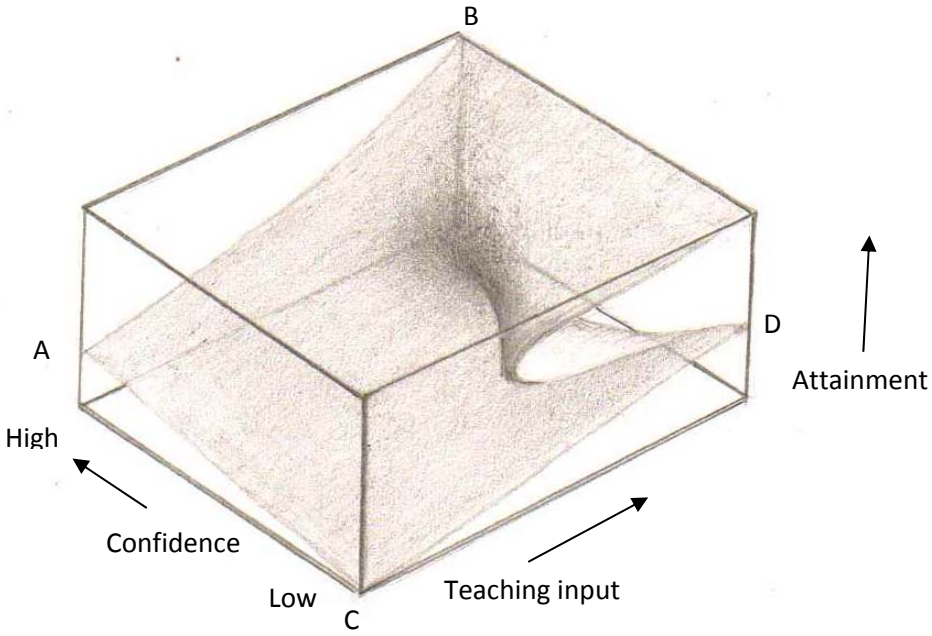

Figure 5: the possible impact of confidence on attainment

Consider first a pupil at point A with a high level of confidence. With added teaching input, that pupil's attainment rises smoothly to point B. Now consider a pupil with a low level of confidence at point C. Added teaching input allows the pupil to progress to an extent but, if the pupil remains on the lower part of the surface, a dead end is reached at point D, after having only improved marginally in attainment. However, a significant change in confidence allows that pupil to reach the upper surface, where attainment is no longer constrained. I suggest that the leap from lower to upper surface is unlikely to occur without some sort of external factor that causes a step change in confidence. My argument is that RAE causes such a step change and that this might in turn allow the pupil to reach levels of attainment that were previously inaccessible.

Barrett and Greenaway (1995: 19) consider that '... the group influence ... could be a more significant factor than either the 'outdoor' or the 'adventure' ingredients.' This study suggests that the process is more complex than that and that the ingredients interact with each other, leading to emergent behaviour which naturally gives rise to the step change in self-confidence that is such a distinctive outcome of RAE. As to the relative importance of the ingredients, phase 2 of the study suggested that the holistic aspect of a residential may be at least as important as the element of challenge for primary school pupils. Phase 3 appears to reinforce this suggestion. On the specific question of challenge, a comparative study of residentials with a greater and lesser degree of challenge would clarify this.

Challenge is of course as important in the classroom as it is outdoors. Indeed, in its new guidance for evaluating the quality of teaching, OFSTED (2011) places particular emphasis on the level of challenge provided. However, Upitis (2004) has pointed out how difficult it is in a school context to overcome constraints created by the traditional school environment. It may well be that one of the reasons for the support given by headteachers to RAE is that it allows them to break free of those constraints and offer real challenge to their pupils.

There is clear evidence of transfer of learning. Parallels with Claxton's work were noted in phase 2. Phase 3 shows an even stronger relationship. To recap, Claxton's four Rs of learning power are resilience, resourcefulness, reflectiveness and reciprocity (Claxton, 2002). Three of these can be directly related to the components of pupil impact, in the following ways:

- Challenge can contribute directly to resilience.
- Statements relating to reflection had a presence in three of the components of impact.
- Reciprocity is clearly an important part of the strongest single impact factor, living with others.

It is therefore considered reasonable to suppose that RAE can have a significant effect on pupils' learning power.

Dweck's (1999) research suggests another possible mechanism by which transfer of learning might be achieved. Bearing in mind that Dweck has shown that people respond differently to challenging situations, it is possible that pupils who have learned that they can take on a challenge and succeed might be influenced to believe that their abilities are not fixed but malleable, with a consequent nudge towards a mastery orientation. Certainly, persistence and resilience in the face of temporary setbacks post-course were noted in the interview phase.

Turning to the findings relating to social and emotional development, it is first necessary to express the need for caution in interpreting the results in view of the rather low reliability figures. Muris et al (2004) consider that the reliability of SDQ sub-scales emotional symptoms, prosocial and hyperactivity are acceptable, although they use a rather low indication of acceptability for reliability (Cronbach's alpha = .6). Data from this study show acceptable reliability for hyperactivity but emotional symptoms and prosocial reliability slightly below the acceptability limit that I have used in the rest of the study (Cronbach's alpha =.7).

With the caveat expressed, it was unsurprising to see the predicted improvement in prosocial behaviour. However, the reduction in hyperactivity from pre- to post-course was a surprise. No previous research has to my knowledge made a link with hyperactivity and that has exciting potential for further research. It should first be stressed that these are merely exploratory results: the findings cannot be generalized beyond the sample. Moreover, the findings are based on pupils' self-perception without an objective assessment of hyperactivity. To infer a change at population level, it would be necessary to sample more systematically and use an experimental or quasi-experimental design with a control group, ideally with a more objective measure. However, the findings are reassuring enough to encourage further exploration of the social and emotional impact. Bearing in mind that Durlak et al's (2011) meta-analysis of social and emotional learning programmes showed that such programmes significantly improve academic performance, further research might show that the social and emotional impact of RAE has a causal link with improved attainment.

A final finding from phase 3 was that there is a significant correlation between the impact factor "living with others" and a reduction in adverse emotional symptoms after a residential (for details of the emotional symptoms scale of the SDQ, see Appendix 8). This was an unexpected finding, particularly as there was no significant change in the emotional symptoms scale pre-course to post-course. That would appear to be because some pupils showed an increase in adverse emotional symptoms between pre- and post-course measurements and some showed a decrease. The correlation shows that those who perceived less of an impact from living with others portrayed more adverse emotional symptoms post-course, while those who perceived a strong impact showed fewer adverse emotional symptoms post-course. While that could be perceived as positive for those pupils who showed fewer symptoms, it implies an unsettling effect for other pupils. It also suggests that there is a degree of complexity in the emotional response that cannot be clearly illuminated by this research

design. Little research has been carried out on adverse impacts of adventure education and this finding suggests one possible approach.

Returning to the process by which a step change in self-confidence "kick starts" an improvement in attainment, self-confidence can be seen as a catalyst. One of the characteristics of a catalytic situation is that the catalyst remains intact at the end of the process. This is evident from the cyclical, self-sustaining, almost autopoietic process that would seem to exist: self-confidence leads to greater attainment which, in turns, leads to a growth in self-confidence. Kelso (1995) considers that instabilities are one of the generic mechanisms for changing behaviour. Viewed in phase space, the instability created through RAE leads to a phase transition in self-confidence in which the higher level of self-confidence has a deeper attractor well than low self-confidence. Once that state is reached, or, in other words, once the upper surface of the cusp catastrophe is reached, it is unlikely that self-confidence will slip back to the previous level.

There have been attempts to refresh the classic model of the process of adventure education and add new insights (eg Nichols, 2000, McKenzie, 2003, Baldwin, Persing and Magnuson, 2004). While these were helpful at the time, it is now evident that they do not go far enough. I would suggest that the process is, at the same time, both simpler and more complex than existing theories suggest. It is more complex by virtue of the need to recognize that there is a continuous interaction between the elements of the process in which components catalyse and reinforce the impact of each other in a way that cannot be described in linear terms, creating an environment in which new, transformative behaviour emerges. However, if we view it from a complexity theory perspective, outcomes that might be seen as unexpected from a classical perspective can be understood very simply:

- RAE is a complex system,
- Therefore emergence takes place, leading naturally and possibly inevitably to a transformative, non-linear step change in self-confidence, with the potential for substantial personal growth.

If RAE is seen as a web of influences interacting in a complex and synergistic way, with each individual element woven into the fabric of experience, its powerful impact is unsurprising.

5.2 Implications

This section makes suggestions for further research and discusses the implications of the study for policy and practice.

Further research

There has been very little research on residential adventure education for primary school pupils. Therefore, there are many different directions that future research might take. Now that the pupil impact questionnaire has been tested and found to be a reliable instrument with clearly identifiable components, it is available for future research. In fact, I have made it freely available to my colleagues in the Association of Heads of Outdoor Education Centres.

Among the many possible applications of the instrument are:

- Discover whether the degree of impact varies across the different types of centre.
- Investigate the impact of different programme content or approach.
- Consider the impact of different lengths of course.
- Discover whether boys and girls experience different areas of impact.
- Look closely at the role of challenge and compare the impact of the relatively modest aspirations of modern courses with a more traditional and adventurous approach.
- Discover whether there is any difference between the use of physical challenge and the intellectual challenge that might be found on a field study course.
- Compare the impact of courses that take place entirely within the grounds of a centre with those that take place in surrounding countryside.
- Once norms are established, the instrument could in fact be used as a form of quality control by individual centres.

In political terms, the finding that has most potential to influence policy is that improvements in attainment are correlated with the impact of a residential. One of the reasons for proposing this as a research question was to establish whether there is any potential in using attainment records as an outcome measure for RAE. Rather to my surprise, it seems that there is potential. In his interview, David Blunkett observed that, if research is to influence policy, it is important that it is related to the government's policy agenda at the time. Whether we approve or not, the current government has a strong focus on academic attainment. It therefore seems very appropriate to conduct further research on whether RAE influences attainment.

To establish causality, an experimental or quasi-experimental approach with a control group is needed. There are ethical issues in using random sampling in a purely experimental approach as well as practical issues in establishing a comparable control group. A compromise quasi-experimental approach would be to identify a school that is too big to send all its pupils on a residential at the same time. If pupils from the same year group attend a residential at different times, it would be possible to compare the two groups' attainment progress over time and see whether changes over the period that includes a residential differ from periods that do not. This has such potential impact on policy if a link is found that I intend to carry out this research personally to ensure that the research does in fact take place. Testing this with different age groups might also help to establish whether there are benefits in an intervention at any particular age.

Changes in social and emotional behaviour shown by the SDQ could also be explored further using a quasi-experimental approach. However, this area would benefit from a more in-depth approach, using a combination of qualitative and quantitative research to understand more fully what the changes are and the extent to which they might be caused by RAE. This applies particularly to the finding that there was a significant reduction in hyperactivity in the sample surveyed. If it could be established by further research that RAE makes a causal contribution to reducing hyperactivity, that would have important policy implications.

It would be helpful to follow up the potentially negative finding that pupils who perceived less impact from living with others portrayed more adverse emotional symptoms post-course. Very little research has been done on negative aspects of a residential and it would be valuable to discover how strong and how common negative effects are, for those who do not take to the approach.

There are a number of fascinating questions that have rather less practical application. One is the question raised in section 4.3 as to what extent parents' support and enthusiasm for residentials is an instinctive response, based on a sub-conscious recognition that the young of a species need to experience risk, and the lack of opportunity for that in today's over-regulated society. A positive finding might help to explain why Hahn's exhortation (discussed in section 2.2) is still seen as relevant. It would also be interesting to explore whether this is reflected in headteachers' reasons for organizing residentials.

This is related to the question of what makes residentials attractive to pupils. Residentials are typically sold to pupils, somewhat speciously, on the basis of fun and enjoyment. Most pupils do indeed thoroughly enjoy themselves but it is interesting that many have to overcome significant apprehension first. It would be interesting to explore whether there is an intuitive understanding, even among primary school pupils, of the need for challenge. Sandseter (2011) suggests that risky play has an evolutionary function: RAE has potential as a context in which to explore this idea.

Mechanisms for transfer of learning are under-researched. It would be interesting to discover whether pupils at the end of a residential might tend to make the transition, in Dweck's terms, from helpless, entity theorists to mastery orientated, incremental theorists. A question with more practical application would be to explore whether conscious attempts to relate the residential experience to everyday life through pre- and post-course classroom work enhance or detract from the outcomes. Varying ability to make abstract conceptualizations may well mean that this question has different answers depending on the age of the pupils and there is a surprising lack of hard evidence to underpin the widespread assumption (embodied in the Learning Outside the Classroom Quality Badge (LOtC Quality Badge, 2011)) that to articulate the question of transfer is universally helpful.

Finally, further research on whole person development would be valuable. This study has produced evidence that the personal development arising from a residential is holistic and multi-dimensional. However, one of the problems in promoting the idea of whole person development is that it is a poorly defined concept, with little clarity on what it means, what its characteristics are or what distinctive contribution it might make. Moreover, there is no clearly accepted way of measuring it and, in a performativity culture, that which cannot be measured is ignored. Research is needed to clarify our understanding of the concept.

Policy

Findings from phase 1 can be used to influence policy. The sampling method used means that the results can be generalized to the population of English primary schools. Thus, the fact that the number of schools that offer at least one residential shows a clear increase from the most recent previous data is useful evidence in support of the argument for RAE. Moreover, although the findings from phase 1 do not themselves demonstrate a link between residentials and attainment, evidence from phases 2 and 3 clearly shows that residentials have a positive developmental impact. Therefore, the fact that schools in more disadvantaged areas offer

fewer residentials (and have poorer OFSTED gradings) is strong evidence in support of the need to allow targeted support (such as the Pupil Premium) to be used to subsidize residentials for those pupils who would not otherwise be able to afford the experience.

Phase 2 has produced a wealth of evidence that RAE contributes to the second of the three statutory aims of the curriculum listed in section 2.1. This study has produced evidence to support every one of the nine outcomes that expand that aim.

From phase 3, the two findings that have most potential to influence policy are the link with attainment and the finding on hyperactivity. However, these are both only preliminary findings. It would be necessary to carry out the follow-up research suggested above before proposing political action. However, if attainment is found to be causally linked with attendance on a residential, that would form a very strong argument for RAE. Similarly, if the hyperactivity finding is substantiated by more detailed research, that has the potential to form the basis of a powerful case for using RAE as a non-pharmacological means of helping the increasing number of children who suffer from ADHD.

In view of the fact that there is no clearly accepted way of measuring whole person development, it is entirely appropriate that OFSTED should be challenged to clarify how, in practice, their inspectors judge the more holistic aspects of pupil development. OFSTED inspectors are required to take into account 'broader aspects of achievement, such as is reflected in the spiritual, moral, social and cultural development of pupils' (OFSTED, 2011: 6). In the context of an inspection regime that places strong emphasis on numerical indicators of attainment, evidence from this study can be used to argue the case that whole child development must not be sidelined.

Interview responses from David Blunkett and Lady Morris have of course been particularly helpful in suggesting ways in which it might be possible to influence policy. Their practical advice has already been useful in the lobbying activity that I undertake through the English Outdoor Council and I have communicated the key points in a presentation to an Institute for Outdoor Learning conference on strategic leadership. It was striking that both politicians are clearly convinced of the value of outdoor education and yet had only partial success in extending opportunities during their time as Secretary of State. It was clear that outdoor education is a very small fish in the sea of issues that they had to contend with.

Lady Morris pointed out that outdoor education was seen by government to make a social contribution rather than an educational one. Actions of the current coalition government suggest that is still the case. If the aspiration that outdoor education should become embedded within the curriculum is to come to fruition, the outdoor community needs to build the evidence base for the contribution that it makes to educational objectives. However, that is a long job. Even though a key motivation for this study was to find evidence that might be helpful in policy terms, it is clear that further research is needed before a persuasive case can be built.

In section 1.3, I stated my aspiration that the research would produce evidence that will be of some practical use in arguing the case at policy level for greater support for RAE. I suggest that the study has indeed brought together a range of evidence to show that RAE has a powerful educational impact on primary school pupils. It has reinforced my belief that all young people should have the opportunity to experience that impact and I intend to continue to lobby to that effect.

Practice

In the section on policy, quantitative findings were to the fore. In considering the study's impact on practice, it is possible to place more emphasis on the key conclusion from the qualitative phase: that RAE is a complex system. Gough (2011: 13) asks 'how might understanding our worlds and selves as open, recursive, organic, nonlinear and emergent make a 'different practice' possible for environmental education research?' In this section, I intend to ask the same question of adventure education practice.

There are two levels at which findings might influence practice. One is at Head of Centre level and is to do with how the aims and approach of the centre are articulated and communicated. The other is at instructor level and is concerned with making the most of the experience.

Heads of Centres perceive a tension between catering for what customers want and what is educationally valuable (Williams, 2004). However, this study shows that headteachers have a wide range of reasons for organizing residentials which are often vague and expressed in non- or quasi-educational terms. It could be that headteachers are aware of the holistic nature of the learning that is achieved through residentials and are reluctant to pin it down. One possible response is that providers should lead customers to what is educationally valuable. Another is that it may be counter-productive to be specific in terms of developmental

outcomes and better to emphasize the holistic nature of the experience. It is a difficult balancing act, since this study suggests that RAE may impact on attainment but, if it does, the impact happens as an indirect consequence of the broader personal development arising from the complex interactions experienced on a course. Therefore, I would argue that it is unnecessary to make a deliberate link with the curriculum.

Differentiating the approach used according to the age of pupils is clearly necessary. This study has made no attempt to assess whether RAE for older pupils has the same emergent quality that is apparent with the primary age group. However, it seems clear that, for primary pupils, the many aspects of the experience interact in a way that produces emergent, non-linear, transformative behaviour change. This study has shown that specific elements such as challenge are important in that process but that the impact of those elements is reinforced and catalyzed by other aspects of the experience. It is therefore vital that providers do not focus on any one aspect to the extent of losing the richness of interaction between the different aspects of a course.

Findings suggest that the developmental learning occurs naturally as a result of those interactions. It is therefore possible that explicit attempts to focus on the learning through process review may not be necessary, at least for the primary age group. It has certainly been suggested that one should be guarded about explicitly articulating the question of confidence in case young people develop a concern that they are under-confident (Craig, 2007). However, the comparative benefits of carrying out process reviews or letting the mountains speak for themselves have been surprisingly under-researched. This study has shown that reflection makes a contribution towards the impact of a residential but has made no attempt to establish whether this is enhanced by explicit attempts to facilitate the reflection. Further research is needed to establish the optimum approach for any particular age group, taking into account the complex interactions that have been demonstrated in this study.

After the interview phase, because of the spread of factors that impact on pupils, I wondered whether the degree of emphasis on any one factor was unimportant in quality terms and whether Cooper's (2007) concerns about the relative impact of a "fun" orientation and a developmental orientation were unfounded. However, three results from phase 3 caused me to conclude that he was right to be concerned. One is the fact that the components of impact identified suggested that serious developmental aspects of the course had most impact. A second is the fact that the pupil impact statement that occurs most often (in three of the

components) is “I learned not to give up “, suggesting that structuring the programme in order to allow pupils to demonstrate persistence in the face of challenge is important. The third is the fact that there were significant differences in impact across different provider categories. Further research is needed to identify the important factors in the differential impact. However, it seems clear that it is vital to include ample opportunities for interpersonal interaction and for challenge.

Turning to the implications of this study for instructors, there are two messages. First, as well as Heads of Centres ensuring that their programmes include adequate opportunity for social interaction and challenge, it is necessary that instructors present the activities in such a way that the level of social interaction and challenge is maintained. It is possible for an instructor to present a given activity in a way that intensifies or dilutes the degree of challenge. What happens at individual group level is as important as a well structured programme.

Second, an instructor should create the conditions for emergence to happen. Strategies to encourage emergence include:

- Maintain an open-ended approach. Do not “front-load” an experience with specific learning objectives but allow maximum scope for pupils to develop in different ways as they respond differently to the situation. Do not pre-judge how pupils will respond but be open to pupils developing in uniquely individual ways.
- Maintain an input of energy, remembering that energizing influences include both the element of challenge and the social dimension.
- Maintain an appropriate degree of disequilibrium. A variety of different challenges will achieve this but it is important to pitch the challenge at the right level. Expect a lot but ensure there is enough support that each pupil finds the challenge achievable.
- Make the most of the way that the different elements of a residential interact to catalyse emergence. Understand that pupils are feeling more than they are thinking. Recognize the vital contribution of interactions with peers and teachers and make sure there is enough opportunity for these. Create the opportunity for pupils to reflect on their experiences but without leading their thinking down a particular channel.
- Ensure that positive feedback loops exist. Praise effort rather than ability and encourage pupils to believe that they can change their level of achievement by their own efforts.

5.3 Contribution to knowledge and personal development

It is a University of Exeter requirement that the thesis shows evidence of originality and makes a distinct contribution to the knowledge of the subject area and that this is made explicit in the thesis. It is also a requirement that candidates include reference to the personal and professional development that they have experienced during the EdD programme. This final section seeks to meet those requirements.

Originality and contribution to knowledge

There has been little prior research on outdoor education for primary school pupils, particularly in the UK. Much of that which has taken place has adopted a very focused approach to a specific aspect of outdoor education such as environmental education. This study focuses specifically on residential adventure education, an area on which there have been few studies. Despite the fact that mixed methods have been advocated by previous researchers, few researchers in outdoor education actually take that methodological approach. Thus, the specific area of study and the use of mixed methods are both unusual. The combination of the two is original.

There are numerous aspects of the detailed approach that are original, including:

- Bypassing intermediate variables to look at behavioural change.
- Relating residentials to school level outcomes.
- Combining the three phases in a way that each builds on the previous one.
- Using the lens of complexity theory.
- Developing and testing an instrument to measure pupil impact.
- Comparing the impact on individual pupils with their classroom attainment.

Some specific ways in which this study has contributed to knowledge in the area are:

- Finding that the extent of residentials offered is not correlated at school level with school performance but is inversely correlated with disadvantage.
- Using the evidence of interview participants to illustrate the fact that RAE can be seen as a complex system, identifying factors that contribute to its impact, and showing that non-linear transformational leaps in confidence can emerge spontaneously and naturally as a result of that complexity.
- Making available for future use a reliable instrument to measure pupil impact.

- Finding that, within the sample used, changes in attainment were correlated at individual level with the impact of the residential, leading to the conclusion that it may be productive to use attainment records in future research.
- Flagging up a completely unexpected finding: that RAE may influence hyperactivity.

Personal development

This has been a fascinating journey. At the start, I was struggling to understand what discourses and paradigms mean and ideas such as epistemology and ontology were completely new. My reading notes were peppered with dictionary definitions of unfamiliar words. Today, although I still feel very much a new boy in academic terms, I am gaining a degree of confidence in navigating around this strange new world.

It has been a time of uncertainty. Dewey noted that the first stage of a new experience is typically 'perplexity, confusion, doubt, due to the fact that one is implicated in an incomplete situation whose full character is not yet determined' (Dewey, 1916: 114). Those were exactly my feelings. However, experience of dealing with many uncertain situations has helped me to develop a strategy for coping with such uncertainty: to live with and actively welcome the confusion, allowing the ideas and options available to funnel out in terms of breadth and not rushing to the stage of attempting to funnel back in towards greater certainty.

One of the greatest challenges was to work through the tortuous process of developing a personal philosophy in ontological and epistemological terms. On starting to look seriously at alternative philosophical approaches, I was initially frustrated with the almost tribal way in which protagonists of different approaches seemed to compete with each other. I had sympathy both with a non-positivistic objective reality and with the constructed nature of individual perception. I was therefore very relieved to discover an approach that bridges the gap between these beliefs, writing in my research diary 'In pragmatism, I have eventually found an epistemology that really strikes a chord'.

A second problem area that was particularly challenging was going firm on a research question. This may have been because I knew I had to justify it both to the outdoor community and academically. Its relevance to the outdoor community might not be relevant in strictly academic terms but I was nevertheless determined to find a research question and an approach that will be of some use to practitioners. I am reasonably happy that the final

results will make a contribution to the outdoor sector as well as producing new theoretical insights.

My thinking has changed in many ways. As one small example, I started with the view that self-esteem is a helpful way of measuring the impact of RAE. Further reading quickly convinced me that the construct has been heavily overused in outdoor education research and that it is inadequate as a stand-alone outcome measure.

Reading some texts has been daunting but my confidence to tackle increasingly challenging reading material has grown. I concluded in my research diary that 'It helps having read a very difficult book (Derrida) because, when one turns to a difficult book, it is merely difficult'. It has been reassuring that my reading notes have contained more challenges to the text and more observations on the way the text relates to my personal experience as time has gone by. Developing the habit of questioning the text consistently and actively and maintaining a constant scepticism has not been easy and I still need to work at this.

Knowing what to read has in itself been a learning experience. One of the biggest surprises has been the huge volume of published research in outdoor education. The volume was particularly surprising in a field I thought I knew well, at least in practical terms. However, I have been disappointed at the sparsity of rigorous, generalizable research and in the lack of coherence and inter-connectedness of much research in the area. To avoid falling into the same trap, I was keen to remain grounded through my perspective as an experienced practitioner and campaigner and to use that experience to good effect. In addition to the more dubious publications, there are of course many high quality research reports that have contributed a wealth of new ideas and it has been an ongoing process to modify my plans in the light of new reading.

Being encouraged to carry out deliberate reflection has been helpful. When teaching, I learned to use part of my mind for reflection in action in a way that became second nature: to monitor constantly whether the particular approach was working or whether change was needed. To do that is far less natural in an individual study situation, where it is easy to revert to a cocooned perspective and lose one's self-critical awareness. The research diary and requirements for reflective reviews have therefore been helpful by creating the discipline to stand back from the research on a regular basis.

While reflection has been helpful, I wholly agree with Brookfield who (drawing on Marx) says 'Reflection in and of itself is not enough; it must always be linked to how the world can be changed.' (Brookfield, 1995: 217). This relates to the question of professional development. As someone who has retired, my ongoing involvement could be seen as wholly amateur. However, I still chair two national organisations in the outdoor sector on a voluntary basis and view those roles as requiring a professional knowledge and approach.

One example of the way that the study has developed my approach to these roles is the way in which my reading influenced a recent presentation that I made to the Outdoor Education Advisers' Panel. Having absorbed the emancipatory emphasis of critical theorists, I had concluded that the outdoor education world should be more active in pressing for greater opportunity for participation in outdoor education. I therefore suggested to the conference that we are, in general, not angry enough and proposed ways in which they might push harder at the boundaries and challenge the status quo. As a second example, my role as Chair of the English Outdoor Council involves writing lobbying documents from time to time, with the aim of influencing politicians. In the most recent of these, I was able to draw heavily on my reading, making the document more evidence based than its predecessors.

In respect of writing, I wrote in my research diary that, on occasions, I was 'pleased at the ease with which writing poured out once I'd started' and I have found that those parts of my work which have been most positively received have been those which flowed out most naturally. Perhaps a learning point from this is that, if I have to agonize about a piece of writing, it is possible that I have not yet absorbed enough background knowledge to write confidently on the topic.

An interesting learning point has been what a great deal of care is necessary to take into account all the possible considerations that might impinge on a piece of research. Even when I felt I had thought things through reasonably well, there were two occasions when feedback during the pilot stage produced a surprise which indicated the need for modification. These were salutary reminders of how easy it is to be so close to your work that you fail to see a problem that is obvious to others. It has also become clear that, the more you know about a subject, the more evident it is how much remains unknown.

My whole life has been a series of adventures, in many different contexts. Tackling a doctorate has generated both the uncertainty and the absorption that has been characteristic

of all those adventures. To have weathered that uncertainty to reach a provisional conclusion has been similarly satisfying. It is with a sense of anticipation that is familiar from previous challenges that I look forward to tackling some of the further work that has been suggested by this study.

GRADUATE SCHOOL OF EDUCATION

Appendix 1 Consent form: interviews

This research forms part of a doctoral study which aims to understand more about the impact of residential adventure education on primary school pupils.

I should like to give you the following assurances:

there is no compulsion for you to participate in this research project and, if you do choose to participate, you may withdraw your participation at any stage,

any information which you give will be used solely for the purposes of this research project; as part of this project I will write a thesis and may write other publications,

unless you give permission to the contrary, all information you give will be treated as confidential and will be presented in the thesis and any publications in a way that does not allow readers to identify you as the source,

unless I seek permission to use your name, and you give me that permission, I will preserve your anonymity.

…….. .....
Randall Williams, Researcher Date

If you have any concerns about the project that you would like to discuss, please contact me on 01566 784455 or my Supervisor, Associate Professor Keith Postlethwaite, on 01392 724840.

I have been fully informed about the aims and purposes of the project and understand the above assurances.

…….. .....
Signature of participant Date

……
Printed name of participant

One copy of this form will be kept by the participant; a second copy will be kept by the researcher.

Data Protection Act: The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 1998. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher(s) and will not be disclosed to any unauthorised third parties without further agreement by the participant. Reports based on the data will be in anonymised form unless permission is given by the participant.

GRADUATE SCHOOL OF EDUCATION

Appendix 2 Consent form: pupil survey

I am engaged in doctoral research which aims to understand more about the impact of residential adventure education on primary school pupils. As [name of school] is particularly keen on residential adventure education, [name of Headteacher] has kindly offered to help with the research.

If you are willing, I should like to ask all pupils who are about to visit [name of residential provider] to help. This will involve filling in a simple questionnaire about their social and emotional development before the visit. Then, a couple of weeks after the visit, I would like them to repeat this questionnaire and answer another questionnaire to see what aspects of the course had most impact on them. This will allow me to judge what aspect of the course has most impact on pupils' social and emotional development. I also propose to compare the results with the school attainment records to see what aspect of the course has most impact on pupils' attainment.

No pupil will be identified – the results will be completely confidential and anonymous. If you are happy for your son or daughter to take part, please complete the form below and return it to school. Thank you.

Randall Williams

I am willing for my son/daughter to take part in this research.

_____	_____	_____
Name of pupil	Signature of parent or guardian	Date

If you have any concerns about the project that you would like to discuss, please contact me on 01566 784455 or my Supervisor, Associate Professor Keith Postlethwaite, on 01392 724840.

Data Protection Act: The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 1998. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher and will not be disclosed to any unauthorised third parties. Reports based on the data will be in anonymised form.

Appendix 3 Phase 1 questionnaire

13 Hornapark Close
Lifton
Devon
PL16 0BE

Name of Headteacher
School

Dear Name of Headteacher

This is probably the shortest request for help with research that you have ever received.

That's because, as a recently retired NAHT member, I'm very aware of your workload. However, I would really appreciate a couple of minutes of your time to contribute evidence to the doctoral research that I'm undertaking at Exeter University.

I'm trying to establish whether there is any link between the amount of residential learning outside the classroom offered by a school and the school's publicly available outcome measures. If you are willing to help, I should like to assure you that no school will be individually identified.

Do your pupils have the opportunity to attend any activity organised by the school which involves spending the night away from home? Yes ☐ No ☐

If so, please answer the following questions.

During the whole of their time in Key Stage 2, how many nights away on residential activities will your current year 6 pupils have had the opportunity to experience? ☐

How many of these nights away (if any) take place after Key Stage 2 SATs week? ☐

What are the main reasons that you offer this opportunity?

_____

_____

_____

_____

Thank you very much for taking the trouble to reply. Do feel free to add further comments overleaf if you would like to.

Yours sincerely,

Randall Williams

Appendix 4 Summary of free text replies to phase 1 questionnaire

	Number of replies
To give new experiences	109
Experience adventurous activities	25
An opportunity/experience they wouldn't get at home	23
Widen horizons/new experience/broaden experience	16
Being away from home (often first time)	14
Challenge	11
Learn new skills	6
Different environment	4
Risk taking in safe environment	3
Problem solving	3
Healthy experience	
Adventure	
Experiencing the countryside	
Part of growing up	
First hand experience	
To develop specific personal qualities	106
Independence	46
Confidence	19
Self-esteem	15
Responsibility	4
Creativity	3
Self-reliance/self-management	3
Self-awareness/self-reflection	2
Perseverance/tenacity	3
Strength of character/develop personality	3
Personal organisation/responsibility	2
Physical development	
Leadership	
Patience	
Motivation	
Thinking skills	
Determination	
Social development	108
Teamwork skills/teambuilding	45
Develop social skills/build relationships	14
Co-operation/collaboration	9
Bond with peers	7
Friendship/being together/socialising	6
Life skills	5
Relationship with staff	6
Team building at start of year	4
Learn to live with peers	3
Tolerance/understanding	2
Improve cohesion	
Cultural cohesion	
Develop community feel	

Inclusion	
Meeting children from other schools	
Community cohesion	
Trust	
Curriculum related	68
PSHE/PSED	20
Enrich curriculum	17
Links to curriculum	13
Outdoor aspects of curriculum	8
Foreign language support/experience another country	5
Cultural activities	3
Develop the 'hidden curriculum'	
Linguistic opportunities for EAL children	
Individually orientated general aims	26
Transition to secondary school	6
Every Child Matters outcomes	3
Give children the chance to excel	3
Personal skills	2
Set standards	2
Raise standards of achievement/attainment	2
First use of cutlery	
Personal development	
Moral development	
Spiritual development	
Self-help skills	
Raise aspirations	
Develop the whole child	
Learning about themselves	
Non-educational aims	28
Fun	18
Reward/treat	5
Tradition	3
Celebration/closure at end of primary school	2
Parental demand	
One defensive reply - staffing and financial implications	
Total	445

Appendix 5 Initial coding for phase 2

Reasons for using residentials

Emphasizing the experience itself
- Broaden horizons
- Coping with discomfort
- Does them good to go away from home
- Experience of adventure
- Experience of outdoors
- Away from home
- Giving experiences
- Learning to manage risk
- New skills
- Opportunity parents can't provide
- Physical activities
- Risk taking
- Something they ought to experience

Social development
- Bonding at start of year
- Inter-cultural
- Learning about each other, get to know each other
- Learning to live together
- Male role model
- Shakedown
- Social development
- Teachers and pupils see each other in new light
- Team building

Developing specific personal qualities
- Confidence building
- Independence

Curriculum related
- Enriching curriculum
- PE curriculum
- PSHE

Non-educational aims
- A jolly
- An expectation
- Celebration
- Personal passion
- Taster
- Tradition

Other comments
- Essential part of a child's education
- Formal structure of schooling a barrier to learning
- Influence of policy or guidelines
- Less academic
- Memorable
- Need when children spread their wings
- No one reason more important
- Not influenced by guidance
- Part of the school culture
- Particularly good for disadvantaged
- PSHE
- Shakedown
- Showing leisure opportunities
- Single parent families
- Something they're good at
- Taster
- Transition to secondary school
- Values
- Volunteering
- What's best for the children
- Whole child education

Contributors to the impact

Challenge
- Adventurous activities
- Big challenge - big jump in confidence
- Challenge
- Challenge by choice
- Comfort zone
- Deep end
- Did something that required persistence
- Did something they thought they couldn't
- Embrace the challenge
- Enjoy challenge
- Everyone has different challenge
- Grappling mentally
- Hardship
- How to cope with failure
- Importance of failing for able children
- Managing risk
- Overcoming fear
- Personal satisfaction
- Physicalness
- Possibly more impact when nervous
- Process of facing a challenge
- Reality of safety situation
- Slightly frightening
- Unwrap the cotton wool

Social
- Communal aspects
- Empathy
- Getting on better
- Getting to know each other better
- Group living
- Group pressure (softly explained)
- Impact on only child
- Importance of a laugh
- Importance of shared experience
- Listening
- Love and affection
- New friends
- Ostracise
- Pupils see staff differently
- Shared experiences
- Staff see pupils differently
- Reliant on others
- Taking it in turns
- Talking about it
- Team activities
- Team building
- Turn taking
- Working together
- Working with new people

Independence
- Away from family influence
- Being independent
- Coping with being away from home
- Cope without too much hand-holding
- Element of commitment – not going home
- First time away from home
- Having to make new relationships
- Make decisions for themselves
- Responsible for own actions
- Self-reliance

Reflection
- Diary
- Learning about themselves
- Reflection
- Reflection possible in residential
- Reviews during the course
- Understanding what's happening to them

Support
- Encouragement from peers
- Encouragement from staff
- New person supporting them - independence
- Support
- Supporting each other

Novelty
- Away from normal routine
- Difference
- Eating anything
- New food
- Such a different experience

Success and achievement
- A buzz you give yourself
- Bouncing back
- Enjoyment
- Excitement
- Full on experience
- I can do anything
- Memorable
- Something they're good at
- Succeeding

Contrasts with school
- Difficulty of providing first hand experience in school
- Difficulty providing enough challenge in school
- Fitting the model behaviour template
- Holding down effect of school
- Is the school the shallow end
- Little chance in school to see things as they are
- Possible spoon feeding in school as well as home
- Value of an external impetus
- Why does that degree of challenge have to be special

A combination
- Combination
- Layers of things
- No one thing
- Synergistic nature of the experience

Other contributors
- A career possibility
- Come into their own
- Context
- Different for each child
- Element of choice
- Exploration
- First hand experience
- Gradual nature of developmental process
- Importance of direct experience

- Instant reward
- Kids homogenize upwards
- Level playing field
- Learning to learn
- Life-changing experiences
- Losing face
- Low intensity OK
- Makes learning concrete
- Making mistakes
- Personality change
- Rite of passage
- Rules and expectations
- Relation to school based PSHE
- Role reversal
- Unanticipated strengths

Outcomes

Attitudes

- Aspirations
- Attitude to learning
- Broader horizon
- Changing attitude
- Engage with things more readily
- Have a go
- Inspiration
- Keen to talk about the experience
- Mature behaviour
- More laid back
- More open
- Open minded
- Positive outlook
- Purposeful
- Ready for transition
- Relish
- Responsibility
- Take responsibility for problems
- Up for a challenge
- Up for anything
- Want to be given a task

Cognitive aspects

- Better relationship spills over into rest of schooling
- Broaden curriculum
- Coping strategies
- Deferred impact on attainment
- Different choices
- Get on with things without being told
- Helps academic
- High quality work
- Improves attainment
- Independent learning increases
- Learning about risk
- Link with school performance
- Logical thinking
- More engaged
- Problem solving
- Stuff to write about
- Wider than academic
- Will to learn
- Work skills

Confidence

- Attempt things for themselves
- Can do philosophy
- Challenge the boundaries
- Confident with adults
- Cocky
- Confidence
- Enjoyment of learning
- Fearlessness
- Feeling happy
- Fewer nerves in presentations
- Independence
- Interaction effects of confidence - complexity
- Looking people in the eye
- More assertive
- More secure, try harder
- No impact on school work
- Personal presence
- Self-belief
- Self-esteem
- Taking leadership role (older)
- Willing to come up front
- Willing to engage in new things
- Willing to join clubs
- Willing to offer answers
- Willing to work with teachers
- Willing to express feelings
- Willing to engage in conversation and dialogue

Other intra-personal outcomes

- Allow them to blossom
- Bravery
- Cut the apron strings
- Deferred awareness of impact
- Effect on brashness
- Emergent behaviour - complexity
- Emotionally stronger
- Excitement
- Growing up as transition

- Lack of negative outcomes
- Learn about themselves
- Learn about their limitations
- Learning about risk
- Learning skills
- Life skills
- Life-changing experience
- Long term effect
- Maturity
- Memorable
- Negative effects
- Opportunity to be away from home
- Pride at having gone through it
- Puts them up a whole notch - complexity
- Reframing other people
- Reframing yourself
- Reliving the experience
- Rite of passage
- See themselves differently
- Sense of adventure
- Shaped career
- Starting afresh
- Taking up activities
- Telling the story – especially of others
- Unexpected
- Unwrap the cotton wool
- Well being
- What makes them tick

Inter-personal outcomes

- A great leveller
- Better relationship with staff
- Bonding
- Breaks down barriers between teachers and pupils
- Building new relationships
- Buzz
- Camaraderie
- Closeness as a group
- Collective risk
- Change the dynamics
- Common language of experience
- Consideration
- Consulted each other
- Easier relationship with difficult pupils
- Empathy
- Friendship
- Group dynamics
- Groupwork improves
- Having to work in a group
- Helping a child with a problem
- Helps integrate oddballs
- Improved relationship between teacher and pupils
- Know if a child's having problems
- Leadership
- Listen to a variety of options
- Listening
- Makes grouping easier
- More likely to approach teacher
- More tolerant
- More tightly knit
- More willing to get on with people
- New relationships
- New respect
- New working groups
- Not discounting quieter pupils
- Pupils see each other differently
- Pupils see staff differently
- Pupils understand why a teacher is cross
- Removes divisions
- Respect
- Socialisation
- Social skills
- Staff know pupils better
- Staff see pupils differently
- Stronger relationships
- Team building
- Team skills
- Tolerance
- Trust
- Understanding
- Understanding each other
- Viewed differently by peers
- Work together as teams
- Whole relationship
- Working together as a group

Persistence/Resilience

- Battle through
- Continuing with an activity
- Determination
- Discipline
- More able to cope with challenge
- More able to cope with change
- Perseverance
- Resilience
- Tenacity

Specific outcomes

- Able children
- All children benefit
- Delors parallel
- Surprisingly positive response from

challenging pupils
- Value for SEN

Whole class outcomes
- Family feeling
- Gelling as a class
- Whole group response to individuals
- Whole shifting of the peer group

Organisation and policy issues

Organisation
- At start of academic year
- Building on the change
- Challenge in the classroom
- Classroom follow up
- Classroom preparation
- Cost
- Curriculum link
- Differentiating experiences
- Everyone goes
- Expectations on parents
- Heads as advocates
- Health and safety
- Inclusivity
- Influencing staff
- Minority involvement
- Parental resistance
- Parents paying
- Positive feedback from the children
- Post-course review
- Progressive range of experiences
- Questioning school practice
- Replaced with non-residential
- Specific effort to make the link
- Subsidy
- Teacher reinforcement
- Uptake
- Value for time
- Year 4 not too young

Pre- and post-course

- A source of praise
- Dyslexic
- Excited
- Expectation, competition, wanting to
- Follow up
- Glad you encouraged me to go
- Importance of working to maintain the effect
- Lack of anxiety
- Liveliness
- Looking forward to it
- Loved it
- Motivating effect of follow-up work
- Nervous about being away from home
- Nervous about social side
- Pre-existing relationships
- Pupils' response pre-course
- Sense of purpose
- Some anxious
- The residential as an aspiration

Policy perspective
- A club of people who do it
- An educational NICE
- Character forming
- County support
- Direct impact on academic subjects
- Essence of school improvement
- Failure to evaluate impact on society
- Failure to fund centres
- Getting informal learning to relate to formal
- Good for discipline
- Guidance as ammunition
- Helping schools to judge how they're doing
- Importance of lobbying
- Independent schools do it
- Lack of continuity with school
- Levers to change behaviour
- Limitations of the generic Connexions tutor
- Looking for alternative to gradgrind
- Making the link with broader educational development
- Maths is not self-sustainable
- Ministers' personal preferences
- Need for a lever
- Need for clarity of communication
- No culture of expectation
- Not either or
- Not evidence based
- Over-riding priorities trump others
- Personal experience in policy formation
- Policy as self-defence for Head
- Pupil guarantees
- Really successful
- Research counter-intuitive
- School choice - younger pupils
- Schools will buy it back
- Serendipitous
- Social cohesion route

- Some central funding
- Squeezed out of the National Curriculum
- Type of research needed
- Value for money
- Voice of the teacher
- Volunteering
- Watering down

Transfer of learning

Measuring
- A subjective judgment
- Absence of attitude measure for school generally
- Affective - cognitive
- Approaches to measuring
- Many things impact on attainment
- Measuring social and emotional development
- Measuring the change
- Size of effect
- Unaware of impact

Transfer
- Applying lessons of failing
- Aware they have moved on
- Awareness of transfer
- Cognitive affective link
- Complexity
- Developing a habit
- Did something you thought you couldn't
- Embedding the learning
- Emotional impact
- Emotionally stable helps cognitive
- Engagement
- Excitement
- Making transfer conscious
- No fear of other cultures
- Passion
- Reinforcement
- Sharing
- Snowball effect - complexity
- Subliminal transfer
- There is a lot
- Values
- Wanting to please
- Willing to try

Participant perceptions

Headteachers' perceptions
- Anything's possible
- Belief that it helps attainment
- Clarity of observations of change
- Changing attitudes among staff
- Contrast between large claims and subtle effects
- Does she understand his perception?
- Emotional conviction
- Enthusiasm
- Explanation of maturity
- Genuine uncertainty as to why it works
- Head's initial teacher training
- Head's nervousness
- Impact on school
- Importance of anxiety
- Importance of group interaction
- Interesting degree of enthusiasm
- Learning from failure
- Making abstract ideas concrete
- Memorable simply by being special
- Not surprised by the transformation
- Playing to staff strengths
- Safety not an issue
- Struggling with everyday things
- Teacher commitment
- Teacher's personal experience
- Unpredictability of who will shine
- Up for any challenge
- Up for anything
- Wholeness of their experience
- Why do they vary it?

Parents' perceptions
- Being away from Mum is good
- Confidence is the biggie
- Enjoyment vs learning
- Experience of other children says it's worth it
- Good for them socially
- If they enjoy it they get a lot out of it
- Increasing resistance to longer trips
- Influencing parents
- Instinctive
- Nervous about safety

- Nervous, worry
- Not in control
- Not nervous
- One reason for choosing the school
- Outcomes for parents
- Parent reaction
- Parental feedback
- Parents hear about the benefit from others
- Parents letting go
- Parents' own needs
- Parents see as antidote to cotton wool
- Parents see it as beneficial
- Protective parents
- Residentials are important and valued
- Slide show eagerly awaited
- Staying with family is different
- Worth the money
- You do your best for them

Here is a list of things you may have done or felt when you were away. I'd like to know how much each of these applies to you. Draw a circle around the answer that is closest to what you think. If you don't think an item applies to you, draw a circle around not at all.
This example shows you what to do if you think the item applies to you quite a bit.

I had things to eat that I had not tried before	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot

---

Now please write your name here then go down the list saying how much each item applies to you. There are no right or wrong answers – I just want to know what **you** think.

NAME _____

I learned to look after myself	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I helped my friends more than I do in school	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
We had time to think about how we were doing	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
Our instructors helped us to learn	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
Being in a new place was exciting	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I saw my teachers in a different way	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned not to get cross with people	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I was scared but overcame my fear	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
Working with other people was easier than on my own	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
We had to look after each other	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I got to know my teachers better	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned how to work in a team	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot

We thought about what we had done	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned to listen to other people	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I did things I thought I couldn't do	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I liked having new things to do	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
It was easier to talk to my teachers than it is at school	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I got to understand other people better	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I did things I had never done before	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
Our instructors expected us to try hard	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned things about myself	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I managed OK being away from home	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned not to give up	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I helped my group to solve problems	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I learned to trust my friends	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
I found out I could do things on my own	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot
My instructor was good at getting us to do things	◎ Not at all	✓ A little	✓✓ Quite a bit	✓✓✓ A lot

Thank you very much for helping me to do this work.

Appendix 7 **Strengths and difficulties questionnaire**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft!

Name _____ Date _____

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings	☐	☐	☐
I am restless, I cannot stay still for long	☐	☐	☐
I get a lot of headaches, stomach-aches or sickness	☐	☐	☐
I usually share with others (food, games, pens etc.)	☐	☐	☐
I get very angry and often lose my temper	☐	☐	☐
I am usually on my own. I generally play alone or keep to myself	☐	☐	☐
I usually do as I am told	☐	☐	☐
I worry a lot	☐	☐	☐
I am helpful if someone is hurt, upset or feeling ill	☐	☐	☐
I am constantly fidgeting or squirming	☐	☐	☐
I have one good friend or more	☐	☐	☐
I fight a lot. I can make other people do what *1* want	☐	☐	☐
I am often unhappy, down-hearted or tearful	☐	☐	☐
Other people my age generally like me	☐	☐	☐
I am easily distracted, I find it difficult to concentrate	☐	☐	☐
I am nervous in new situations. I easily lose confidence	☐	☐	☐
I am kind to younger children	☐	☐	☐
I am often accused of lying or cheating	☐	☐	☐
Other children or young people pick on me or bully me	☐	☐	☐
I often volunteer to help others (parents, teachers, children)	☐	☐	☐
I think before I do things	☐	☐	☐
I take things that are not mine from home, school or elsewhere	☐	☐	☐
I get on better with adults than with people my own age	☐	☐	☐
I have many fears, I am easily scared	☐	☐	☐
I finish the work I'm doing. My attention is good	☐	☐	☐

Thank you very much for your help

Appendix 8 Allocation of SDQ statements to sub-scales

	Not True	Somewhat True	Certainly True
Emotional symptoms scale			
I get a lot of headaches, stomach-aches or sickness	0	1	2
I worry a lot	0	1	2
I am often unhappy, downhearted or tearful	0	1	2
I am nervous in new situations	0	1	2
I have many fears, I am easily scared	0	1	2
Conduct problems scale			
I get very angry and often lose my temper	0	1	2
I usually do as I am told	2	1	0
I fight a lot	0	1	2
I am often accused of lying or cheating	0	1	2
I take things that are not mine	0	1	2
Hyperactivity scale			
I am restless. I cannot stay still for long	0	1	2
I am constantly fidgeting or squirming	0	1	2
I am easily distracted	0	1	2
I think before I do things	2	1	0
I finish the work I am doing	2	1	0
Peer problems scale			
I am usually on my own	0	1	2
I have one good friend or more	2	1	0
Other people my age generally like me	2	1	0
Other children or young people pick on me	0	1	2
I get on better with adults than with people my age	0	1	2
Prosocial scale			
I try to be nice to other people	0	1	2
I usually share with others	0	1	2
I am helpful if someone is hurt, upset or feeling ill	0	1	2
I am kind to younger children	0	1	2
I often volunteer to help others	0	1	2

Appendix 9 Ethical approval

STUDENT HIGHER-LEVEL RESEARCH

UNIVERSITY OF EXETER

Graduate School of Education

Certificate of ethical research approval

STUDENT RESEARCH/FIELDWORK/CASEWORK AND DISSERTATION/THESIS
You will need to complete this certificate when you undertake a piece of higher-level research (e.g. Masters, PhD, EdD level).

To activate this certificate you need to first sign it yourself, and then have it signed by your supervisor and finally by the Chair of the School's Ethics Committee.

For further information on ethical educational research access the guidelines on the BERA web site: http://www.bera.ac.uk/blog/category/publications/guidelines/ and view the School's statement on the 'Student Documents' web site.

READ THIS FORM CAREFULLY AND THEN COMPLETE IT ON YOUR COMPUTER (the form will expand to contain the text you enter). **DO NOT COMPLETE BY HAND**

Your name:	Randall Williams
Your student no:	580036307
Return address for this certificate:	13 Hornapark Close, Lifton, Devon, PL16 0BE
Degree/Programme of Study:	EdD
Project Supervisor(s):	Associate Professor Keith Postlethwaite Dr Deborah Osberg
Your email address:	randall@avius.org
Tel:	01566 784455

I hereby certify that I will abide by the details given overleaf and that I undertake in my thesis to respect the dignity and privacy of those participating in this research.

I confirm that if my research should change radically, I will complete a further form.

Signed: R Williams **date:** 7-12-10

***NB** For Masters dissertations, which are marked blind, this first page must **not be included** in your work. It can be kept for your records.*

Chair of the School's Ethics Committee
last updated: August 2009

Certificate of ethical research approval

Your student no: 580036307

Title of your project:

The impact of residential adventure education on primary school pupils

Brief description of your research project:

It will be a three phase, mixed methods study. Phase 1 will test the hypothesis that there is a correlation between the extent of residential opportunities offered in English primary schools and school performance measures. A survey will be used to establish the extent of residential opportunities in schools sampled and this will be compared with publicly available data on school performance.

Phase 2 will be a qualitative study to explore whether primary school headteachers, parents, HMIs and politicians perceive there to be a change in pupils' behaviour following a residential adventure programme and to explore their views on the rationale for and benefits of residential adventure education. It will consist of a series of semi-structured interviews.

Findings from phase 2 will inform phase 3. This will establish whether there is an association between pupils' perception of their residential experience and changes observed by their teachers' since the residential. Pupils' perception of their experience will be measured through a self-perception instrument tailored to the age group and the situation being researched. Teachers' assessment of progress may well draw on formative assessments made as a routine part of their work.

Give details of the participants in this research (giving ages of any children and/or young people involved):

The survey used in phase 1 will be addressed to headteachers of primary schools. Phase 2 will primarily involve headteachers in primary schools and parents of primary school pupils. Interviews will also be sought with a small number of HMIs and politicians. Phase 3 will involve both class teachers and year 6 pupils (aged 10 to 11) in a small number of volunteer primary schools.

Give details regarding the ethical issues of informed consent, anonymity and confidentiality (with special reference to any children or those with special needs)

Steps to ensure ethical acceptability will be based on the British Educational Research Association revised ethical guidelines (2004).

The survey used in phase 1 will include a simple statement of how the data will be used, with an assurance that schools will not be individually identified.

Those involved in phase 2 will receive a written summary of the aims of the research together with a consent form based on the model consent form published by the Graduate School of Education, the content of which will be agreed by my supervisor. There is the potential for breach of privacy of school staff and pupils during this stage and participants will be assured that confidentiality will be respected and that all reference to teachers and pupils will be anonymized.

Parents of pupils involved in phase 3 will receive a simplified summary of the aims of the research together with a tailored version of the consent form. In addition, the informed consent of pupils will be sought after a verbal explanation of the research, in language which is accessible to year 6 pupils. Both parents and pupils will be asked to give permission for the teacher to release a judgement of

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classroom progress. They will be assured that the data will be used in aggregate form only and that no individual pupil will be identified.

Give details of the methods to be used for data collection and analysis and how you would ensure they do not cause any harm, detriment or unreasonable stress:

Surveys used during phase 1 will be extremely short, to facilitate a good response rate as well as minimising the burden for recipients. Initial circulation and response will be postal, with telephone follow-up for non-respondents. Analysis will be by standard statistical tests using SPSS.

Phase 2 interviews will (with the permission of participants) be recorded on digital media. Agreed durations will be strictly adhered to and an expressed wish to stop at any stage will be respected. The data will be coded and analysed using a grounded theory methodology.

The self-perception instrument used for phase 3 will be piloted in the presence of the researcher, who will ensure that neither the format used nor the questions asked cause pupils to dwell on negative experiences or otherwise cause unreasonable stress. After the pilot, in some schools, it will be administered by selected class teachers. Analysis will be carried out using SPSS.

Give details of any other ethical issues which may arise from this project (e.g. secure storage of videos/recorded interviews/photos/completed questionnaires or special arrangements made for participants with special needs etc.):

Completed surveys, self-perception questionnaires, teacher feedback, interview recordings and notes made during the analysis will all be kept securely at the researcher's home. If there are any pupils with special needs in the classes that participate in phase 3, the researcher will be guided by the class teacher in the appropriate approach to take.

Give details of any exceptional factors, which may raise ethical issues (e.g. potential political or ideological conflicts which may pose danger or harm to participants):

The researcher is not aware of any.

***This form should now be printed out**, signed by you on the first page and sent to your supervisor to sign. Your supervisor will forward this document to the School's **Research Support Office** for the Chair of the School's Ethics Committee to countersign. A unique approval reference will be added and this certificate will be returned to you to be included at the back of your dissertation/thesis.*

***N.B.** You should not start the fieldwork part of the project until you have the signature of your supervisor*

This project has been approved for the period: **until:** 30/9/14

By (above mentioned supervisor's signature): ..... **date:** 16-12-10

***N.B. To Supervisor:** Please ensure that ethical issues are addressed annually in your report and if any changes in the research occurs a further form is completed.*

SELL unique approval reference: 3/10/11/28

Signed: ..... **date:** 7/02/2011
Chair of the School's Ethics Committee

Chair of the School's Ethics Committee
last updated: August 2009

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