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EVALUATING THE IMPACT OF AN OUTDOOR ADVENTURE EDUCATION
INTERVENTION FOR PRIMARY SCHOOL CHILDREN PERCEIVED TO BE
VULNERABLE

by

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'We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time'

T.S. Eliot - Little Gidding

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Abstract

Existing evaluation research has presented equivocal findings regarding the efficacy of outdoor adventure education (OAE) interventions for vulnerable young people. The evidence-base is weakened by methodological limitations and a paucity of unified theoretical models. The current study presents an evaluation of the psychological impact of a naturally occurring OAE intervention for children perceived to be vulnerable by their mainstream primary school teachers. This study attempts to address previous methodological limitations and to facilitate a real-world application of the Adventure Experience Paradigm (AEP: Martin & Priest, 1986; Priest, 1992, 1993). The mixed-methods research design involves an exploratory qualitative phase, a randomised control trial (RCT, n = 38) and group interviews with participants (n = 27). The RCT forms the most significant part of the design, measuring the impact of the intervention on participants' locus of control, self-perceptions and teacher-reported emotional and behavioural difficulties (EBD). The results show that the intervention did not have a statistically significant effect on participants' locus of control or self-perceptions. There is some evidence to suggest that the intervention had a positive impact on teacher perceptions of participants' EBD, however, these findings are limited by a possible Hawthorne Effect. The group interviews allowed the researcher to explore participants' perceptions of the OAE intervention however, conclusions are tentative due to the surface-level nature of the thematic analysis procedures employed. Participants appeared to perceive the intervention in a positive light with emerging themes of 'The Physical Experience', 'Outside Comfort Zone' and 'Competence' identified. These findings appear to contradict the quantitative findings and offer support for the AEP. Overall, the validity of the quantitative findings is limited by low statistical power and ceiling effects as a result of sampling error. These limitations are discussed and the findings are interpreted in line with existing research and the AEP. Implications for future research and professional practice are also considered. The findings support the benefits of mixed-methods approaches and RCT designs in future OAE evaluation research.

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Chapter 1: Introduction

1.1 Background to the Current Research

The purpose of the current research was to evaluate the psychological impact of a naturally occurring outdoor adventure education (OAE) intervention for primary school children perceived to be vulnerable. As an evaluation of an intervention promoting children's emotional wellbeing, the research reflects a current priority for developing evidence-based practice within educational research (Frederickson, 2002). The research also reflects current government priorities for promoting positive outcomes for young people perceived to be vulnerable (Walker & Donaldson, 2011). The study was conducted by a trainee educational psychologist (TEP) undertaking professional doctoral training at the University of Nottingham. The researcher developed a personal interest in exploring the psychological benefits of physical exercise as a result of extended personal and professional experience in the field of sport. These experiences also led to a personal appreciation of the potential for collaborative physical activities, such as outdoor pursuits, to promote personal motivation among children experiencing disengagement from education and society. The current research was conducted in partnership with the TEP's employing local authority, a large metropolitan borough in the West Midlands. The project was negotiated in line with the local authority's priority for evaluation of social inclusion services, which include the Outdoor Education Team.

1.2 Empirical Rationale for the Current Research

The current study was designed to facilitate an evaluation of a naturally occurring OAE intervention, in line with local authority priorities. The study was also designed to address several issues and limitations present within the existing OAE evaluation research. Within this literature, research evidence relating to intervention outcomes is largely equivocal and there is a dearth of unified theoretical models (Nichols, 2000). Therefore, the current research was designed to facilitate a real-world application of an existing theoretical model of OAE i.e. the Adventure Experience Paradigm (Martin & Priest, 1986; Priest,

1992, 1993). The literature is also divided on the relative utility of quantitative and qualitative research approaches (Rea, 2008). Whilst guided by an evidence-based practice perspective, which encourages controlled evaluation, a mixed-methods research design was adopted in order to draw on the strengths of both quantitative and qualitative approaches maintaining an emphasis on the quantitative research strand. This design was used to explore psychological outcomes for participants following the OAE intervention and participants' perceptions of the intervention experience. Within the published, peer-reviewed literature, the current research presents the first evaluation of an OAE intervention in an United Kingdom context, for children judged by their mainstream primary schools to be holding vulnerabilities. Mixed-methods research designs are rare within the existing evaluation literature. Furthermore, few studies have adopted randomised control trial designs as used in the quantitative strand of the current study. The design of the current study to explicitly test a theoretical model is also a novel approach within the existing literature.

1.3 Summary of Chapters

Chapter 1: Introduction – The first chapter provides a summary of the background to and rationale for the current research study. This is followed by a brief overview of the content of each of the following chapters.

Chapter 2: Literature Review – The literature review discusses the origins and theoretical foundations of OAE and explores its application for children perceived to be vulnerable. The chapter also presents a systematic review of existing evaluation research in order to establish the rationale for the current study.

Chapter 3: Methodology – The methodology chapter provides a general overview of methodology in real-world evaluation research followed by specific details of the current mixed-methods research design.

Chapter 4: Results – The results chapter presents the quantitative and qualitative data and analysis separately. Each discussion begins with details of

the approach to data analysis followed by presentation of the results. The chapter concludes with a summary of the integrated findings of the current study in relation to initial hypotheses.

Chapter 5: Discussion – The discussion provides a summary and interpretation of the current results in relation to existing theory and research evidence. The discussion also reviews the reliability and validity of the current study by evaluating the mixed-methods methodology. The chapter concludes with a review of the implications of the current findings for research and professional practice.

Chapter 6: Conclusion – The conclusion presents a final summary of the current findings, their interpretation and implications.

Chapter 2: Literature Review

2.1 Introduction to the Literature Review

Current government priorities include enhancing life opportunities for vulnerable children and their families (Barnes, Green, & Ross, 2011; Casey, 2012; Walker & Donaldson, 2011). Psychological vulnerability has been defined as an individual susceptibility to maladaptive behaviour in response to life stressors. Within the emerging field of developmental psychopathology, vulnerability has been conceptualised in relation to mental health disorders, and social, emotional and behavioural difficulties (Luthar, 1991; Masten & Garmezy, N., 1985). The concept of resilience has also emerged from this area of research to describe the phenomenon where people develop into well-adapted individuals, despite life stressors typically associated with vulnerability (Luthar, 1991).

In 2010, the Department for Education emphasised the role of local authorities as champions for vulnerable children and families. They also identified schools as key promoters of health and wellbeing in the community (DfE, 2010). Within this social and political context, educational professionals working in these settings require evidence regarding effective interventions to promote the emotional well-being of young people perceived to be vulnerable. Walker and Donaldson (2011) recently evaluated the outcomes of several government initiatives designed to target vulnerable young people. These authors stressed the importance of identifying vulnerability in terms of the balance between numerous risk and protective factors across four key domains as follows (Walker & Donaldson, 2011, p. 14):

1. Personal characteristics of the child
2. Family and home life
3. Community and living environment
4. Education.

The evaluation findings noted the importance of early identification, prevention and targeted intervention in order to affect risk and protective factors significantly (Walker & Donaldson, 2011). Emotional wellbeing difficulties are

commonly identified amongst vulnerable children (Barnes et al., 2011). In the United Kingdom, OAE programmes, an example of outdoor learning, are widely used on a universal level for children and young people (Ofsted, 2004) and as a targeted intervention (DfES, 2006b) to enhance protective factors, such as emotional well-being, for young people experiencing life stressors. A government manifesto released by the previous administration identified 'learning outside the classroom' as an 'essential part of learning and personal development' (DfES, 2006a, p. 2). The current study investigates the psychological impact of a local authority provided OAE intervention for primary school children perceived to be vulnerable. The literature review therefore explores the theoretical and empirical rationale for the current study in light of existing research.

2.1.1 Overview of Literature Review

The literature review initially presents a definition of OAE, discussing its origins and many applications. Vulnerable children as a population are then discussed with a focus on issues of identification and intervention, including OAE. This is followed by an exploration of the theoretical foundations of OAE including the philosophical roots as well as associated theoretical models and psychological concepts thought to be relevant. Following an overview of evaluation issues, a systematic synthesis of research evidence is then presented to support the evaluation of existing research regarding the outcomes of OAE for vulnerable children. This multi-level synthesis includes evidence from two groups of evaluation studies i.e. controlled experimental research designs and qualitative explorations of participant experiences of the intervention. Following this, the current study is outlined including a discussion of the purpose of the research and research questions.

2.2 Outdoor Adventure Education (OAE)

2.2.1 Definition and Origins of OAE

The contemporary model of OAE originated in the work of Dr. Kurt Hahn, the founder of Outward Bound. This organisation facilitates physical activity and outdoor exploration programmes to help young people to achieve their

maximum potential in personal development. In an early publication, Hahn (1957) eloquently described the Outward Bound Trust's goal to sustain children's innate desire for adventure and to preserve their strength and 'undefeatable spirit' (Hahn, 1957, p. 2). Modern OAE programmes are typically located in wilderness or backcountry settings and involve small groups of 4-10 participants, a variety of mentally and physically challenging outdoor pursuits tasks (e.g. hiking, orienteering, rock-climbing, abseiling, river-crossing etc.), group interactions and problem-solving, a highly skilled facilitator and a typical duration of two to four weeks (Hattie, Marsh, James, & Richards, 1997).

2.2.2 Applications of OAE

OAE programmes exist in many forms and they are accessed by a range of individuals and organisations in various different settings, often in combination with or as part of wider intervention programmes. The following section will provide examples of the wide variation in OAE interventions. Programmes are available at a universal level for young people wishing to extend their personal experience and development for example, as part of university curricula (Ewert & Yoshine, 2011) and for children attending summer camp programmes (Hazleworth & Wilson, 1990). However, OAE programmes are also provided at a targeted level to address the specific needs of particular groups. For example, programmes are provided in conjunction with counselling and psychotherapy in order to provide adults and children with clinically diagnosed mental health difficulties real world opportunities to practise skills developed during therapeutic sessions (Kyriakopoulos, 2010). OAE activities have been combined with individual (Kyriakopoulos, 2011), group (Tucker, 2009) and family (Burg, 2000) psychotherapies. This combination of OAE programmes and therapeutic intervention, referred to as adventure therapy, has been used in clinical settings (Gillen & Balkin, 2006) and universal settings such as schools (Glass & Shoffner, 2001). Furthermore, the adventure therapy approach has been applied with a range of targeted populations for example, families experiencing bereavement by suicide (Braiden, McCann, Barry, & Lindsay, 2009), adult female survivors of abuse (Kelly, 2006) and adolescents suffering from anxiety and depression (Kyriakopoulos, 2011). OAE programmes have

also been adopted as part of wider intervention programmes for targeted groups of children and young people such as children with physical disabilities (Kessell, Resnick, & Blum, 1985) and children with significant learning difficulties (Rose & Massey, 1993).

A group which have received much attention from OAE practitioners and researchers are young offenders (Gillis & Gass, 2008; Wilson & Lipsey, 2000). Reflecting an emphasis on early intervention and preventative approaches, the use of OAE programmes has also extended beyond the rehabilitation programmes of youths already involved in the juvenile justice system to children identified as 'at-risk' for future anti-social behaviour (Green, Kleiber, & Tarrant, 2000). This early intervention approach is adopted in the current study, which involves primary school children identified by their schools as emotionally vulnerable. Before exploring the theoretical foundations of OAE and reviewing existing evaluation literature, the concept of vulnerability and issues of identification are discussed further below.

2.3 Vulnerable Children

When applying OAE as a targeted intervention for children with perceived vulnerabilities, researchers must determine whether the intervention can meet the primary needs of this population of children and young people. In order to identify these needs, clear definitions of vulnerability and identification criteria are required. These issues will now be discussed.

2.3.1 Identifying Vulnerability

Cox (2002) described vulnerable children as those more likely to experience problems in the future. He also emphasised the importance of early intervention before any problems arise. Within the research literature, vulnerability is linked to a range of similar concepts including disadvantage, deprivation, inequality, social exclusion and 'at risk' (Cox, 2002). As mentioned previously, the current study is concerned with the concept of psychological vulnerability, which has been conceptualised as an individual's susceptibility to problems such as mental health disorders and emotional and behavioural difficulties (Masten &

Garmezy, 1985). Existing research has also identified that psychological vulnerability is associated with a range of risk and protective factors, across several domains, including environmental life stressors (Barnes et al., 2011; Luthar, 1991). Identification of these factors among children and young people can therefore support early intervention and prevention of future problems.

Two extensive research reports, recently published by the Department for Education, provided empirical findings regarding the assessment and identification of vulnerable young people (Barnes et al., 2011) and identified effective interventions to enhance the life opportunities for this population (Walker & Donaldson, 2011). These findings form the foundations of renewed government priorities to target the most vulnerable children and families experiencing multiple disadvantages with effective multi-agency intervention (Casey, 2012). These government publications also reflect the growing body of research comprising of targeted efforts to apply systematic empirical methodology to the exploration of competence, risk and resilience in individual development (Masten, 2004; Masten & Obradovic, 2006). The following discussion will explore the findings of the two reports (Barnes et al., 2011; Walker & Donaldson, 2011) to generate an overview of existing research regarding the nature of vulnerability in a UK context and lead on to a discussion of the associated concept of emotional and behavioural difficulties (EBD).

2.3.2 Vulnerable Groups

As discussed in the introduction to this literature review, Walker and Donaldson (2011) suggested that vulnerability to maladaptive behaviour can be conceptualised according to risk and protective factors across four key domains of an individual's life. Furthermore, these authors suggested a list of common risk factors promoting vulnerability in young people (See Figure 2-1).

- truancy or school exclusion - behavioural problems - poor emotional, social or coping skills - poor mental health - learning difficulties - specific disabilities - low aspirations or low self-esteem - poor family support or problems in the family	- friends or family members involved in risky, antisocial or criminal behaviours - deprivation or poverty - family instability - drug or alcohol misuse - not being in education, employment or training (NEET) - homelessness

Figure 2-1 Factors promoting vulnerability among young people in the United Kingdom (Walker & Donaldson, 2011, p. 8).

Barnes et al (2011) presented an analysis of data gathered during the Longitudinal Study of Young People in England. The longitudinal data comprised of interview data, self-report measures and administrative information e.g. GCSE scores. This combination of data, gathered in seven waves from the time participants were aged 14 years to young adulthood (i.e. 18/19 years), presented a comprehensive picture of the risk factors facing young people living in contemporary England. Barnes et al (2011) identified six dominant forms of disadvantage present in different combinations amongst 45% of their sample of 8,700 English 16 to 17 year olds i.e. emotional health difficulties (22%), low attainment (19%), substance misuse (15%), criminal activity (9), Not in Education or Employment (NEET) (9%) and teenage parenthood (1%). Analysis of the complete data set then led to the identification of six groups of young people, identified by the primary risk factors they were experiencing. The data provided a profile of each group including early indicators of risk for these groups aged 14 and predictive outcomes for individuals in each group aged 18. The groups were identified as 'Non-Vulnerable Group' (55%), 'Emotional Health Concerns Group' (16%), 'Substance Misuse Group' (8%), 'Risky Behaviours Group' (8%), 'Low Attainment Group' (8%), 'Socially Excluded Group' (6%) (See Figure 2-2).

Non-Vulnerable Group	**Emotional Health Concerns Group**
Size: 55 per cent of young people **Average number of disadvantages:** 0 **Main disadvantages:** None **Contact with services:** Very little **Most likely to be in group when age 14:** - Positive attitude to school - Few difficulties at school - Advantaged socio-economic background **Outcomes at age 18:** - 55% in full-time education - 30% in full-time work - 9% taken drugs in last 4 weeks - 8% receiving benefits	**Size:** 16 per cent of young people **Average number of disadvantages:** 1.1 **Main disadvantages:** Emotional health concerns only **Contact with services:** Very little **Risks factors at age 14:** - Girls - Bullied - First sexual contact under 16 **Outcomes at age 18:** - 58% in full-time education - 27% in full-time work - 14% taken drugs in last 4 weeks - 12% receiving benefits
Substance Misuse Group	**Risky Behaviours Group**
Size: 8 per cent of young people **Average number of disadvantages:** 1.5 **Main disadvantages:** Substance misuse. Some risk of low attainment, emotional health concerns **Contact with services:** Some but low **Risks factors at age 14:** - Girls - Disengaged at school **Outcomes at age 18:** - 28% in full-time education - 15% NEET - 27% taken drugs in last 4 weeks - 22% receiving benefits	**Size:** 8 per cent of young people **Average number of disadvantages:** 2.2 **Main disadvantages:** Criminal activity. 50/50 risk of substance misuse. Some risk of low attainment, emotional health concerns **Contact with services:** 25% with police **Risks factors at age 14:** - Boys - Truancy (including persistent), suspended, bullied **Outcomes at age 18:** - 26% in full-time education - 18% NEET - 38% taken drugs in last 4 weeks
Low Attainment Only Group	**Socially Excluded Group**
Size: 8 per cent of young people **Average number of disadvantages:** 1.1 **Main disadvantages:** Low attainment only **Contact with services:** Some but low **Risks factors at age 14:** - Person has Special Educational Need - Disadvantaged family - Persistent truancy - School with high proportion of SEN pupils, deprived area **Outcomes at age 18:** - 30% in full-time education - 21% NEET - 30% receiving benefits	**Size:** 6 per cent of young people **Average number of disadvantages:** 2.2 **Main disadvantages:** NEET. 50/50 chance of low attainment. Some risk of substance misuse, emotional health concerns **Contact with services:** Welfare services **Risk factors at age 14:** - Single parent family, poor parental health - Aspire to work at 16, truancy **Outcomes at age 18:** - 13% in full-time education - 42% NEET - 21% have a child - 52% receiving benefits

Figure 2-2 Vulnerable groups identified according to primary disadvantage (Barnes et al., 2011, p. 3).

Statistically significant findings stated that girls were overall more vulnerable to disadvantage than boys, except in the 'Risky Behaviours Group'. In addition, truancy and disengagement from education were identified as the most significant early risk factors for both boys and girls. Furthermore, the findings presented valuable data regarding young people who experience multiple disadvantages. Amongst the vulnerable population, emotional health and low attainment were the only factors occurring alone as primary disadvantages i.e. in the 'Emotional Health Concerns Group' and the 'Low Attainment Group'. Amongst the remaining three vulnerable groups, individuals experienced multiple disadvantages with the 'Socially Excluded' and 'Risky Behaviours' groups at highest risk of multiple disadvantages. Most significantly, emotional health difficulties occurred amongst all but one of the vulnerable groups (i.e. Low Attainment).

The findings therefore suggest that vulnerable young people can be identified by the disadvantages they experience and that emotional health difficulties are a common disadvantage among vulnerable groups. This theme of emotional health difficulties is significant to the current study, particularly when considering appropriate intervention for young people perceived to be vulnerable.

2.3.3 Emotional and Behavioural Difficulties (EBD)

The theme of emotional health difficulties amongst vulnerable young people links to the emergence of the concept of Emotional and Behavioural Difficulties (EBD), first referred to in the Warnock Report (DfES, 1978) and currently identified as a Special Educational Need in the Special Educational Needs (SEN) Code of Practice (DfES, 2001). As with the concept of vulnerability, identification and understanding of EBD within the literature is made difficult by its current definition comprising of a range of factors rather than clear population parameters. For example EBD are defined in the SEN Code of Practice as the existence of 'withdrawn/isolated behaviour', 'disruptive/disturbing behaviour', 'hyperactive and lacking concentration', 'immature social skills' or 'challenging behaviour arising from other complex needs' (DfES, 2003, p. 87). Furthermore, evidence required to identify significant EBD includes 'clear, recorded examples

of withdrawn or disruptive behaviour', 'marked and persistent inability to concentrate', 'considerable frustration or distress associated with learning difficulties', 'difficulties establishing or maintaining balanced relationships with pupils or adults' and 'evidence of significant delay in the development of life and social skills' (DfES, 2001, p 83).

This multi-component definition illustrates the difficulty of conceptualising children with EBD as a homogenous population and perhaps in even identifying a discrete population. In common with the literature regarding attributions about behaviour (Miller, 2001), several authors have argued against the idea of a discrete population of children with EBD and have suggested that children experiencing EBD show differences in degree rather than kind, compared to their peers (Elliot, 1993; Fox & Avramidis, 2003). While conducting his research exploring the nature of locus of control amongst children experiencing EBD, Elliot (1993) found that this problem of definition threatened the integrity of his participant sample. Elliot (1993) advised against the use of psychiatric classifications and definitions of EBD according to level of disruption for fear of iatrogenic errors. Although he advocated the empirical classification of EBD according to observable behaviours above other methods, Elliot (1993) also critiqued the limited nature of this approach which overlooks the impact of environmental factors. Elliot (1993) identified that EBD are often defined by adult perceptions of problem behaviour. Furthermore, EBD are defined according to the immediate context and can therefore vary in nature across contexts e.g. the SEN Code of Practice (DfES, 2001) advises that EBD support should be judged by the level of disruption the EBD causes to the learning of the child and others, and the level of progress in response to individual behaviour management programmes.

In light of Elliot's (1993) argument, when designing controlled evaluation studies involving vulnerable children experiencing EBD, it is arguable that these children should ideally be identified using systematic criteria based on research evidence. However, interpretation of data should also take into account considerations about the heterogeneous nature of this population and

constructionist factors. These issues are returned to and further explored later (See Section 2.4.5). However, the following section first explores the theoretical foundations of OAE considering the wide variety of applications described previously. This theoretical exploration is intended to inform the subsequent review of evaluation evidence regarding the outcomes of OAE interventions for vulnerable children.

2.4 Theoretical Foundations of OAE

OAE can be considered to be grounded in the experiential philosophy of education (Dewey, 1897), as reflected in the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993), a prominent, widely cited model of the mechanisms of action during OAE interventions. The theoretical foundations of OAE are now explored with reference both to this particular model and to the associated psychological concepts of locus of control and perceived competence. This discussion commences with an overview of the field of experiential education.

2.4.1 Philosophical Roots: Experiential Education

Experiential education or experience-based learning is a school of thought, theory and practice which has its foundations in the origins of epistemology itself (See Andresen, Boud & Cohen, 2000 and Kraft, 1990 for historical reviews). From the early philosophy of Aristotle to the 17th century musings of John Locke, a long tradition of philosophers have emphasised the significance of direct experience with the world for creating true knowledge (Andresen, Boud, & Cohen, 2000). Kolb (1984) identified experiential learning as the process of creating knowledge by transforming experience i.e. learning by doing. Experiential philosophy was adopted by the educational theorist John Dewey (1897) whose progressive education movement was built upon an acknowledgement of the essential link between education and personal experience. Developmental psychologists have also adopted the experiential learning concept with Piaget (1952) emphasising the role of the child as an active participant, exploring the world through concrete experience. This philosophy is also apparent in classic Skinnerian Behaviourism (Skinner, 1974)

and Bandura's (1977) Social Learning Theory, which both describe how direct feedback from the physical and social environment (i.e. real-world experience) can support learning and therefore influence an individual's behaviour and cognition. Kurt Hahn's legacy is located firmly within this school of experiential education. OAE programmes provide opportunities for context-based learning, social modelling and immediate, concrete reinforcement for behaviour (Andresen et al., 2000; Kraft, 1990). However, constructionist critics of experiential learning theory suggest that it neglects the importance of culture and tradition in the creation of knowledge and is therefore limited in its conceptualisation of learning (Brown, 2009). Brown (2009) advised that this critique should be considered when exploring the range of possible learning experiences during OAE programmes and this advice is discussed further later (See Section 2.4.6). As referred to previously, the influence of experiential philosophy is apparent in the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993). This theoretical model is presented below accompanied by a description of the key ideas and a discussion of the theoretical and empirical basis of the model. A brief critique of alternative theoretical models is presented initially to contextualise the Adventure Experience Paradigm.

2.4.2 The Adventure Experience Paradigm

Within the OAE literature, several theorists have attempted to identify the mechanisms through which direct experience of OAE programmes can lead to individual outcomes for participants (Boniface, 2000; Hopkins & Putnam, 1993; Priest, 1993). Bunyan (2011) charted the development of theoretical models of OAE throughout the latter part of the 21st century. An early model, dubbed the 'Input-Process-Output' model by Bunyan (2011), conceptualised OAE as a mystical, unknown 'black box' which enabled diverse individuals to achieve diverse personal growth outcomes (Parcham, 1975). While this model represented an early attempt to characterise the processes underpinning OAE, it lacked any attempt to explore specific intervention processes and mechanisms of action. In contrast, the later 'Dynamic Adventure Environment' model (Barrett & Greenway, 1995) identified five key ingredients of an outdoor

adventure experience working together in dynamic interaction to impact upon participant outcomes. These ingredients included overcoming fear, a supportive group, a skilled leader, physical exercise and a natural environment (Bunyan, 2011). These ingredients have also been identified by several other authors reflecting on the OAE research literature (Hattie et al, 1997; McKenzie, 2000). However, while Barrett and Greenway (1995) developed a clearer idea of the key elements of an OAE experience compared to Parcham (1975), they too failed to explore specific questions of process.

The Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) is a prominent theoretical model of OAE, often referred to in the literature (Hans, 2000). Significantly, the Adventure Experience Paradigm addressed the limitations of previous theoretical models by presenting a potential mechanism of action for OAE outcomes. The paradigm presents a risk/competence balance as the key mechanism through which participants can learn to accurately perceive their personal competencies and the risk posed by the environment during outdoor adventure activities. The authors define risk as 'the potential to lose something valuable' and competence as 'a combination of skill, knowledge, attitude, behaviour, confidence and experience' (Priest, 1992, p. 128). The paradigm states that in an OAE situation, individual learning is enabled by direct experience and can be accelerated by the programme facilitators as they guide the participants through five conditions of challenge i.e. exploration and experimentation, adventure, peak adventure (optimal), misadventure, disaster and devastation (See Figure 2-3). These conditions were based on Matlock's (1984) stages of an outdoor journey i.e. play, adventure, frontier adventure and misadventure.
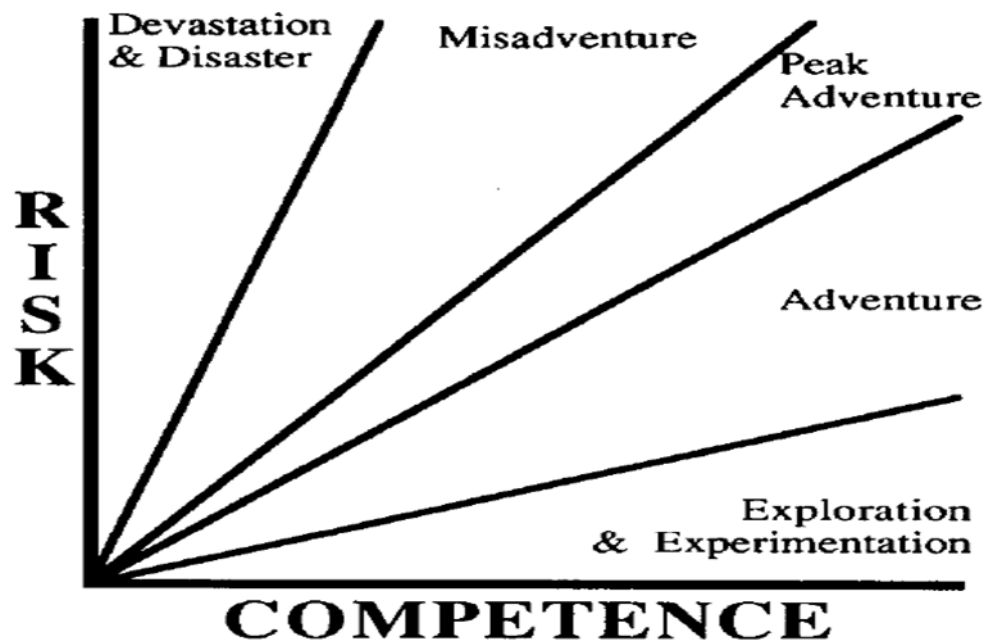
Figure 2-3: The Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993).

Participants' experiences of these conditions depend on their personal perceptions of the risk/competence balance (Priest, 1990). According to the Adventure Experience Paradigm, the goal of OAE is to create the 'astute adventurer' (Priest & Baillie, 1987, p. 18) who accurately perceives a balance between personal risk and competence. This in turn allows the facilitator to initiate a spiral increase in both elements for the participant, leading to increased experience of peak adventure and parallel personal growth outcomes (Priest, 1992). In an attempt to validate his model, Priest (1992) illustrated how the Adventure Experience Paradigm incorporates both theoretical and empirical findings. This evidence base is discussed in the following sections.

2.4.2 (i) Theoretical Basis of the Adventure Experience Paradigm

The ideas contained in the Adventure Experience Paradigm (Martin & Priest, 1986; Priest. 1992, 1993) are reflected in the work of several other authors, particularly the concepts of a risk/competence balance and peak adventure. For example, the notion of a risk/competence balance in outdoor adventure contexts was first alluded to by Ewert and Hollenshorst (1989). Further

theoretical inspiration came from Ellis (1973), who suggested that individuals at play seek optimal arousal and optimal functioning, and from Mortlock (1984), who presented four stages of an outdoor journey i.e. play, adventure, frontier adventure and misadventure. The Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) is also rooted in psychological theories of motivation. Csikszentmihalyi's seminal work on positive experience (Csikszentmihalyi, 1975, 1990, 1997) has played a significant part in the development of the Adventure Experience Paradigm (Boniface, 2000). According to Csikszentmihalyi (1997), peak experience is facilitated by 'flow' i.e. an optimal psychological state reached when an individual's ability levels are met with an appropriate challenge from the environment resulting in effective enjoyment and psychological engagement. There are clear parallels between Csikszentmihalyi's ability/challenge balance and the risk/competence balance (Martin & Priest, 1986). In fact, Csikszentmihalyi based his theoretical concept of 'flow' upon interviews he conducted with rock climbers regarding their experiences during outdoor adventure activities (Csikszentmihalyi, 1975). Csikszentmihalyi's 'flow' is characterised by a euphoric sense of accomplishment and heightened functioning i.e. peak experience (Boniface, 2000). It is apparent that the concept of peak experience compares to peak adventure (Priest, 1993). Furthermore, Maslow (1943) asserted that humans are motivated to strive towards self-actualisation. Csikszentmihalyi (1997) stated that the concepts of peak experience, first described by Maslow (1962), and 'flow' support this journey towards self-actualisation by promoting a state of intrinsic motivation. The examples discussed thus far, support the idea that the Adventure Experience Paradigm reflects several theoretical concepts associated with the psychology of experiential learning, positive experience and motivation.

2.4.2 (ii) Empirical Basis of the Adventure Experience Paradigm

While the model incorporates elements of psychological theory, it is also supported by empirical research findings. In his exploratory discussion of existing OAE research, McKenzie (2000) suggested that activities which create dissonance and facilitate a challenge/success/mastery experience most likely

impact significantly upon personal growth outcomes in OAE programmes. While these conclusions indirectly support the risk/competence balance, Priest (1992) also provided direct empirical validation for the Adventure Experience Paradigm. In an empirical study which examined the responses of 233 university students who completed the Dimensions of Adventure Experience assessment tool during an outdoor ropes course, Priest (1992) used factor analysis to identify risk and competence as two clear factors in the outdoor adventure experience. Furthermore, Priest (1992) highlighted explicit parallels between these empirical findings and the factors described by Ewert and Hollenhorst (1989) as key to an OAE experience i.e. risk, social orientation and environmental orientation versus skill or experience level, frequency of participation and locus of control. According to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993), two key psychological concepts involved in the change process during OAE programmes are participants' locus of control and perceived competence. Much OAE evaluation research has focused on these concepts as intervention outcomes, hence offering further support to the Adventure Experience Paradigm. Locus of control and perceived competence will now each be reviewed as distinct concepts with discussion of their links to OAE theory and research.

2.4.3 Locus of Control

Priest (1993) identified locus of control as a key mediator of the individual change process during OAE experiences. He stated that an internal locus of control, supported by positive feedback and experiences of success in OAE activities, in turn facilitates positive changes in participants' perceptions and personal growth. According to Priest (1993), this mechanism influences the nature of the participants' overall experience of the OAE programme.

2.4.3 (i) Definitions and Origins of the Locus of Control Concept

The concept of locus of control originated in the social learning theory of Rotter (1966) who differentiated between internal and external locus of control. Locus of control is a personality concept which differentiates between the degree to which an individual attributes outcomes of their behaviour to personal

characteristics (i.e. internal) versus factors beyond their control e.g. chance, luck, fate, powerful others (i.e. external) (Rotter, 1990). Rotter (1990) advocated the value of the locus of control concept because of its status as an operational definition of a personality concept, the fact that the concept is embedded in psychological theory of reinforcement and learning, and the fact that it was generated from empirical findings measured by the Internal-External Locus of Control Scale (I-E LOC: Rotter, 1966). Further exploration of the locus of control concept, can also aid the understanding of the links to emotional wellbeing and vulnerability.

2.4.3 (ii) Theoretical and Empirical Basis of the Locus of Control Concept

Locus of control is a concept which has played a role in explanations of vulnerability and emotional wellbeing for children and young people. Rotter's (1990) concept of locus of control has received extensive interest from researchers and theorists across many areas of psychology and has inspired a plethora of self-report measures (Furnham & Steele, 1993). Furthermore, Leotti, Iyengar and Ochsner (2010) have reviewed a range of behavioural and neuroimaging evidence from animal and human studies to suggest that an individual's belief in their capacity to control their environment is both a biological imperative for survival and an essential ingredient for human psychological well-being. For example, Leotti et al (2010) discussed studies which indicated that tasks involving choice led to activation of the striatum and pre-frontal cortex; areas of the brain typically associated with affect and motivation. Leotti et al (2010) asserted that personal control is the psychological phenomenon underpinning several psychological concepts of motivation such as Bandura's self-efficacy (Bandura, 1994), Ryan and Deci's (2000) self-determination and Rotter's (1966) locus of control. However, several authors have warned against the dangers of conceptual confusion between different control concepts (See Elliot, 1993 for review). In the case of locus of control, the behaviour-reinforcement contingency is key to the operational definition (Rotter, 1966; 1990). It seems that this factor is apparent in Priest's (1993) understanding of the role of locus of control in OAE experiences i.e. he details the links between successful adventure behaviour and positive feedback from

the environment. An interesting theoretical link can be observed in the findings of Hattie et al.'s (1997) meta-analysis of OAE evaluation studies. While these authors reviewed a range of outcomes of OAE programmes, they extracted a theme of self-control from within the outcomes with the largest effect sizes.

An internal locus of control has been identified as a key protective factor within resilience research (Luthar, 1991) as well as being associated with positive life outcomes such as motivation and engagement (See Hans, 2000 and Rotter, 1990 for reviews). Several studies have suggested that children and young people experiencing emotional and behavioural difficulties (EBD) typically demonstrate external locus of control (Nowicki & DiGirolamo, 1989; Nunn & Parish, 1992). More recently, Breet, Myburgh and Poggenpoel (2010) also presented findings from a correlational study which demonstrated a significant relationship between internal locus of control (as measured by Rotter's I-E LOC Scale) and lower rates of aggressive behaviour in teenage males. However, there is some controversy regarding the relationship between EBD and external locus of control. In an extensive study of 237 UK children with EBD, Elliot (1996) identified limited correlations between locus of control and children's behaviour. In fact, Elliot (1996) warned researchers to treat existing literature regarding locus of control of this population of children with caution. Elliot (1993) suggested that confusion within the existing literature may be associated with issues such as conceptual confusion regarding the locus of control concept, and questions regarding the homogeneity and discrete nature of the population of children with EBD, as discussed in Section 2.3.2. However, despite the theoretical equivocation regarding locus of control, evidence overall points to its association with emotional well-being. In light of the hypothesised link between locus of control and EBD (Breet et al., 2010; Nunn & Parish, 1992), the capacity of OAE to support this concept will be reviewed further below.

2.4.3 (iii) Locus of Control in OAE Research

Locus of control has been explored across extensive research studies as an outcome of OAE interventions, with several studies involving vulnerable young people. A meta-analysis of published and non-published evaluation studies

carried out in the USA and Australia identified a pattern of significant shifts towards internal locus of control for individuals following participation in OAE programmes (Hans, 2000). 23 of the 24 studies reviewed involved participants under 20 years of age. Another meta-analysis conducted by Cason and Gillis (1994) identified locus of control as a key outcome measure across the evaluation studies of adolescent OAE programmes reviewed. In fact, in their exploration of the validity of modifying Rotter's (1966) locus of control scale for use with children, Nowicki and Duke (1983) elicited specific links to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) in their hypothesis that opportunities to experience planned risk and examples of personal competence directly impacted upon participants' locus of control.

However, close inspection of controlled experimental research exploring the locus of control outcomes for vulnerable children and young people following participation in OAE programmes reveals mixed findings. A small scale study conducted by Langsner and Anderson (1987) failed to find any significant changes in children's locus of control following a 14-week educational programme incorporating outdoor adventure activities. Minor (1994) also failed to find significant effects upon locus of control scores of young offenders following participation in a probation programme involving outdoor adventure elements. It is significant that both of the interventions in these studies involved outdoor adventure activities as part of a wider intervention programme whose impact may have confounded the effects of outdoor adventure activities. Alternatively, Cross (2002) isolated an OAE programme for evaluation and found that 'at risk' teenage participants demonstrated enhanced feelings of personal control (as measured by the Multi-Dimensional Measure of Children's Perceptions of Control: Connell, 1985) compared to a matched control group following participation in a five-day rock climbing programme.

Locus of control has therefore been identified as a previously studied outcome of OAE programmes for vulnerable young people (Langsner & Anderson, 1987; Minor, 1994). The locus of control concept is founded in rich psychological theories of motivation and is also explicitly implicated as a mediating factor in a

theoretical model of outdoor adventure experience (Martin & Priest, 1986; Priest, 1992, 1993). There is some existing research to suggest that participation in an OAE intervention may lead to a shift towards an internal locus of control (Hans, 2000), which is associated with positive emotional well-being (Luthar, 1991). It has also been suggested that internal and external locus of control tendencies may be associated with the extent to which individual children experience EBD (Breet et al., 2010; Nunn & Parish, 1992). However, existing research includes mixed findings regarding the impact of OAE interventions on vulnerable young people's locus of control. These mixed findings will be explored further in the systematic review of research evidence (See Section 2.7.3).

2.4.4 Perceived Competence

The second psychological concept associated with the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) is perceived competence. As discussed previously, Priest (1992) defined competence as 'a combination of skill, knowledge, attitude, behaviour, confidence and experience' (Priest, 1992, p. 128). According to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993), an effective balance between environmental risk and personal competence in outdoor adventure activities can enhance an individual's ability to accurately perceive their personal competence and therefore contribute to feelings of self-confidence and motivation (Priest, 1992, 1993).

2.4.4 (i) Theoretical Basis of Perceived Competence: Self Esteem

Perceived competence is theoretically linked to 'self-esteem' (Rosenberg, 1979) or 'self-worth' (Harter, 1999, 2006), a phenomenological concept defined by Campbell (1984, p. 226) as 'an awareness of good possessed by self'. The following discussion will review self-esteem theory and highlight theoretical links with perceived competence. For the purpose of illustrating links between self-esteem and perceived competence, the current discussion presents an unchallenged view of these concepts. Exploration of conceptual confusions and their constructionist critique is discussed further below (See Section 2.4.6).

Fox (2000) identified self-esteem as a widely accepted indicator of emotional stability, a key motivator of health related behaviour and notably, a major determinant of psychological well-being. Muris, Meesters and Fijen (2003) found that low levels of self-esteem (as measured by the Self-Perception Profile for Children; Harter, 1985) correlated with high levels of trait anxiety and depression among Dutch primary school children. Furthermore, these researchers found that self-esteem correlated positively with emotional stability as measured by teacher-report scales.

Harter (1985, 1999, 2006) presented a developmental theory of self-esteem, which identified the development during middle childhood of the cognitive ability to create a higher order verbal integration of differentiated self-concepts. The process involves generating self-perceptions or self-evaluations which contribute to various domain specific senses of self-competence or adequacy, all of which contribute to a global sense of self-worth. Harter (1985) identified five key domains of self-competence (See Figure 2-4).

Figure 2-4 Hierarchical model of self-worth (Self-Perception Profile for Children, SPPC: Harter, 1985).

Harter's (2006) developmental perspective has made a significant contribution to current conceptual understanding of self-worth and has resulted in the development of several standardised global and domain specific measures, most notably the Self-Perception Profile for Children, SPPC (Harter, 1982, 1985). Harter's multi-dimensional framework has been validated as stable and consistent over time for individuals (Shevlin, Adamson, & Collins, 2003). Several factor analysis studies have also validated Harter's domain specific self-competencies as useful concepts for explaining data gathered using the SPPC (Granleese & Joseph, 1993, 1994; Muris et al., 2003). By considering

domain-specific competencies, the model attempts to explore the mechanisms of action through which interventions can enhance global self-worth.

2.4.4 (ii) Theoretical Basis of Perceived Competence: Physical Activity Research

In examining the mechanism of action, through which outdoor adventure activities impact upon perceptions of self-competence, it is helpful to draw upon an area of emerging research examining the psychological benefits of physical activity, as this research has also drawn upon Harter's (1982, 1985) model. Extensive research has identified the value of physical exercise for creating short-term gains in self-esteem amongst children and young people (Ekeland, Heian, Hagen, Abbott, & Nordheim, 2004). Drawing upon various theories from cognitive and exercise and sport psychology, current research in this area also aims to investigate the psychological mechanisms that mediate this established correlation between physical exercise and psychological well-being (Biddle & Mutrie, 2001; Fox, 2000). Several studies have identified Harter's (1985) 'athletic competence' domain as the key domain through which physical exercise experiences impacts upon global self-worth (Slutzky & Simpkins, 2009; Sonstroem, 1998; Sonstroem, Harlow, & Josephs, 1994; Whitehead, 1995). Based on this theoretical framework, the skill development hypothesis (Sonstroem, 1998) suggests that improved abilities and mastery of new skills during exercise lead to positive perceptions of sport competence. Similarly, goal perspectives theory purports that creation of a mastery climate facilitating task-orientation in sporting activities (i.e. where success is defined in terms of personal improvement or task mastery rather than winning or outperforming others) can enhance intrinsic motivation and positive affect among participating children (Duda & Hall, 2001; Standage, Duda, & Ntoumanis, 2003). Furthermore, Bandura (1994) identified mastery experience and positive social persuasion as determinants of perceived self-competence. This mechanism of action may also be applicable within OAE research. For example, well-structured sports or exercise activities such as OAE may enhance feelings of self-competence, one of three fundamental psychological needs required for self-motivation, social integration and psychological well-being as identified by

Self-Determination Theory (Ryan & Deci, 2000). As discussed previously (See Section 2.4.2 (i)), enhanced feelings of competence and intrinsic motivation are also associated with OAE experiences.

2.4.4 (iii) Perceived Competence in OAE Research

The impact of outdoor adventure activities on self-esteem has received significant attention within the general OAE outcome research (Cason & Gillis, 1994; Hattie et al., 1997). Several studies have also attempted to explore the impact of participation in OAE activities upon measures of self-esteem for vulnerable children and young people in particular. Langsner and Anderson (1987) and Minor (1994), failed to find any significant treatment effects upon measures of self-esteem. However, in these two studies, treatment effects may have been confounded by other activities within the intervention programmes, as discussed previously (See Section 2.4.3 (iii)). However, more germane to the current discussion is the fact that these authors reported global measures of self-esteem without analysis of domain specific findings, which were available. In light of Harter's (1985) multi-dimensional model of self-competencies and the existing research regarding domain specific self-esteem outcomes of physical exercise, domain specific investigations in OAE research may offer more valid findings regarding perceived competencies. In fact, findings from an non-controlled study carried out by Hazleworth and Wilson (1990) showed domain specific self-esteem gains in individual perceptions of moral-ethical self-concept, identity and self-satisfaction following the OAE intervention. The use of the SPPC (Harter, 1985) therefore supports the exploration of the specific mechanism of change hypothesised by Priest (1992, 1993) i.e. changes in perceptions of competence rather than direct changes in global self-worth. Several studies have used Harter's domain specific measure of self-perceptions to explore the outcomes of OAE programmes for vulnerable young people, with mixed findings (Farnham & Mutrie, 1997; Pommier & Witt, 1995). These findings will also be explored further in the systematic review of research evidence (See Section 2.8.3).

2.4.5 Intervention for Vulnerable Children: Considering OAE

The evidence and theory reviewed above therefore suggests that participation in OAE programmes may lead to positive psychological wellbeing outcomes such as internalised locus of control and enhanced self-perceptions of competence with various populations. However, findings are mixed. When applying OAE as a targeted intervention for vulnerable children, researchers and practitioners must consider whether these particular outcomes can meet the needs of this population. The following section will consider these general issues of intervention for vulnerable children, with a focus on OAE.

Walker and Donaldson (2011) reported findings from evaluations of several multi-agency support programmes providing targeted support for vulnerable children and families. Findings from these programmes were mixed as were the methodologies adopted in different studies. However, individual outcomes included positive outcomes for family relationships and positive impacts on measures of children's individual well-being e.g. self-concept. Several programmes also reported reductions in the occurrence rates of behavioural risk factors such as entry into the criminal justice system and substance misuse. Reflecting these two types of outcomes, the following discussions will consider the possible impact of OAE interventions on young people's individual wellbeing and behaviour.

2.4.5 (i) Individual Wellbeing Outcomes of OAE for Vulnerable Children

Several correlational studies have identified associations between the concepts presented in the Adventure Experience Paradigm (i.e. locus of control and perceived competence) and vulnerability among children and young people. For example, Luthar (1991) identified IQ, social skills, locus of control, ego development, level of anxiety, depressive symptoms, and positive life events as key moderators of stress and social competence amongst a sample of 144 'high risk' American teenagers. Luthar (1991) also identified an internal locus of control as a key protective factor against stress. As discussed previously, it has been argued that locus of control may be associated with aggressive behaviour (Breet, Myburgh, & Poggenpoel, 2010) and EBD (Nowicki & DiGirolamo, 1989;

Nunn & Parish, 1992). Furthermore, self-perceptions of personal competence have been shown to contribute to global self-worth (Harter, 1982, 1985), a key determinant of emotional health. According to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993), OAE interventions can impact positively on locus of control and perceived competence. This suggests that as an intervention which purports to impact upon these moderators of emotional health, OAE could be an effective intervention for vulnerable children experiencing EBD. This theoretical reasoning is apparent in the existing literature which has attempted to evaluate the efficacy of OAE programmes for use with vulnerable young people (Cason and Gillis, 1994).

2.4.5 (ii) Behavioural Outcomes of OAE for Vulnerable Children

Within the wider OAE evaluation literature, programme outcomes for samples of vulnerable individuals have been measured using the particular challenging behaviour which defines the population e.g. rates of recidivism for young offenders (Gillis, Gass, & Russell, 2008), substance misuse (Sakofs, 1994) and antisocial behaviour (See Wilson, 2000 for review). However, findings have been mixed regarding the generalisation of behaviour gains during OAE programmes to alternative contexts. Gillis, Gass and Russell (2008) demonstrated significant treatment effects of an adventure-based behaviour management programme upon juvenile re-arrest rates, using a non-randomised control study. However, Sakofs (1992) and Walsh and Roberts (2010) failed to find significant differences between treatment and control groups in terms of rates of recidivism among young offenders after rehabilitation programmes including OAE. Furthermore, Sakofs (1994) and Pommier and Witt (1995) did not find any significant changes in the observable behaviour of vulnerable young people following an OAE programme. Brown (2009) suggested that OAE programmes cannot expect generalisation of behaviour change to alternative contexts due to the essential role of the physical adventure environment in the learning that occurs during OAE programmes. Brown (2009) also stated that such generalisation is an unrealistic expectation. However, behaviour change is also associated with intervention goals and OAE programmes do not always specifically aim to affect behaviour change in alternative contexts e.g. to directly

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reduce rates of recidivism. This type of behaviour change is most likely a secondary outcome which follows on from the immediate outcomes facilitated by OAE programmes and is therefore subject to a range of interfering variables. It is perhaps appropriate to measure behaviour change in terms of the parameters through which participants are identified for OAE programmes, such as students' emotional and behavioural difficulties as perceived by teachers e.g. The Strengths and Difficulties Questionnaire (Goodman, 1997).

Thus far, this discussion has outlined a theoretical framework for the evaluation of OAE interventions for vulnerable children in line with the Adventure Experience Paradigm. This exploration of theory and research evidence is intended to inform a systematic review of existing research evidence exploring the efficacy of this intervention. However, before issues of efficacy can be addressed, a critique of the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) is presented below.

2.4.6 Critique of the Adventure Experience Paradigm

Despite its prominent position within OAE evaluation research and its theoretical and empirical basis (See Section 2.4.2), the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) has been criticised for its overreliance on Hahn's emphasis on 'character building', with two particular flaws highlighted (Brookes, 2003a, 2003b). Firstly, Brookes (2003a, 2003b) highlighted an inherent contradiction in conceiving personality traits as relatively fixed but also malleable as a result of brief OAE programmes. Secondly, Brookes (2003a, 2003b) discussed a fundamental attribution error, pervasive in OAE literature i.e. that behavioural changes in OAE contexts are attributable to individual dispositional factors rather than situational factors. This attribution error is, according to Brookes (2003b) the factor which has supported the persistence of a positive view of OAE in the face of equivocal efficacy evidence. However, while Brookes (2003a) argued that personality traits are most likely not impacted as a result of OAE interventions, she suggested that such programmes could have the potential to effect participant's behaviour, knowledge, skills and beliefs about themselves. For example, while locus of

control and self-esteem can be conceived of as personality traits, the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) discusses individual perceptions or beliefs about competence which may be more susceptible to change during the intervention. Brookes (2003b) called for a situationist approach to OAE intervention research incorporating contextual issues such as cultural influences in research design and selection of outcome measures. Rea (2000) presented a similar argument in relation to the evaluation of self-esteem as an essentialist concept within the OAE literature. When answering questions of programme efficacy in terms of self-esteem, a large portion of OAE researchers have adopted Harter's essentialist approach (e.g. (Langsner & Anderson, 1987; Pommier & Witt, 1995). However, Rea (2000) argued that self-esteem should be considered as a situated, contextualised phenomenon, defined by the immediate context. According to Rea (2000), an alternative qualitative methodology which incorporates the social context and individual reports of experience is more appropriate than traditional essentialist approaches. These issues will be addressed further in a systematic review of evaluations of OAE interventions including both quantitative and qualitative studies (See Section 2.7 and 2.8). The literature review now presents an introductory overview to evaluation issues in OAE research.

2.5 Evaluating OAE Programmes

The multiple applications and forms of OAE programmes have contributed to a vast and varied evaluation literature. Following the predominance of anecdotal and personal report evaluation during the 1960's, the 1970's and 1980's saw a concentrated effort by researchers to apply systematic experimental methods in order to produce empirical evidence regarding the impact of OAE programmes, which would allow for causal inferences between variables (Hattie et al., 1997). This section will present a general overview of findings from evaluation studies exploring the outcomes of OAE programmes followed by a review of some issues within the evaluation literature, including lack of rigour in research design as well as wide variation in interventions, outcome measures, samples and data gathered. This discussion will highlight the difficulty of synthesising findings

from quantitative studies and will consider alternative epistemological and methodological approaches such as qualitative exploration. This general discussion will be followed by a systematic evidence synthesis review (Gough, 2007) of evaluation studies exploring the impact of OAE interventions for vulnerable young people. This review will explore findings from quantitative and qualitative studies followed by an integrated summary.

2.5.1 Outcomes of OAE Interventions

There are a plethora of quantitative evaluation studies of OAE available to date. Within this literature, several large scale meta-analyses have attempted to synthesise quantitative research findings. Three often-cited meta-analyses have reported small to medium effect sizes (Cohen's d = 0.3-0.38) for gains in educational and affective outcomes reported in evaluation studies of OAE programmes (Cason & Gillis, 1994; Hans, 2000; Hattie et al., 1997). Hattie et al (1997) stated that these effect sizes have been demonstrated as comparable to outcomes from a range of school-based educational interventions. They also reported a pattern of maintained effects at follow-up, with a mean effect size of .17 creating a combined effect size of .51, unique within the education intervention literature at the time. Hattie et al (1997) organised the outcomes from studies involving adults and children into six categories i.e. academic achievement, leadership skills, individual self-concept, personality, interpersonal skills and adventure outcomes. Similar categories were identified by Cason and Gillis (1994) from studies of OAE programmes with adolescents i.e. self-concept, behaviour assessment, attitudes, locus of control, clinical scales, school grades and school attendance. A recent systematic review of physical activity interventions, including outdoor adventure programmes, for adolescents experiencing EBD, suggested tentatively that OAE programmes have led to positive gains in the psychological well-being of these vulnerable children (Lubans, Plotnikoff, & Lubans, 2012).

2.5.2 Limitations and Contradictions

However, further exploration and critique of these reviews and of the studies included reveals limitations in the validity of these conclusions suggesting that

the OAE evidence base lacks unity (Nichols, 2000). Across the studies reviewed, there was wide variation in experimental designs adopted, type of data gathered, sample populations and the nature of the interventions (i.e. discreet OAE programmes or adventure activities included as part of a wider programme). The authors also admitted that lack of detail regarding sample populations and interventions amongst studies reviewed limited the strength of the meta-analyses (Hattie et al., 1997). Furthermore, the reviews often failed to employ strict selection criteria and quantitative findings were not solely-based upon peer-reviewed evaluation studies involving rigorously controlled research designs, which are often prioritised for their potential to support causal inferences (Shadish, Cook, & Campbell, 2002). While Lubans et al (2012) included up to date, peer-reviewed studies and provided details of research methodology, these authors also concluded that mixed findings and high risks of bias within individual studies limited their ability to reach conclusive findings regarding intervention efficacy.

The variety across individual studies and the methodological limitations reflect the complexity of the OAE intervention. McKenzie (2000) has discussed how a range of factors can influence programme outcomes from group dynamics and skills of the instructor to the physical environment and the particular activities involved. The complexity and variation within OAE interventions makes the rigorous experimental control of variables difficult. These considerations may explain mixed findings in studies of similar methodology with similar populations and interventions (e.g. Cross, 1999 and Langsner & Anderson, 1987). This complexity is reflected in the wide variety of outcome measures explored in evaluation studies. For example, Hattie et al (1997) identified 40 different outcome measures across 96 studies reviewed. Outcome measures can vary according to the specific needs of participants and the goal of the interventions, which is often determined by a wider intervention programme e.g. rates of recidivism for rehabilitation programmes for young offenders (Gillis, Gass, & Russell, 2008). A further consideration is researchers' common lack of distinction between external behavioural outcomes (e.g. rates of recidivism, drug taking, aggressive behaviour) and higher order cognitive outcomes (e.g.

self-concept). Hattie et al (1997) have suggested that these confusions have contributed to the lack of clarity regarding the direct impact of OAE programmes.

2.5.3 An Alternative Approach: Qualitative Research

Reflecting on the lack of unity in OAE research, Nichols (2000) suggested that researchers have been focused too much on outcomes rather than process and theory, and have failed to build on previous work. Several authors have criticised the quantitative 'Does it work?' approach for overlooking more complex qualitative questions of 'How does it work?' or 'Why does it work?' (Allison & Pomeroy, 2000; Ewert, 1987; McKenzie, 2000; Rea, 2008). These authors argue that in its haste to justify its existence by demonstrating intervention efficacy and cost effectiveness, the field of OAE research has forgotten the essence of experiential philosophy i.e. the idea that learning is a process incorporating individual experiences and the meanings people make of these. As discussed previously (See Section 2.3.5), Rea (2008) questioned the validity of a positivist epistemology in this research area because of the subjective nature of outcome variables (e.g. self-esteem). He advised that the use of ethnographic methodology and qualitative data could reveal more about the nature of OAE programmes than experimental methods. Allison and Pomeroy (2000) also suggested the need for a new epistemological approach to OAE research concerned with questions of process e.g. exploration of participants' perspectives. This argument thread within the OAE literature also reflects the views of Fox (2003) in relation to the evidence base informing educational psychology professional practice. Fox (2003) argued against strictly controlled quantitative approaches and called for the emergence of a constructional evidence-base to inform educational psychology professional practice.

However, in their support of RCT designs within educational research, Torgerson and Torgerson (2001) stated that qualitative research designs should employ rigorous methodology and appropriate quality checks to reduce researcher bias. Several authors have raised concerns that less rigorously

controlled OAE experimental studies have produced more significant positive findings (Hattie et al., 1997). Both Nichols (2000) and Hattie et al (1997) have advised that future OAE research should consider theoretical models of OAE programmes and investigate their application within a real world setting.

Future research should be designed with an awareness of the limitations of the current literature, and inspired by previous authors' desire for unity, clarity and theoretical synthesis. To address the limitations and contradictions within the OAE literature, guided by the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993), the current systematic review intends to review both quantitative and qualitative research findings to generate a holistic picture of OAE intervention studies.

2.6 Systematic Evidence Synthesis Review

A systematic evidence synthesis review is a set of formal processes for integrating different types of evidence to establish what is known from existing research and how it is known (Gough, 2007, p. 2). A systematic approach allows the reviewer to decide whether research findings in a particular area are consistent and generalisable across various contexts. Furthermore, it allows a reviewer to refine and justify current hypotheses and to avoid methodological limitations present in previous research (Mulrow, 1994). Gough (2007) presented a model for stages of a systematic review, which has been used in the current review (See Figure 2-5).

Formulate review question and develop protocol
↓
Define studies to be considered *(inclusion criteria)*
↓
Search for studies *(search strategy)*
↓
Screen studies *(check they meet inclusion criteria*)
↓
Describe studies *(systematic map of research)*
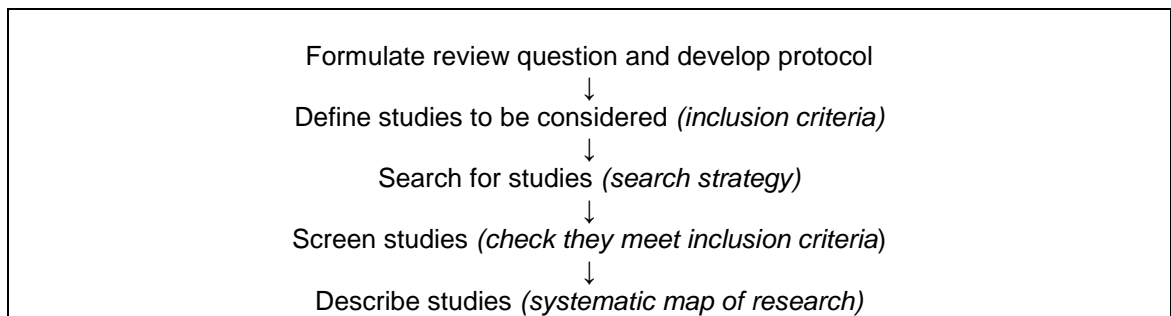
Figure 2-5 Stages of a systematic review (Gough, 2007).

Gough (2007) also discussed the use of the 'weight of evidence' framework to assess quality and relevance in systematic synthesis of applied research. He discussed the use of general quality criteria associated with research design as well as review-specific criteria relevant to the research question (See Figure 2-6).

Weight of Evidence A
Generic, non-review specific judgement about quality of evidence e.g. generally accepted criteria by those who generally use and produce evidence.

Weight of Evidence B
Review specific judgement about the appropriateness of a specific form of evidence for answering the current review question e.g. the relevance of research design

Weight of Evidence C
Review specific judgement about the relevance of the focus of the evidence for the review question e.g. type of sample, method of data gathering or analysis

Weight of Evidence D
Overall assessment of the extent that a study contributes evidence to answering a review question, typically a combination of A, B and C

Figure 2-6 Details of the Weight of Evidence Framework for use in applied research (Gough, 2007, p. 11).

A systematic approach was applied in the current review of OAE literature, according to Gough's (2007) guidance. The following section will present a systematic evidence synthesis review exploring the current review question:

- What can existing evaluation research tell us about the impact of OAE interventions for vulnerable young people?

The section includes details of search strategies, inclusion criteria and a systematic map of the studies reviewed.

2.6.1 Current Systematic Review Procedure

Phase 1

a.   Initial Exploratory Searches

General internet searches were conducted manually to explore the issues and inform the key word search. Key word terms were developed from these searches.

- Databases/Journals Searched Manually*: Google, Google Scholar, Educational Psychology in Practice, Educational and Child Psychology, Cochrane Collaboration* [http://www.cochrane.org/cochrane-reviews], *EPPI Centre* [http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=56]
- Search Terms Used: *Outdoor adventure education, outdoor pursuits*

b.   Systematic Database Searches

Three key databases were accessed; Ovid SP, ERIC and SCOPUS (See Appendix 1 for search log). Initial key word terms for (i) outdoor location (ii) adventure and (iii) intervention were combined using OR, with the three groups then combined using AND (See Figure 2-7).

(i)	outdoor, wilderness, open-air
(ii)	adventur*, pursuits, activity, quest, venture, voyage, journey, exploration
(iii)	educ*, experien*, counselling, therapy, intervention, teach*, train*, instruction

Figure 2-7 Details of key word search terms.

c.   Filtering Process

Results from the three systematic database searches were combined and duplicates were removed. The reference lists of review papers were also cross-referenced to identify further studies. Studies which were not evaluation studies (e.g. discussion papers) were immediately excluded providing an extensive overview of the existing evaluation literature.

<u>**Phase 2**</u>

Phase 2 involved identification of studies for two separate reviews of quantitative and qualitative evaluation studies. The studies were selected according to review specific inclusion criteria (See Table 2-1 and Table 2-3). The following section will present the findings from the review of quantitative studies.

2.7 Quantitative Review

Review Question: What can existing quantitative evaluation research tell us about the outcomes of OAE interventions for vulnerable children?

2.7.1 Weight of Evidence

The nine quantitative studies included in the current review were identified using a mixture of general and review specific criteria (See Table 2-1).

Feature	Inclusion Criteria	Exclusion Criteria
Type of Publication	Peer reviewed journal	Un-published dissertations, non peer-reviewed journals, magazines, books
Language of Publication	English / translated to English	All other languages
Date	1970 – date	Prior to 1970
Research Design	Evaluation study, RCT or at least use of control/comparison group, quantitative data gathered	Reports/descriptions of programme content, personal reflections, qualitative data only gathered
Participant Sample	Vulnerable young people (Barnes et al, 2011), targeted samples, school-aged children and young people aged 5-19	Universal samples; adults; university students; populations with clinically diagnosed mental health difficulties[1], physical disabilities or significant learning difficulties

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[1] From the studies identified during Phase 1 of the systematic review, the majority of studies involving this particular population evaluated an adventure therapy treatment programme, involving psychotherapy in conjunction with outdoor adventure activities (e.g. Kyriakopolous, 2010). This population were therefore excluded from the current review because the researcher felt that adventure therapy could not be directly compared to the OAE intervention in the current study due to the possible interference effects of the simultaneous therapeutic intervention.

Intervention	Intervention programme involving outdoor adventure activities (e.g. hiking, orienteering, rock climbing, abseiling, river crossing etc.)	Indoor activities, curriculum-based activities outdoors, adventure activities combined with psychotherapy, wilderness therapy/camping without adventure activities, underwater/sea-based activities
Outcome Measures	Quantitative measures of psychological well-being; particularly locus of control and self-perceptions, quantitative behavioural measures	Qualitative data only, behavioural measures only e.g. recidivism rates

Table 2-1 Details of inclusion and exclusion criteria for quantitative studies.

Evaluation studies were considered according to their research design with randomised control trials (RCTs) prioritised. These research designs are often used for exploration of questions of intervention efficacy as a result of their potential to support causal inferences (Gough, 2007; Shadish et al., 2002). In their seminal work on experimental research in education, Cook and Campbell (1979) advocated for the 'pre-test/post-test control group design' as the strongest example of a true experiment within field research. These authors identified the key feature of this design as randomisation, which 'neatly controls' for all major threats to internal validity or 'rival variables' (Cook & Campbell, 1979, p. 13). This assertion has stood the test of time with contemporary quantitative researchers continuing to value RCTs as the 'gold standard' in real world experimental research (Robson, 2002; Scott, Shaw, & Joughin, 2001). Systematic reviews of RCT studies are valued as important sources of evidence by advocates of evidence-based practice using applied research (Scott et al., 2001) (See Figure 2-8). Further discussion of RCT designs is presented in Chapter 3.

1. Several systematic reviews of randomised controlled trials

2. A single systematic review of randomised controlled trials

3. Randomised controlled trials

4. Quasi-experimental trials

5. Case control and cohort studies

6. Expert consensus opinion

7. Individual opinion
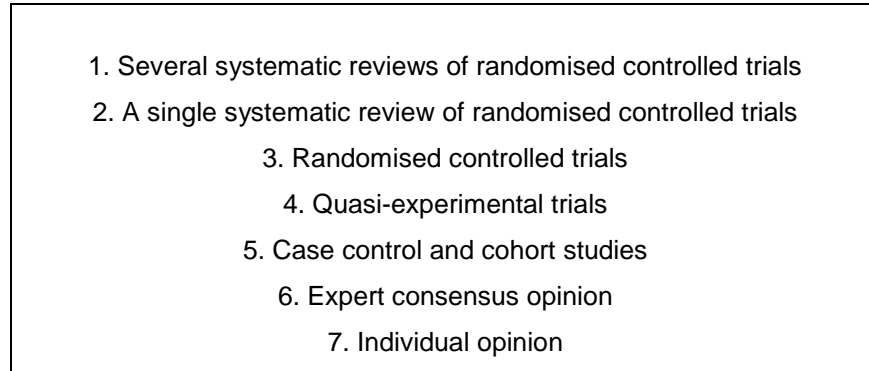
Figure 2-8 The Hierarchy of Evidence (Scott et al., 2001).

However, as true RCT designs are rare in the field of OAE research with only two identified in the current review, several quasi-experimental studies which involved a control or comparison group were included in the review because their sample population, use of intervention and outcome measures were relevant to the current review question i.e. 'Weight of Evidence C' strategy (See Figure 2-6). One example of a one-group pre-test/post-test design was included due to the particular relevance of its sample population and context to the current study i.e. UK children experiencing EBD. The combination of findings from RCT and quasi-experimental studies can enable some causal inferences to be made regarding the impact of OAE interventions for vulnerable young people.

2.7.2 Systematic Literature Review

The following description will present a general map of the quantitative research evidence reviewed, discuss the strengths and limitations of the studies as a whole and detail some key features of individual studies (See Table 2-2 for overview of studies). As with much of the OAE literature, the current studies have demonstrated methodological limitations, a range of different outcome measures and equivocal findings leading conclusions regarding the efficacy of the evidence base as a whole to be tentative. The current research study aims to build upon these findings and contribute to a synthesis of research evidence by addressing the limitations of existing research.

Author & Location	Details of Intervention and Duration	Sample	Outcome Measures	Design	Results	Limitations	Positive Findings
1. Sakofs (1992) USA	Wilderness Alternative for Youth (WAY) Adventure activities and community service No details of activities provided 3 weeks	115 boys and girls 13-18 years Adjudicated youth -referred by court counsellors	Self-Report Measures Battery of Psychometric Scales: - Self-Description Questionnaire - Jesness Inventory - Student Attitude Questionnaire - Nowicki Locus of Control Scale - PRF Achievement Motivation Scale Formal qualitative evaluation - 17 interviews Observer Measures Questionnaires to parents/counsellors/peers about participants' behaviour Behavioural Data School and court records	RCT Experiment and Control group, pre-test/post-test and follow up	Statistically significant treatment by scale interactions for 10/33 psychometric scales (LOC, manifest aggressions, asocial orientation, values orientation, immaturity, withdrawal-depression, social anxiety, repression, parental dependency peer relations) No significant differences between groups on behaviour measures Positive qualitative evaluations	Data analysis - no clear evidence of significant between group differences	√ tentative
2. Minor (1994) USA	Probation programme Job preparation workshops, family workshops, 3-day OAE programme OAE activities at adventure centre -	45 boys and girls 12-17 years Juvenile offenders on probation	Self-Report Measures - Self-Concept Scale - Nowicki-Strickland Locus of Control Scale for Children - Perceptions of Juvenile Justice Scale	RCT 2x2 factorial between-groups design Factors: 1. RCT: Experiment (intervention) or Control (traditional probation)	No statistically significant between group differences for self-report measures	OAE not isolated No details of Self-Concept Scale provided Post-test = 3 months after intervention ended Participant attrition	X

Author & Location	Details of Intervention and Duration	Sample	Outcome Measures	Design	Results	Limitations	Positive Findings
	ropes, climbing wooden tower, camping 3 months			2. Case Status: moderate and intensive probation Pre-test/post-test			
3. Walsh (2010) USA	Wilderness Endeavours Correctional-based wilderness and adventure programme No details of activities provided 21 days	86 boys and girls Treatment group 14-17 years Control group 13-17 years Adjudicated youth	<u>Self-Report Measures</u> - Perceived Competence of Functioning Inventory (self-efficacy) - Children's Hope Scale - Adolescent Resiliency Attitudes Scales <u>Behavioural Measures</u> No details	Quasi-experimental, matched pairs, pre-test/post-test and follow up, no RCT Treatment group - pre-test/post-test self-report measures Matched control group in another programme – rates of recidivism only	Significant increases in self-efficacy and hope for treatment group No statistical differences between groups for behaviour measures Increase in hope = potential predictive ability for recidivism	No control group for self-report measures - post behaviour measures only Participant attrition No RCT	√ tentative
4. Pommier (1995) USA	Outward Bound School programme + family training component 56 days including 16- day OAE expedition No details of activities provided	79 boys and girls 13-17 years Adolescent status offenders in rehabilitation programmes	<u>Self-Report Measures</u> Harter Self-Perception Profile for Adolescents <u>Observer Measures</u> - Self-Perception Profile for Parents - Olsen Family Adaptability and Cohesion Evaluation Scale - Eyberg Child Behaviour Inventory	Quasi-experimental non-equivalent control group design Experiment and Control group, pre-test/post-test and follow up, no RCT	Statistically significant gains for treatment group on all measures after 4 weeks Trend regression towards pre measures Effects disappeared for some self-perceptions and family measures at 4 months	OAE not isolated No RCT	√

5. Langsner (1987) USA	Project Explore: alternative curriculum including OAE 6 stages including teacher training, Stage 5 = 5-day residential i.e. Outdoor Challenge Education No detail included of activities provided 14-week duration between pre-test and post-test	31 boys 9-13 years Special education classes, 'behaviour disorders' identified by school staff	<u>Self-Report Measures</u> - Coopersmith Self-Esteem Inventory - Nowicki-Strickland Locus of Control Scale for Children	Quasi-experimental non-equivalent control group design Random assignment to pre-test/post-test or post-test only condition within each group	No significant difference between groups at post-test Non-significant main/interaction effects for self-esteem Non-significant treatment effect for locus of control	Non-equivalent groups, significant difference between groups at pre-test Small sample size OAE not isolated in the intervention No RCT	X
6. Bloemhoff (2006) South Africa	High ropes course intervention Balance beam, 2-line bridge, multi-vine 4 hours	106 boys Experimental group = average 16 years Control group = average 15.4 years Adolescents in rehabilitation centres for EBD	<u>Self-Report Measures</u> Protective factors measure based on Jessor (1993) research	Quasi-experimental non-equivalent control group design Experimental group – randomly selected from 2 classes Control group – randomly selected from 2 classes	Some significant differences between the groups at post-test: None (interested and caring adults, levels of control v deviant behaviours) Significant (achievement)	Data analysis – compared post-test data only No RCT	√

				No RCT Pre-test/post-test	Highly Significant (neighbourhood resources, sense of acceptance, models for conventional behaviour, positive attitude towards the future, ability to work with others, enjoyment/perceived competence in activity)		
7. Cross (2002) USA	Rock climbing programme + discussion/reflection activities Mountain environment 5 days	34 boys and girls 12-19 years 'At risk', alternative high school students not successful in traditional school	<u>Self-Report Measures</u> - Dean Alienation Scale - Connells The New Multi-Dimensional Measure of Children's Perceptions of Control	Quasi-experimental, matched pairs design Non RCT Pre-test/post-test	No differences at pre-test but experimental group less alienated at post test Experimental group had stronger sense of control at post test	Small sample No RCT	√
8. Green (2000) USA	Summer recreation programme for low income minority youth Activities – swimming, computer games etc. OAE element included ropes course (8 high elements and 8 low elements) + reflection time	197 boys and girls 10-16 years Adolescents from public housing areas attending a summer programme	<u>Self-Report Measures</u> Protective factors measure based on Jessor (1993) research	Quasi-experimental, pre-test/post-test No RCT Treatment, comparison and control groups	8 significant improvements for treatment compared to comparison group at post-test (neighbourhood resources, interested and caring adults, acceptance, deviant behaviour, conventional, positive attitude, achievement, conflict) 5 significant improvements for treatment compared to control group at post-test (neighbourhood	Comparison group from same sample as treatment group but unclear if control group was too Measures taken at different times for different groups No RCT	√

	4 hours/day, 1 day/week, 4-6 weeks				resources, interested and caring adults, conflict resolution, acceptance, controls v deviant behaviour) 6 significant decreases for comparison compared to control group (adults, acceptance, behaviour, conventional, achievement, conflict)		
9. Farnham (1997) UK	Residential OAE programme Orienteering, mountain biking, gorge walking, night hiking, hill walking 4 days	18 boys and 1 girl 13-17 years Special school for SEN + EBD	Self-Report Measures - Tension/anxiety: Unipolar Profile of Mood States - Self-Esteem: Physical Self-Perception Profile - Group Cohesion: Group Environment Questionnaire	One group, pre-test/post-test NO CONTROL GROUP	Significant decrease in anxiety Significant increase in group cohesion No increase in self-perceptions	No control Small sample Only one domain of self-esteem measured	√ tentative X for self-esteem

Table 2-2 Details of quantitative studies reviewed including first author, date and location, intervention, sample, outcome measures, research design, results and limitations.

2.7.2 (i) Synthesis of Quantitative Findings

The nine studies included in the review evaluated outdoor adventure programmes involving two distinct groups of vulnerable young people, both defined by their primary disadvantage. These groups comprise of young offenders (Minor, 1994; Pommier & Witt, 1995; Sakofs, 1992; Walsh & Russell, 2010a) and children experiencing EBD (Bloemhoff, 2006; Cross, 2002; Farnham & Mutrie, 1997; Langsner & Anderson, 1987). These groups correspond to Barnes et al's (2011) 'Risky Behaviours' and 'Emotional Health Concerns' groups respectively.

The studies of OAE programmes for young offenders presented tentative positive findings regarding the potential for psychological gains for this population of vulnerable young people following OAE interventions. Findings from three non-randomised controlled studies demonstrated the positive impact of OAE programmes upon several measures of participants' psychological well-being, including locus of control, resilience protective factors (Sakofs, 1994), self-efficacy, hope (Walsh & Russell, 2010b) and self-perceptions (Pommier & Witt, 1994). Although Minor (1994) failed to find any significant positive treatment effects upon participant self-concept, locus of control and perceptions of juvenile justice using a RCT design, limitations of the study such as a gap of three months between completion of the programme and post-test measures and the failure to isolate OAE from a wider rehabilitation programme may have compromised the validity of findings. Considered together, the findings show tentative support for the efficacy of OAE programmes to support gains in psychological well-being for young offenders. However, none of the studies demonstrated long-term maintenance of findings. Pommier & Witt (1995) suggested that this factor should be a major consideration for OAE practitioners deciding upon the duration of programmes and follow-up intervention.

Amongst the studies of OAE programmes involving children experiencing EBD, mixed findings also provided similar evidence for this population of vulnerable children. Langsner and Anderson (1987) failed to find significant treatment effects upon participants' self-esteem and locus of control, although non-

equivalent groups and small sample size were considerable limitations in the implementation of this study. Furthermore, Farnham and Mutrie (1997) provided evidence that participation in an OAE programme led to significant increases in participant mood and group cohesion, but not in self-perceptions. However, in two studies which isolated an OAE programme for evaluation and also used non-randomised control group designs, significant treatment effects were obtained for resilience protective factors including positive attitude towards the future, enjoyment/competence for adventure activities (Bloemhoff, 2006) and perceptions of alienation and personal control (Cross, 2002). These factors arguably reflect the concepts of locus of control and perceived competence. Green et al (2000) also identified significant improvements in resilience protective factors for 'at risk' children who participated in an OAE programme compared to a treatment comparison and a non-treatment control group, although there were some methodological weaknesses in his study (See Figure 2.2).

In conclusion, the studies reviewed presented evidence to suggest that participation in OAE programmes can impact positively upon factors affecting the psychological well-being of vulnerable young people including locus of control, self-perceptions and resilience protective factors. These findings tentatively support the implication of the two former psychological concepts in the Adventure Experience Paradigm (Priest, 1993). However, methodological limitations across these studies mean that the findings must be considered alongside a discussion of research design. The following sections explore issues of research design, further limitations and variations, issues of sampling and the application of theory across the nine studies reviewed.

2.7.2 (ii) Research Design in Quantitative Studies

Although RCT designs were prioritised in the inclusion criteria, the systematic synthesis of evidence review identified only two true RCT studies (Minor, 1994; Pommier & Witt, 1995; Sakofs, 1992) and six quasi-experimental studies. One quasi-experimental study used a treatment comparison group and a non-treatment control group (Green et al., 2000), two used matched-pair control

groups (Cross, 2002; Walsh & Russell, 2010a), two used a randomly selected control group (Bloemhoff, 2006; Langsner & Anderson, 1987) and a single study using a one-group pre-test/post-test design (Farnham & Mutrie, 1997). While only two of the nine studies reviewed failed to find any significant treatment effects, the causal inferences made from these research findings should be considered with caution in light of this lack of RCT designs. The absence of randomisation processes within the majority of studies reviewed opens the research to the influence of internal validity threats (Cook & Campbell, 1979). Furthermore, several studies revealed additional methodological discrepancies which warrant consideration (See Table 2-2 for details). For example, Green et al (2000) reported positive gains in participant resilience compared to a non-treatment comparison group. However, while both the treatment and comparison groups were selected from the same sample of 'at risk' children, it is unclear whether the control group were also defined as 'at risk'. Langsner and Anderson (1987) failed to find any significant gains following intervention however these findings may have been associated with a significant difference between treatment and control groups prior to intervention. Findings from Walsh and Russell (2010) should also be considered tentative as it is apparent that psychological well-being measures were obtained from a one group pre-test/post-test study with control group data gathered only for rates of recidivism, for which there was no significant treatment effect.

The issues of limited numbers of RCT designs is interesting in relation to an interesting statistic was presented by Cason and Gillis (1994) in their meta-analysis of OAE studies involving 'at risk' youth. The authors rated the methodological quality of studies on a scale of 1 (informal methodology involving a single group with pre-test and post-test) to 6 (rigorous methodology involving RCT, pre-test, post-test and follow-up) and found that the quality of research designs correlated negatively with the effect sizes reported. Therefore, the authors concluded that in the case of poorly controlled studies which reported significant effect sizes, there was a likely chance that a Type 1 statistical error had occurred i.e. the researchers associated an observed change as being linked to the intervention when it was actually due to chance

(Cason and Gillis, 1994). Considering these findings it seems that high quality experimental RCT designs are preferable for evaluation studies regarding the efficacy of OAE interventions. In summary, the findings suggest that although OAE programmes may have the potential to effect psychological well-being of vulnerable children, this conclusion may also reflect Type 1 statistical errors. There is currently a paucity of well-controlled RCT studies available to support strong cause and effect assumptions.

2.7.2 (iii) Limitations and Variations in Quantitative Studies

The current synthesis of findings was limited by missing information across studies, an issue also identified by Hattie et al (1997) in their review of research literature. For example, three of the current studies did not provide any information regarding group size during adventure activities (Green et al., 2000; Sakofs, 1992; Walsh & Russell, 2010a). Another three did not provide any details of the OAE activities beyond a brief description of the type of programme involved e.g. adventure programme or wilderness adventure therapy (Langsner & Anderson, 1987; Sakofs, 1992; Walsh & Russell, 2010a). Five studies also failed to provide information about the programme facilitators besides the name of the OAE programme or adventure centre with which the facilitator was affiliated (Farnham & Mutrie, 1997; Langsner & Anderson, 1987; Minor, 1994; Sakofs, 1992; Walsh & Russell, 2010a). Hattie et al (1997) suggested that future research should provide more detailed descriptions of the specific adventure activities included in intervention programmes, enhanced programme description and treatment fidelity measures.

The nine studies reviewed also demonstrated wide variation in features of the OAE intervention evaluated, with no examples of formal treatment fidelity measures provided. The following points will provide an overview of the variation across studies.

Intervention Context: Five of the current studies involved interventions conducted in wilderness environments (Cross, 2002; Farnham & Mutrie, 1997; Pommier & Witt, 1995; Sakofs, 1992; Walsh & Russell, 2010a) and four involved adventure settings near developed areas i.e. two in formal adventure

centres (Langsner & Anderson, 1987; Minor, 1994) and two on ropes obstacle courses (Bloemhoff, 2006; Green et al., 2000). This variation is important as context has been argued to exert a significant effect on learning in OAE programmes (Brookes, 2003a, 2003b).

Group Size: Across the studies, group size varied from 5 to 20 participants. This is notable as it is most likely that the experience of adventure activities would be very different in a group of five compared to a group of 20, with a range of variables affected such as attention from facilitators, group cohesion and duration of exposure to adventure tasks.

Duration: The current studies evaluated OAE programmes ranging in duration from one day (Bloemhoff, 2006) to three weeks (Sakofs, 1992; Walsh & Russell, 2010a). Interestingly, these three example studies of long and short durations all reported positive participant outcomes. The majority of studies reviewed involved programmes lasting between three and six days, with mixed findings. Hattie et al (1997) also identified that programme duration ranged from a few days to three weeks in the literature they reviewed. However, two meta-analytical studies have found that programme duration has been associated with outcome effects across studies i.e. longer programmes have produced greater and longer lasting effects on participant outcomes (Cason & Gillis, 1994; Hattie et al., 1997).

Isolation of OAE intervention: Only two of the studies demonstrated that the researchers had evaluated the outdoor adventure activities in isolation (Bloemhoff, 2006; Walsh & Russell, 2010a). Five studies involved outdoor adventure activities with additional components including structured reflection for participants, staff training for school staff attending OAE programmes with students, and community based projects (Cross, 2002; Farnham & Mutrie, 1997; Green et al., 2000; Langsner & Anderson, 1987; Sakofs, 1992). Furthermore, two studies included adventure activities as a single component of a wider rehabilitation programme for young offenders (Minor, 1994; Pommier & Witt, 1995). Interestingly, the study which demonstrated the most effective isolation of outdoor adventure activities (i.e. outcome measures were taken

immediately before and immediately after a 4-hour ropes course experience) reported positive gains in resilience for boys experiencing EBD (Bloemhoff, 2006). These variations across interventions must lead to caution in interpretation of research findings as simultaneous interventions could act as confounding variables to the impact of adventure activities.

Programme Goals: For young offenders, programme goals included improvements in anti-social behaviour (Pommier & Witt, 1995; Walsh & Russell, 2010a), enhanced self-esteem and locus of control to increase individuals' sense of responsibility (Minor, 1994; Pommier & Witt, 1995). For children experiencing EBD or identified as 'at risk' for vulnerability, goals included enhancement of individual resilience (Bloemhoff, 2006; Green et al., 2000) as well as changes in feelings of alienation and personal control to enhance emotional well-being (Cross, 1999). However, three of the studies did not identify a clear purpose for the OAE programme; instead the authors merely described the intervention as a treatment programme or intervention for the target population (Farnham & Mutrie, 1997; Langsner & Anderson, 1987; Sakofs, 1992). While the measurement of specific outcomes might equate to identification of programme goals, the explicit illustration of participant specific goals suggests a concentrated effort to elucidate the mechanisms of action for OAE programmes, an element which several critics have suggested is missing in much of the OAE literature (Hattie et al., 1997; Nichols, 2000).

These issues highlight the complexity of the OAE intervention and the many variables involved. The isolation of specific variables for experimental evaluation has proven difficult, as demonstrated in the mixed findings identified in the current review. This again identifies the need for rigorously controlled research design to control for extraneous variables.

2.7.2 (iv) Issues of Sampling in Quantitative Studies

Consideration of the population samples across the nine studies reviewed also highlighted several issues associated with identifying vulnerable young people, as discussed previously (See Section 2.3.1). The environmental context from which samples were identified varied across studies from residential

rehabilitation programmes for adjudicated youth (Pommier & Witt, 1995; Sakofs, 1992; Walsh & Russell, 2010a), to probation programmes for adjudicated youth (Minor, 1994), specialist educational settings for children experiencing EBD (Bloemhoff, 2006; Cross, 2002; Farnham & Mutrie, 1997; Langsner & Anderson, 1987) and a targeted community summer activities programme (Green et al., 2000). One study involved a sample of 'at risk' youth who were identified according to vulnerability risk factors such as low family income, minority ethnicity and negative community influences (Green et al., 2000). However, all other studies identified the participants according to external behaviours that they had previously displayed or were currently displaying e.g. involvement in criminal activity, disruptive behaviour in school settings. This variation highlights once again the difficulties associated with defining vulnerable children as a discrete population (Elliot, 1993) and identifying appropriate interventions to effectively meet their needs (Walker & Donaldson, 2011). Furthermore, in all nine studies, participants were identified as a sample of convenience, according to the educational or administrative setting in which they were currently involved. Elliot (1993) advised that while this use of administrative procedures to identify vulnerable children is not an ideal approach, it is the norm within educational research and is facilitated by current working definitions of vulnerable children and EBD. Clarity and transparency in reporting sample selection procedures could support rigorous empirical practice with this population of children in further research.

2.7.2 (v) Application of Theoretical Models in Quantitative Studies
The studies reviewed reflect Nichols' (2000) assertion that existing research has failed to demonstrate effective application of theoretical models of OAE in research designs. Although all nine studies described the rationale for selecting their outcome measures using some combination of examples from previous studies and exploration of individual mechanisms of action for a specific outcome, none of the nine studies were explicitly designed to evaluate a named theoretical model. The dominant outcomes studied were participants' locus of control (Cross, 2002; Langsner & Anderson, 1987; Minor, 1994; Sakofs, 1992) as measured in the majority of studies by the Nowicki-Strickland Locus of

Control Scale for Children (Nowicki & Strickland, 1973) and participant self-concept outcomes i.e. self-perceptions (Farnham & Mutrie, 1997; Pommier & Witt, 1995), self-concept (Minor, 1994), self-efficacy (Walsh & Russell, 2010) and self-esteem (Langsner & Anderson, 1987). Another dominant outcome measure was participant resilience as measured by self-report protective factor scales based on the work of Jessor (1993) (Bloemhoff, 2006; Green et al., 2000; Sakofs, 1992; Walsh & Russell, 2010a). Some studies explored participants' mood states (Farnham & Mutrie, 1997; Sakofs, 1994) as well as a range of other miscellaneous participant measures e.g. alienation (Cross, 2002) and sense of family cohesion (Pommier & Witt, 1995). The studies used a range of self-report questionnaire measures with all but three (Bloemhoff, 2006; Sakofs, 1994; Minor, 1994) reporting adequate, or greater, levels of reliability or validity for their measurement tools. Several studies also explored behavioural outcomes rather than psychological outcomes e.g. rates of recidivism, school participation, employment (Walsh & Russell, 2010) participant behaviour (Pommier & Witt, 1995), parental dependence, peer relations (Sakofs, 1994) and group environment (Farnham & Mutrie, 1997). This range of outcome measures within a small sample of nine studies represents the variation that contributes to the difficulty of synthesising OAE research evidence without the systematic application of a theoretical model.

2.7.2 (vi) Summary of Quantitative Review

In summary, analysis of nine quantitative studies has identified tentative evidence that OAE interventions can lead to positive psychological and behavioural gains for vulnerable children, specifically young offenders and children experiencing EBD. However, the studies have also revealed a pattern of issues apparent in the wider evaluation literature (See Section 2.5.2), resulting from a range of methodological limitations and variations. The current review has highlighted the need for high quality RCT design studies, detailed descriptions of interventions, effective sampling procedures and application of theoretical, process-based models such as the Adventure Experience Paradigm (Priest, 1993) in future quantitative research. The qualitative review is now presented below.

2.8 Qualitative Review

2.8.1 Including Qualitative Studies in Systematic Reviews

Systematic reviews have traditionally involved synthesis of quantitative findings to explore questions of intervention efficacy (Noyes, Popay, Pearson, Hannes, & Booth, 2011). However, the Cochrane Qualitative Research Methods Group have recently discussed the emerging practice of including qualitative data in systematic reviews (Noyes et al., 2011). Systematic reviewers are increasingly recognising the value of qualitative data for answering specific review questions such as how an individual experiences a particular intervention. This data can complement and add value to quantitative reviews concerned with questions of intervention efficacy. While Noyes et al (2011) concluded that a definitive methodology for qualitative systematic reviews is currently emergent, they emphasised the importance of transparency when reporting methodology associated with the search and synthesis process. The following section aims to facilitate such transparency in the current review of qualitative studies.

2.8.2 Weight of Evidence

Review Question: What can existing qualitative evaluation research tell us about vulnerable children's perceptions of OAE interventions?

The purpose of the qualitative review was to extend the quantitative review, which explored the efficacy of OAE interventions for vulnerable children. The qualitative review was intended to explore vulnerable children's meaning making during OAE interventions. The researcher adopted an aggregative and descriptive approach to the qualitative review, presented the findings of previous researchers without further interpretation of the data. The qualitative review involved the same search strategy used within the quantitative review i.e. Gough's (2007) model detailed in Section 2.6.1. However, the researcher used additional review specific criteria to identify five studies for inclusion in the qualitative systematic review (See Table 2-3).

Feature[2]	Inclusion Criteria	Exclusion Criteria
Research Design	Evaluation study including qualitative data	Purely quantitative design
Outcome Measures	Qualitative interview data measuring participants' views	Purely quantitative outcome measures, qualitative data not addressing participants' views
Participant Sample	Vulnerable young people (Barnes et al, 2011), targeted samples, school-aged children and young people aged 5-19	Universal samples, adults, university students
Intervention	Intervention programme involving outdoor adventure activities (e.g. hiking, orienteering, rock climbing, abseiling, river crossing etc.)	Indoor activities, curriculum-based activities outdoors

Table 2-3 Details of inclusion and exclusion criteria for qualitative studies.

Guided by the review question, the inclusion criteria were determined by review specific issues of type of data and method of data collection. Evaluation studies reviewed included interview data exploring participants' perceptions of an OAE intervention. Qualitative designs were prioritised in order to answer the current review question which reflected a phenomenological approach to evaluation i.e. emphasising subjective individual experience and personal meanings (Mertens, 1998). Due the limited number of qualitative studies in this area, the inclusion criteria were expanded for participant samples and interventions compared to the quantitative review.

2.8.3 Systematic Literature Review

The following description will present a general map of the qualitative research evidence reviewed (See Table 2-4 for overview of studies). The description reports the key themes emerging from the analysis of participant perceptions of OAE interventions and also addresses methodological issues within the qualitative research. Five studies were identified reflecting a lower representation of qualitative studies, compared to quantitative studies, in the OAE evaluation literature. The current research study aims to address this

[2] Only criteria additional to that provided in Table 2-1 are presented here i.e. criteria for type, language and date of publication were the same as the quantitative review

imbalance and incorporate participant perceptions in a naturalistic evaluation of an OAE intervention for young people perceived to be vulnerable.

First Author & Location	Details of Intervention and Duration	Sample	Data Collection Measures	Research Design	Emerging Themes
1. Karpinnen (2011) Finland	OAE as part of mainstream school curriculum 40 weeks	6 boys 10-12 years Experiencing EBD	Group interviews	Action research design Ethnographic research Focus groups Analytic induction, thematic analysis	1. Experience of learning (trying, succeeding) 2. One's own development (personal growth) 3. One's own behaviour (concentration, motivation) 4. Behaviour in a group (cooperation skills)
2. Dismore (2005) UK	'I Can' programme: Adventure activities using academic topics i.e. maths, reading comprehension, writing, affective development 1-day intervention and follow up activities at school	671 Year 5 children Underachieving in literacy and/or numeracy	Focus groups involving parents and children Writing and drawing activities	Ethnographic research Focus groups Thematic analysis	1. Intellectual development (academic development, practical use of academic skills) 2. Affective development (sense of achievement, confidence) 3. Social development (learned more about peers, encouraged, proud)
3. Autry (2001) USA	Adventure therapy including outdoor adventure activities 4-day backpacking and low ropes course	9 girls 13-18 years At risk, mental health needs, psychiatric residential facility	Individual interviews	Phenomenological research	1. Perceptions of trust 2. Empowerment 3. Teamwork 4. Recognition of personal value

4. Braiden (2009) Northern Ireland	Family adventure therapy 2-day residential	13 parents and 14 children Bereaved by suicide	Individual semi-structured interviews	Pilot study Phenomenological Research	1. Positive outcomes 2. Feel less alone 3. Feel more confident 4. Feel happier
5. Sakofs (1992) USA	Wilderness Alternative for Youth (WAY) 3 weeks Adventure activities and community service No details of activities	115 boys and girls 13-18years Adjudicated - referred by court counsellors	Individual interviews	Mixed-methods: RCT design and follow-up individual interviews	1. Positive outcomes 2. Subtle behaviour and attitudinal change * No details of data analysis, no thematic presentation of findings

Table 2-4 Details of qualitative studies reviewed including first author, date and location, intervention, sample, data collection measures, research design and emerging themes.

2.8.3 (i) Synthesis of Findings

The young people interviewed in the five studies generally reported positive perceptions of their OAE experiences. The young people also reported a range of personal gains following the intervention, with some recurring ideas across studies including for example:

- Positive experiences of learning (Karpinnen, 2011)
- Gains in intellectual development (Dismore, 2005)
- Gains in personal growth and affective development (Braiden, 2008; Karpinnen, 2011)
- Positive changes in behaviour (Karpinnen, 2011; Sakofs, 1994)
- Gains in social development and teamwork skills (Autry, 2001; Dismore, 2005)
- Empowerment (Autry, 2001; Braiden, 2008)

This qualitative data reflects many of the categories of outcome measures identified across the quantitative literature, particularly in studies involving adolescents (Cason & Gillis, 1994; Hattie et al., 1997). This finding highlights the potential for qualitative data to inform and to validate quantitative research. The information also suggests that qualitative measures may be more sensitive than quantitative measures in measuring self-concept. Rea (2000) challenged the post-positivist conceptualisation of psychological phenomena such as self-concept, for being too essential in nature rather than contextually situated. As discussed in the quantitative review, several quantitative studies have failed to find significant change in self-concept measures for young people as a result of an OAE intervention (e.g. Langsner & Anderson, 1987). However, self-concept gains and associated positive feelings were consistently reported by young people across the qualitative studies reviewed.

While the qualitative studies may be limited in their ability to support causal inferences, their purpose is to explore and understand vulnerable young people's perceptions of the OAE intervention rather than to validate its efficacy. Nonetheless, there are some methodological limitations in the studies reviewed

to be considered. There is much variation in the methodological rigour reported by the researchers from Karpinnen (2011), who provided details of his data collection and analysis, to Sakofs (1992), who provided a narrative summary of participants' views but no details of qualitative data collection or analysis. This variation limits the dependability of the findings as a whole. Furthermore, due to the small number of studies identified by the review specific question, studies have included targeted samples e.g. children bereaved by suicide (Braiden, McCann, Barry, & Carrie, 2009) and adolescent girls with significant mental health difficulties (Autry, 2001); and OAE intervention programmes individually tailored to meet the specific needs of these populations. This therefore limits the transferability of findings to the current evaluation of vulnerable young children attending mainstream primary schools. Nonetheless, the qualitative review has highlighted the potential benefits of qualitative research in this area and also the need for more such studies in the OAE evaluation literature.

2.9 Summary of the Literature Review

The literature review has presented a definition of OAE and explored its many applications across a range of universal and targeted populations. Discussion of vulnerable children and issues of identification were also addressed in order to explore the application of OAE for this population. Discussion of the theoretical foundations of OAE suggested that the intervention has the potential to positively impact upon participants' locus of control and perceived competence, according to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993). Literature was also reviewed suggesting these outcomes would particularly benefit vulnerable children experiencing EBD. A discussion of general evaluation issues in this area including methodological limitations, variation across research studies and questions of quantitative versus qualitative methods. In light of these issues, a multi-level systematic review then involved a review of quantitative evaluations of OAE interventions involving vulnerable young people extended by a review of qualitative studies exploring this population's perceptions of the OAE experience. The quantitative evidence provided tentative support for the idea that OAE intervention can impact

positively upon vulnerable children's locus of control, perceived competence and resilience. However, the validity of these findings was limited by methodological limitations. The research highlighted the need for rigorous RCT designs, clarity in reporting of intervention details, rigorous sampling methods and application of theory in research design. The qualitative review suggested that vulnerable children consistently report positive perceptions of OAE interventions and report personal gains in terms of intellectual, behaviour and social development, personal growth and empowerment. The qualitative review demonstrated the potential for qualitative data to enhance and validate quantitative findings. The issues highlighted in the literature review set the scene for the current research study.

2.10 The Current Research Study

The current study has been designed to evaluate the psychological impact of a two-day OAE intervention for primary school children perceived to be vulnerable in a large west-midlands city authority. The intervention is typically provided to schools as part of the local authority's Children and Family Services. The current study aims to provide a contextualised evaluation of the impact of this service and to make a unique contribution to the field of OAE evaluation research. The following factors were incorporated in the research design in order to address limitations of previous research:

Research Design*:* A mixed methods research design was implemented including an initial exploratory phase, a RCT and group interviews. This RCT design was used to strengthen the possible cause and effect inferences regarding the efficacy of the intervention. Group interviews were used to gather data regarding participants' experiences of the intervention.

Sample*:* A sample of young people perceived to be vulnerable was identified from primary schools in order to facilitate an example of early intervention. Participants were identified by school staff using adult perceptions of EBD and vulnerability. Typical referral criteria used by the intervention facilitators were used to support ecological validity.

Intervention: The intervention consisted of two four-hour sessions of adventure activities conducted over two days, one week apart. Children attended the sessions in groups of four to eight, according to the typical operating procedures of the existing OAE service. The researcher made concentrated efforts to gather treatment fidelity observation data and to describe activities and facilitator characteristics.

Outcomes*:* The research was designed to facilitate a real-world evaluation of the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993). Psychological treatment effects were measured in terms of participant self-reports of locus of control (Nowicki & Strickland, 1973) and self-perceptions of competence (Harter, 1982). By gathering data regarding the impact of the OAE intervention upon these variables, the research aimed to explore the validity of the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) in explaining the mechanisms of action during OAE programmes. This approach aimed to address previous authors' criticism of existing research failing to build upon previous research, psychological theory and process-based questions (Nichols, 2000). Behavioural treatment effects were also measured using teacher reports of children's EBD observed in school (Goodman, 1997). Qualitative data was also gathered to explore participants' experience of the OAE intervention. The following section presents the current research questions. The methodology chapter then provides details of the current methodology and how it was developed to answer these questions.

Overarching Research Question:

- What is the psychological impact of an OAE intervention for primary school children perceived to be vulnerable?

Individual Research Questions:

1. Does participation in an OAE intervention have an impact upon the locus of control of primary school children perceived to be vulnerable?

2. Does participation in an OAE intervention have an impact upon the global and domain specific self-perceptions of primary school children perceived to be vulnerable?

3. Does participation in an OAE intervention have an impact upon teacher perceptions of emotional and behavioural difficulties experienced by primary school children perceived to be vulnerable?

4. How do participants perceive the OAE intervention?

Chapter 3: Methodology

3.1 Introduction

This chapter presents an overview of methodological issues in real world evaluation research as well as specific details of the current methodology and research design. Firstly, a general review discusses the philosophical origins of methodology, the dominant paradigms and their influence upon research design. This review is intended to illuminate the current methodology and particular methodological issues relevant to the current study will therefore be highlighted throughout the general review. Details of the current study are then presented including current epistemology, methodology and research design.

The purpose of the current study was to evaluate the psychological impact of an OAE intervention for primary school children perceived to be vulnerable. A mixed-methods methodology was adopted including quantitative and qualitative research strands. The researcher was interested primarily in quantitative evaluation of intervention efficacy. Hence, the emphasis within the current study was upon a fixed, experimental design involving a randomised control trial (RCT) (Campbell & Stanley, 1963). However, the study also incorporated elements of a flexible naturalistic inquiry design (Lincoln & Guba, 1985) involving an initial exploratory phase to inform the design of the RCT and group participant interviews to triangulate RCT data. The group interviews facilitated a secondary qualitative evaluation of participants' perceptions of the OAE intervention. Details of the current study are presented as follows: the exploratory phase is discussed briefly followed by individual discussion of the quantitative and qualitative research strands. Details of the participant sample, the intervention, ethical considerations and stakeholder issues are then presented. The final section of the chapter explores the overall quality of the current study including individual evaluations of the quantitative (including details of measurement tools) and qualitative research strands. The mixed-methods methodology was determined by the current research questions:

Overarching Research Question:

- What is the psychological impact of an OAE intervention for primary school children perceived to be vulnerable?

Individual Research Questions:

1. Does participation in an OAE intervention have an impact upon the locus of control of primary school children perceived to be vulnerable?
2. Does participation in an OAE intervention have an impact upon the global and domain specific self-perceptions of primary school children perceived to be vulnerable?
3. Does participation in an OAE intervention have an impact upon teacher perceptions of emotional and behavioural difficulties experienced by primary school children perceived to be vulnerable?
4. How do participants perceive the OAE intervention?

3.2 Methodology in Real World Research

Methodology has been defined as an approach to systematic inquiry (Mertens, 1998). The characteristics of different methodological approaches or paradigms are fundamentally determined by their philosophical roots, which involve researchers' beliefs about *ontology* i.e. the nature of reality and *epistemology* i.e. the nature of knowledge. These beliefs influence the methods a researcher uses to explore and interpret reality and knowledge. A methodological paradigm therefore represents a specific systematic set of beliefs and their associated methods (Lincoln & Guba, 1985, p. 15). Within real world evaluation research, there is an enduring debate between two major opposing methodological paradigms i.e. positivism and constructivism. The following discussion explores this debate as well as alternative paradigms including post-positivism and pragmatism. This discussion is intended to illuminate the researcher's epistemological standpoint in the current study and hence justify the selection of the current mixed-methods methodology.

3.2.1 Positivism versus Constructivism: Enduring opposition

Positivism is associated with a positive view of the purist scientific method. This paradigm assumes the existence of a single, tangible reality which can only be understood through objective evaluation of sensory experience. Positivism conceptualises facts as value free and positivist researchers are therefore concerned with demonstrating generalisation and linear causality (Cohen, Manion, & Morrison, 2009; Lincoln & Guba, 1985; Robson, 2002). However, this purist paradigm has been rejected within contemporary real world research (Groff, 2004). Lincoln and Guba (1985) argued that positivism presents a limited conceptualisation of science which is overly deterministic and reductionist. This approach essentially underestimates human subjectivity. The positivist reliance on objectivity is therefore highlighted as a significant limitation. Critiques have argued that no human being can be a true positivist and that pure objectivity cannot occur independently of the real world researcher's values, culture, history, language (Robson, 2002; Silverman, 1986).

In light of these criticisms, constructivism has emerged as the dominant opposing paradigm to positivism. However, Silverman (1986) asserted that constructivism represents more than a mere alternative to positivism. Constructivism is associated with an ontology grounded in relativist philosophy which identifies multiple, socially constructed realities determined by subjective individual experience (Lincoln & Guba, 1985; Mertens, 1998). This naturalistic paradigm implies that the knower cannot be separated from the known and must therefore engage with value, time and context bound inquiry (Lincoln & Guba, 1985). This paradigm also has implications for research methods. Constructivist methodology involves flexible research designs and qualitative methods such as interviews and naturalistic observations. These approaches allow researchers to address questions of individual experience and meaning as opposed to positivist generalisation and causality (Patton, 2002). However, positivist questions of cause and effect endure within contemporary programme evaluation and evidence-based practice approaches (Patton, 2002; Shaw, Greene, & Mark, 2006). This poses the question as to how constructivist methodology can be incorporated into programme evaluation. For example,

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Silverman (1986) asserted that an individual's response cannot be understood as an explanation and cannot be interpreted independently of the immediate context. The positivist/constructivist debate has effectively reached a stalemate as a result of their fundamental opposition, leading to the emergence of alternative approaches.

3.2.2 Post-positivism: A comprehensive alternative?

The post-positivist paradigm has evolved in contemporary social science to address the limitations of purist positivism, particularly the issue of objectivity. The post-positivist researcher recognises their limitations in terms of objectivity and attempts to apply a positivist ethos while also acknowledging that real-world research can only claim to know the world imperfectly, in terms of probabilities (Robson, 2002). Post-positivism therefore incorporates elements of constructivist ontology while maintaining a positivist epistemology (Groff, 2004). Post-positivism is typically associated with prospective, fixed research designs. This supports an evidence-based practice approach to programme evaluation, concerned with the use of rigorous quantitative methods to determine effective courses of action (Shaw et al., 2006). However, the amalgamation of opposing ontologies within a single paradigm presents internal contradictions. Groff (2004, p. 135) critiqued this 'intellectual quagmire' and Lincoln and Guba (1985, p. 28) dismissed post-positivism as a 'clumsy and emergent' attempt to continue the positivist movement. Another alternative is required to effectively address exploratory and evaluation research questions.

3.2.3 Mixed Methods: A change of emphasis

Within recent decades, the mixed methods paradigm has emerged as the 'third research community' (Teddlie & Tashakkori, 2009, p. 4), presenting an alternative to the positivism/constructivism dichotomy. As noted previously, any methodology is determined by the researchers' ontological and epistemological beliefs. Mixed methods research adopts a *pragmatist* philosophy (James, 1907) which is less concerned with the nature of truth or reality but more with 'what works' in light of the research question under investigation. The mixed methods epistemology therefore allows the researcher to be guided by their research

questions in determining their selection of research methods. This allows the use of both quantitative and qualitative methods within a single research study. Triangulation of different types of data enables researchers to capture the complexity of phenomena without being limited by the constraints of a strict post-positivist or constructivist paradigm (Cohen et al., 2009). The current study whilst predominantly employing a fixed, controlled research design, adopts a mixed methods approach. This approach allows the research to explore questions of intervention efficacy and also to address participants' experience of the intervention. The reasons for this choice are discussed below.

3.3 Epistemology in the Current Study

The purpose of the current study was to evaluate the psychological impact of an OAE intervention for primary school children perceived to be vulnerable. The researcher was concerned predominantly with post-positivist questions of intervention effects and efficacy. However, the researcher also wanted to facilitate a naturalistic element within the evaluation i.e. to provide a contextualised evaluation of a naturally occurring OAE intervention (Lincoln & Guba, 1985). The naturalistic element was also intended to allow the researcher some insight into the mechanisms of change during the intervention. Hence, the researcher adopted a pragmatic ontological and epistemological standpoint, which led to the generation of a mixed methods methodology, guided by the research questions. The current quantitative methodology allowed the researcher to contribute to evidence-based practice and programme evaluation research. The naturalistic element also provided insights for stakeholders regarding service users' experiences of the OAE intervention, as well as researcher insights into the mechanisms of change. The following section provides an overview of research designs associated with different methodological approaches in order to illuminate the impact of the current epistemology upon research design in the current study.

3.4 Research Design in Evaluation Research

Evaluation involves systematic inquiry to determine the merit, worth and/or value of an entity (Shaw et al., 2006). This process serves to provide evidence

and criteria for judgements, to eliminate bias and to inform programme improvement and professional practice (Shaw et al., 2006). Lincoln and Guba (1985) distinguished between two forms of programme evaluation, each determined by their purpose.

- *Formative evaluation*: Process-based, seeking to inform development of the programme
- *Summative evaluation*: Outcome-based, assessing the effects of the programme

Summative evaluation is typically associated with fixed research designs while formative evaluations are often more flexible and emergent. Contemporary programme evaluation often incorporates summative evaluation including questions of programme outcomes, aggregate data and quantitative synthesis of evidence (Patton, 2002; Shaw et al., 2006). However, the adoption of a mixed-methods approach can allow a researcher to address both summative and formative questions within a single inquiry. The following discussion presents an overview of fixed, flexible and mixed-methods research designs to contextualise the subsequent introduction of the current research design. Issues of quality are considered with randomised control trials and group interviews highlighted within this discussion because of their use in the current study.

3.4.1 Fixed Research Designs

Fixed research designs have been defined as those where the research design is highly specified prior to the data collection phase. These designs reflect a post-positivist methodology and most often involve quantitative or numerical data and statistical analysis (Robson, 2002). Fixed research designs include experimental and quasi-experimental designs involving researcher manipulation of environmental conditions (i.e. independent variables) and evaluation of the direct impact upon dependent variables (See Figure 3-1 for examples of fixed designs). Fixed designs are often valued within post-positivist evaluation research because of their scientific validity and reliability which supports

generalisation of findings (Campbell & Stanley, 1963). They are therefore typically associated with summative or outcome-based evaluation research.

Pre-Experimental Designs
Case study
One group pre-test/post-test
Static group comparison

True Experimental Designs
Pre-test/post-test control or comparison group (randomisation)
Post-test only control or comparison group
Factorial designs (multiple independent variables)
Matched pairs
Repeated measures

Quasi-Experimental Designs
Non-equivalent control or comparison group (no randomisation)
Time series
Single case experimental

Figure 3-1: Common types of fixed research designs (Campbell & Stanley, 1963; Robson, 2002).

3.4.1 (i) Reliability in Fixed Research Designs

Reliability, as a measure of the quality of fixed research designs, is defined as the consistency or replicability of research findings across time (Cohen et al., 2009). Within fixed research designs, reliability of the measurement tools is often demonstrated using statistical correlational methods. Research studies therefore frequently report the reliability of their measures. This reliability can be demonstrated in several ways:

- Correlation of scores across time or participants (i.e. stability)
- Correlation of scores with equivalent measurement tools (i.e. equivalence)
- Correlation of scores across researchers (i.e. interrater)
- Correlation of scores across individual test items (i.e. internal consistency)

Reliability can be threatened by the errors and personal biases of both participants and researchers. Hence, rigorous and systematic data collection procedures can support the reliability of research findings. However, reliability is essential but not sufficient to establish a valid research design (Robson, 2002).

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3.4.1 (ii) Validity in Fixed Research Designs

Validity is defined as the degree to which an instrument or research study measures what it purports to measure (Cohen et al., 2009). There are two key forms of validity to be considered:

- *Internal validity:* The accuracy of the data and research findings in describing the phenomena under investigation.
- *External validity (Generalisability):* The extent to which findings can be generalised to different populations and contexts.

Cook and Campbell (1979) identified a seminal list of common threats to the internal validity of a fixed research design (See Figure 3-2).
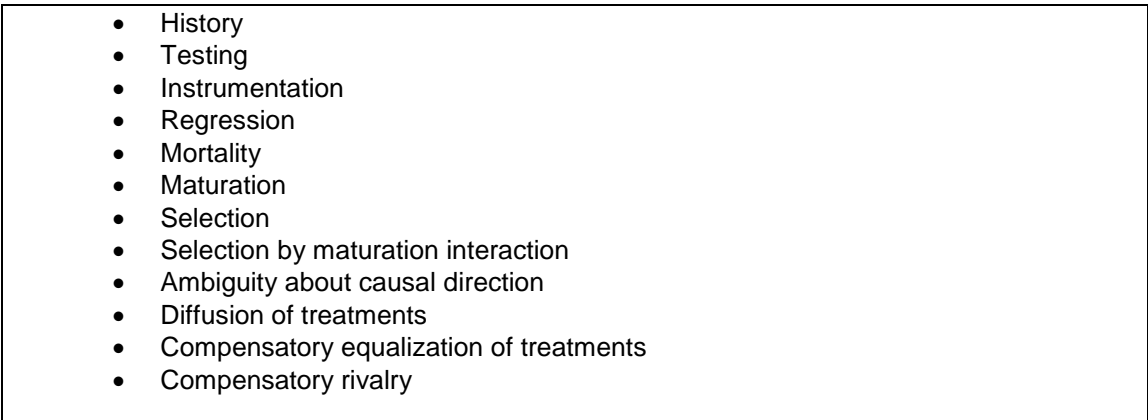
- History
- Testing
- Instrumentation
- Regression
- Mortality
- Maturation
- Selection
- Selection by maturation interaction
- Ambiguity about causal direction
- Diffusion of treatments
- Compensatory equalization of treatments
- Compensatory rivalry

Figure 3-2: Common threats to internal validity (Cook & Campbell, 1979).

LeCompte and Goetz (1982) identified four similar threats to external validity i.e. selection strategies, uniqueness of setting, participant history and relationship between the construct studied and the participant sample. In fixed research designs, validity is enhanced by features of the research design such as participant sampling strategies, measurement instruments and statistical procedures. Careful planning of research design prior to data collection can therefore control the effects of threats to internal and external validity. This is approach is most effective in 'true experiments' of which the randomised control trial (RCT) is considered the 'gold standard' (Campbell and Stanley, 1963; Robson, 2002).

3.4.1 (iii) Fixed Research Design in Focus: Randomised Control Trials

As discussed in Chapter 2, 'true experiments' are argued to demonstrate the strongest validity and reliability amongst fixed research designs (Campbell and Stanley, 1963). Campbell and Stanley (1963) identified 'true experiments' as those which include both group comparison and, significantly, random allocation of participants to conditions (See Figure 3-1). Random allocation of participants acts as a powerful control for extraneous variables threatening the internal and external validity of a research design (Cook & Campbell, 1979). The 'gold standard' of true experimental designs has been identified as the two group, pre-test/post-test randomised control trial (RCT) (Campbell & Stanley, 1963; Robson, 2002; Scott, Shaw, & Joughin, 2001). The RCT design offers robust evidence to support causal inferences and is therefore generally accepted as a useful tool in answering summative evaluation research questions (Shadish, Cook, & Campbell, 2002). Torgerson and Torgerson (2001) argued that RCTs provide the highest quality evidence for exploring questions of intervention outcome and therefore called for more high quality RCT studies in educational research.

3.4.2 Flexible Research Designs

Flexible research designs are associated with the constructivist methodological paradigm. Lincoln and Guba (1985) discussed the implications of constructivist ontology for research methodology including the use of emergent rather than fixed designs, inquiry within a natural setting, use of a human measurement instrument and use of qualitative measures. Silverman (1986) emphasised that qualitative methods should address the analytic field as a whole rather than isolating individual elements. Similarly, Mertens (1998) stated that qualitative methods are associated with personal experience, complexity, context, exploration, discovery and inductive reasoning. As a result of these constructivist features, qualitative methods are well-suited to formative, process-based evaluation research. Flexible research designs often involve a reflective researcher (Agee, 2009) and successive phases of inquiry as detailed by Lincoln and Guba (1985, p. 235):

- *Phase 1:* Orientation and Overview i.e. initial exploration of the context to determine the focus of inquiry
- *Phase 2:* Focused Exploration
- *Phase 3:* Member Check i.e. data analysis and interpretation

However, Silverman (1986) asserted that while flexible designs typically involve qualitative or narrative research methods, they do not preclude the use of quantitative methods (Silverman, 1986). Furthermore, he advocated the use of rigour as an essential quality element within the qualitative methods.

3.4.2 (i) Quality in Flexible Research Designs

The criteria for assessing the quality of flexible research designs echoes post-positivist concepts of reliability and validity (Mertens, 1998). Lincoln and Guba (1985, p. 42) referred to these quality criteria as 'special criteria for trustworthiness'. However, compared to fixed research designs, these authors discussed issues of naturalistic rather than logical generalisation and mutual shaping rather than causality in flexible research designs. Mertens (1998) presented five key criteria for assessing quality within qualitative research and also detailed strategies to enhance quality within each domain (See Table 3-1).

Quality Criteria	Corresponding Post-Positivist Concept	Strategies to Enhance Quality
Dependability	Reliability	Dependability audit
Credibility	Internal validity	Prolonged, substantial engagement Persistent observation Peer debriefing Negative case analysis Progressive subjectivity Member checks Triangulation
Transferability	External validity	Thick description Multiple cases
Confirmability	Objectivity	Confirmability audit/chain of evidence
Authenticity	None	Fairness Ontological authenticity Catalytic authenticity

Table 3-1: Details of quality assessment criteria for flexible research designs.

As with fixed research designs, consideration of the quality criteria during the planning of a research study and incorporation of specific strategies into the research design can also enhance the quality of flexible research studies. However, in light of the interactive and constructivist nature of qualitative methods, quality controls are also important during data collection phases, specifically in the researcher's interactions with participants. Qualitative researchers require rigour in their recording and interpretation of data to reduce the threats of researcher and participant error and bias (Robson, 2002). This is explored further throughout the following discussion regarding interviews as a qualitative research tool.

3.4.2 (ii) Flexible Research Design in Focus: Group Interviews

Lincoln and Guba (1985) emphasised the importance of a human measurement instrument within flexible research designs. Group interviews have been identified as both a research design and research tool incorporating the interviewer as a human instrument (Mertens, 1998). From a constructivist perspective, a human interviewer is adaptable to the multiple, constructed realities within a context and is also responsive to social interactions between individuals. Interviews are therefore commonly used within naturalistic research to access individuals' reconstructions of an experience and to triangulate data gathered from different sources (Lincoln & Guba, 1985).

Cohen et al., (2009, p. 267) identified an interview as an interchange of views between two or more people on a topic of mutual interest. Mertens (1998) categorised interviews using the following dichotomies:

1. Structured or Unstructured: While Mertens (1998) identified that qualitative researchers typically favour unstructured or semi-structured interview styles, she also stated that this is at the discretion of the researcher. Highly structured interviews can aid the researcher in maintaining the direction and focus of discussions as well as allowing them to focus on participant responses. Lincoln and Guba (1985) advised that structured interviews are particularly effective for triangulation purposes.

2. Individual or Group: Group interviews are defined as group conversational encounters with a clear research purpose, where the interaction between participants is an important feature (Watts & Ebbutt, 1987). Mertens (1998) identified focus groups as a form of group interviews, typically unstructured. Several authors have identified the lack of standardised methodology for group interviews (Cohen et al., 2009; Lewis, 1992; Watts & Ebbutt, 1987). However, guidance is available regarding common features of the research tool including the rationale for using group interviews for data gathering, practicalities such as group size (advice ranges from 3-15), data recording strategies, and interpretation of data. Lewis (1992) advised that the most common purpose of a group interview is to clarify research questions or to verify data gathered using another method. Lewis (1992) also described the role of the researcher as more than an interviewer but rather a group facilitator, guiding the interactions between participants. To aid this, Mertens (1998) suggested that a group facilitator should present carefully developed questions using open-ended questioning techniques. Watts and Ebbutt (1987) identified several advantages of group interviews compared to individual interviews, arguing that group interviews can be cost effective, less intimidating for participants and can provide a wider range of answers following group discussions. Lewis (1992) also demonstrated the use of group interviews as a valuable research tool with primary school children. However, group interviews can be limited by the reliability of the data gathered as a result of errors in data coding strategies and measurement instruments. Also, while interviews can be used to answer both formative and summative evaluative research questions, it could be argued that they are somewhat limited in their ability to explore the latter. As noted previously, Silverman (1986) argued that an individual's response in an interview cannot be interpreted as an explanation generalizable to different contexts. An alternative approach which combines the benefits of both fixed and flexible designs is needed, when considering both types of questions in parallel.

3.4.3 Mixed Methods Research Designs

Mixed methods designs combine features of fixed and flexible designs, using both quantitative and qualitative methods to answer different aspects of

overarching research questions. The particular combination of methods required is ultimately determined by the research questions (Teddlie & Tashakkori, 2009). Therefore, mixed methods evaluation research can explore both summative and formative questions, providing an evaluation of greater breadth and depth than that facilitated by a single method alone. Teddlie and Tashakkori (2009) suggested that qualitative, quantitative and mixed methods be considered on a continuum of research designs rather than as distinct alternatives. These authors also presented the following criteria for defining the features of mixed methods research designs.

Number of Research Strands*:* A strand is defined as a phase of research involving conceptualisation, experiential and inferential components. Monostrand designs involve mixed methods within a single strand while multistrand designs involve two or more phases using different methods.

Data Collection: Data from different methods can be gathered in parallel or sequentially. Sequential data analysis occurs when one form of data informs the subsequent collection of the second form. Parallel data collection involves two or more independent research strands occurring simultaneously, with integrated data analysis after data collection informing meta-inferences.

Priority of Methodological Approach: According to the nature of the research questions, quantitative and qualitative methods can be of varied priority to different mixed method researchers. Both methods can be of equal importance or one method can be prioritised above the other, according to their purpose. Teddlie and Tashakkori (2009, p. 162) presented four key mixed method designs, which are determined by the prioritisation of qualitative and quantitative methods (See Table 3-2).

Design Type	Combination of Methods	Variants	Notation
Triangulation	Equal Priority	Convergence Data transformation Validating quantitative data Multi-level	QUAN + QUAL
Embedded	One method prioritised over the other	Embedded experimental Embedded correlational	QUAN (qual) or QUAL (quan)
Explanatory		Follow-up explanations Participant selection	QUAN → qual
Exploratory		Instrument development Taxonomy development	QUAL → quan

Table 3-2: Four common mixed-methods research designs determined by the prioritisation of quantitative and qualitative research methods.

3.4.3 (i) Quality in Mixed Methods Research Designs

As discussed thus far, a mixed methods design involves integration of findings from quantitative and qualitative methods to answer overarching research questions. The data analysis can involve transformation of data to a single format and/or generation of meta-inferences from different forms of data (Teddlie & Tashakkori, 2009). These meta-inferences are typically the focus of quality checks within mixed methods research. While Teddlie and Tashakkori (2009) discussed the dearth of standardised quality criteria within the emerging mixed methods literature, it is apparent that common practice in quality evaluation mirrors that within flexible and fixed designs already discussed in this section. *Inference Quality*, which parallels internal validity and trustworthiness, refers to standards for the evaluation of conclusions made from the data gathered. *Inference Transferability*, which parallels external validity and transferability, refers to the extent to which inferences can be applied to other studies. Teddlie and Tashakkori (2009) suggested that these quality features can be enhanced by high quality research design (design appropriateness, fidelity, consistency and adequacy of data analysis), interpretive rigour, efficacy of method integration and correspondence of data interpretation. Informed by the general review of research design in evaluation research, the following section now discusses the application of a mixed-methods research design in the current study.

3.5 Research Design in the Current Study

The current study used a multistrand mixed methods design involving quantitative and qualitative investigations implemented in parallel. An embedded experimental design was used with quantitative methods prioritised and qualitative methods used to expand and enhance quantitative findings. This methodological triangulation was used to enhance the depth of quantitative findings (Cohen et al., 2009; Teddlie & Tashakkori, 2009). The current design incorporated an initial qualitative exploration phase which informed the planning of the dominant RCT design (Phase 1 Orientation and Overview: Lincoln & Guba, 1985). Group interviews facilitated further qualitative exploration of participants' experiences of the intervention. The following discussion provides details of the current research design. The initial exploration phase is discussed briefly in order to illustrate how this phase informed the quantitative and qualitative research strands. The research strands are then discussed individually followed by a brief overview of administration of measures and data analysis procedures.

3.5.1 Initial Exploratory Phase: Orientation and Overview

Prior to the design and implementation of the main data collection phase, the researcher engaged in an initial phase of naturalistic inquiry (Lincoln & Guba, 1985) to familiarise themselves with the natural setting and to determine the most appropriate focus for the evaluation. This phase included several key elements as follows:

1. Initial meeting and interview with OAE facilitators to discuss the research (See Appendix 2)
2. Review of OAE documentation i.e. intervention handbook (See Appendix 3)
3. Field observation and experience of the intervention (See Appendix 4)
4. Interviews with head teachers to explore their perceptions of OAE and to negotiate their involvement in the research project (See Appendix 5)
5. Piloting the quantitative measures

This initial exploration phase was informed by the review of existing research evidence and also guided the focus of the literature review presented in Chapter 2. The exploratory data gathered was recorded in note form and was not subjected to rigorous analysis. The researcher gleaned tacit rather than propositional knowledge to inform the design of the current study. This initial exploration highlighted several practical issues e.g. timing of administration of the quantitative measures, and informed the design of the quantitative and qualitative research strands.

3.5.2 Quantitative Research Strand

3.5.2 (i) Randomised Control Trial

The core quantitative element of the current study involved a two-group, pre-test/post-test randomised control trial design. This design was selected to answer the primary research questions of programme efficacy due to its claims to strong internal and external validity (Campbell & Stanley, 1963) and its ability to support inferences of causation between independent and dependent variables (Shadish et al., 2002). The RCT design was intended to investigate possible between-group differences in outcomes for participants following participation in the OAE intervention. The dependent variables to be explored included children's perceptions of their personal locus of control and a range of competency self-perceptions including global self-worth, scholastic competence, social acceptance, behavioural conduct, athletic competence and physical appearance. Teachers' perceptions of the children's emotional and behavioural difficulties were also measured to provide behavioural data in order to triangulate children's self-perceptions data (See Table 3-3 for full details of the research design).

Independent Variables (Categorical)	Dependent Variables (Continuous)	Measurement Tools
1. GROUP Between-groups variable with 2 levels (Experimental, Control)	**Participant Measures**	
	1. Locus of Control (LOC)	The Locus of Control Scale for Children: LCSC *(Nowicki & Strickland, 1973)*
	2. Global Self-Worth (GSW)	The Self-Perception Profile for Children – UK modification: SPPC *(Hoare, Elton, Greer, & Kerley, 1993)*
	3. Scholastic Competence (SC)	
	4. Social Acceptance (SA)	
	5. Behavioural Conduct (BC)	
	6. Athletic Competence (AC)	
2. TIME Within-groups variable with 3 levels (Pre-intervention T1, Post-intervention T2, Follow-up T3)	7. Physical Appearance (PA)	
	Teacher Measures	
	8. Emotional and Behavioural Difficulties	The Strengths and Difficulties Questionnaire: SDQ *(Goodman, 1997)*

Table 3-3: Details of research design including variables and measurement tools.

Full details of the sample and sampling procedure are provided below (See Section 3.6.5). After being identified as vulnerable by school staff, 45 Year 5 primary school children from four different primary schools in a large, west-midlands city authority were randomly assigned to experimental or wait-list control groups. As the intervention was naturally occurring, the researcher's random allocation did not impede or constrain children's access to the intervention. 12-16 students were selected from each school and random allocation occurred within each school group to create four experimental and four control groups to be ultimately combined into single experimental and control groups for data analysis. Randomisation procedures were carried out by the researcher by selecting from pieces of paper with participants' names on, witnessed by independent professional colleagues. This approach facilitated

practicalities such as small-group intervention, ease of transportation of participants and ease of administration of measurement tools. As participants within each experimental group therefore completed the intervention in different environmental and interpersonal contexts, the researcher established statistical group equivalence across school groups prior to data analysis (See Chapter 4 for details). The combination of data from several intervention groups for further analysis is common within the OAE literature (Hazleworth & Wilson, 1990; Walsh & Russell, 2010a). Within each school group, the student measures were administered to all participants prior to the experimental group completing the intervention, after their first intervention day and after their second intervention day. Each control group then completed the intervention following the completion of the quantitative measurement phase in their school.

3.5.2 (ii) One Group Pre-test/Post-test Design

Unfortunately, some difficulties were faced in the administration of the Emotional and Behavioural Difficulties (EBD) investigation resulting in only a small RCT design i.e. n = 10 (See Table 3-4 for details). The teacher in one of the schools failed to complete the post-test measures on the Strengths and Difficulties Questionnaire; hence these children were not included in the EBD investigation. Furthermore, due to errors in the timing of teacher completion of the questionnaires, a randomised control trial was not facilitated in two of the three remaining schools. In these two schools, the post-test measures were completed following the completion of the wait list control programme, hence removing the control group from the design. This resulted in a one-group pre-test/post-test design from which data has been analysed and presented, acknowledging the methodological limitations of this design i.e. no non-treatment control group (Campbell & Stanley, 1963).

3.5.3 Qualitative Research Strand

3.5.3 (i) The Reflective Researcher

By incorporating a qualitative strand within the current study, the researcher positioned herself as reflective researcher engaged in an interactive inquiry journey (Agee, 2009; Ortlipp, 2008). Through critical self-reflection and

engagement with the natural setting during the quantitative research strand, the researcher generated a secondary qualitative research question. During the administration of student measures and observations of the intervention, the researcher became interested in participant comments about the OAE experience. In response to the unfolding story, the researcher attempted to capture, to some extent, the complexity of the intervention context and participant experience using group interviews (Mertens, 1998). As advocated by Lincoln and Guba (1985), the researcher acted as a human instrument engaging with the multiple realities and interpersonal interactions between the participants (See Section 3.4.2). The group interview data explored participants' experiences of the intervention and also provided triangulation for quantitative data regarding the outcomes of the intervention.

3.5.3 (ii) Group Interviews

Following control group participants' completion of the intervention, the researcher facilitated three structured group interviews, one each in three of the four schools that took part in the research. It was not possible to arrange a group interview in the fourth school due to school timetable limitations. Each group interview involved nine participants from the experimental and control groups, all of whom had completed the intervention. The interviews lasted between 20 and 30 minutes each and while they were highly structured to promote dependability, the facilitator encouraged some group discussion to develop. The use of structured interviews was intended to support data triangulation (Lincoln & Guba, 1985). The researcher used the following standard script to introduce the purposes of the group to the participants:

'I would like to ask you about your thoughts and feelings about the Outdoor Adventure Education days. I would like to hear from everyone so I will make sure you all get a chance to speak, if you want to.'

The researcher asked three open ended questions about the participants' experience of the intervention.

1. *'What did you like about the Outdoor Adventure Education days?'*
2. *'What did you not like about the Outdoor Adventure Education days?'*

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3. 'Do you think anything has changed for you since you went on the Outdoor

Adventure Education days? If so, tell me about that'.

The researcher provided each participant with an opportunity to respond to each question and attempted to facilitate a balanced discussion between majority and minority voices within the group. The researcher chose group interviews to explore participant experience of the intervention because of their benefits in being time effective, providing a reassuring small group setting for participants and providing a range of participant responses (Watts & Ebbutt, 1987). However, the reliability of the data gathered was limited by the lack of audio recording during data collection. As the researcher had not sought parental consent to audio record participants' responses, the researcher transcribed participants' comments during the group interviews, which may have resulted in the loss of some data (See Appendix 14).

3.5.4 Administration of Measurement Tools

The quantitative and qualitative measurement tools were administered to each school group separately according to a standard administration timetable (See Table 3-4).

Time	Experimental Group	Control Group
Day 1	Pre Intervention Time 1 Teacher and Student Measures – LCSC, SPPC, SDQ	
Day 2	Intervention Day 1	Regular school activities
Day 3	Post Intervention Time 2 Student Measures – LCSC, SPPC	
Day 9	Intervention Day 2	Regular school activities
Day 10	Follow-Up Time 3 Student Measures – LCSC, SPPC Post Intervention Time 2 Teacher Measures – SDQ	
Day 16	Regular school activities	Intervention Day 1
Day 23	Regular school activities	Intervention Day 2
Day 24	Post Intervention Time 2 Teacher Measures completed in error –SDQ	
6-15 days later	Group Interviews	

Table 3-4: Details of administration timetable for measurement tools.

Each group therefore experienced the same sequence of measures administration and intervention days, with a slight variation when two of the schools experienced two weeks rather than one between the experimental

group's first and second intervention days. The quantitative student measures were administered by the researcher in a classroom assisted by one member of staff. In each school, participants from the experimental and control groups completed the measures together in groups of 12-16. The researcher provided copies of the questionnaires and pencils and also used the official scripts to introduce each measure. The researcher read each question aloud and the students were requested to mark their answer on the questionnaire sheet. The researcher and member of staff monitored the students' responses and provided reminders for missed questions. The researcher also provided explanations of questions and additional support for students who were working at a slower pace than the rest of the group.

3.5.5 Data Analysis

The data analysis was completed using a mixed-methods approach (Teddlie & Tashakkori, 2009). The findings from the two research strands were considered initially in isolation to address individual research questions. Findings were then combined to generate meta-inferences regarding the overarching research question of the efficacy of the OAE intervention. The quantitative data was analysed using statistical evaluation of group differences and the qualitative data was analysed using thematic analysis. Full description and review of these approaches is provided in Chapter 4. The following sections now present further details of the current research design including description of the population sample, details of the OAE intervention and discussion of stakeholder and ethical issues.

3.6 Sample

3.6.1 Sample Characteristics

The participants were identified by school staff as experiencing emotional and behavioural difficulties (EBD) according to the typical referral criteria used by the Outdoor Education Team. In light of the difficulties identifying vulnerable children discussed in Chapter 2 and acknowledging the relativism of vulnerability as a concept, the researcher adopted the typical Outdoor Education Team referral criteria to support the ecological validity of the study.

The referral criteria identified in the Outdoor Education Team handbook (See Appendix 3) and shared with head teachers during initial consultation meetings included the following:

- Poor social skills
- Low self esteem
- Victim of bullying or abuse
- In need of a positive educational experience
- May benefit from a change of environment

The criteria were linked to existing research regarding the identification of vulnerable children (See Section 2.3). The Outdoor Education facilitators emphasised that the programme adopted an early intervention approach and aimed to target children showing initial signs of disaffection and isolation. These criteria correspond to the 'emotional health' category of vulnerable young people identified by Barnes, Green and Ross (2011) and reflect a systemic risk and protective factors framework (Walker & Donaldson, 2011). The criteria also target 'withdrawn/isolated behaviour' and 'immature social skills', indicators of EBD identified in the SEN Code of Practice (DfES, 2003). The total participant sample included 45 Year 5 children from four primary schools within a large west midlands city authority. The sample included 19 males and 26 females, with an average age of ten years one month. 60% of participants were on their school's Special Educational Needs register and 53% received free-school meals, a commonly used proxy indicator of low socio-economic status (Hobbs & Vignoles, 2010; Wardle, Robb, & Johnson, 2002). Participants were of varied ethnicity including 64% white British, 18% mixed white and black Caribbean, 6% Eastern European including 4% Roma, 4% other black African/Caribbean/British, 4% Asian and 2% Arabic.

3.6.2 Sample Selection

Cohen, Manion and Morrison (2009) identified four factors to be considered when selecting a sample of research participants. These include sampling

methods, the representativeness of the sample, access to participants and sample size. Each factor is now discussed in relation to the current sample.

3.6.2 (i) Sampling Method

In the current study, the researcher used purposive sampling methods, which involve sampling from the group or setting where the phenomena of interest are most likely to occur. Purposive sampling is guided by the needs of the researcher and their research questions. Therefore, in contrast to probability sampling, where every member of the population has an equal chance of being selected, purposive sampling can limit the representativeness of a sample and the generalizability of findings (Mertens, 1998; Robson, 2000). However, in the current study, features of the research design such as random allocation and use of a control group were used to counteract this limitation. The researcher identified a sample of primary school children perceived to be vulnerable who would typically access the local authority OAE intervention through the established referral criteria. This strategy was used to obtain a representative sample of typical consumers of the naturally occurring OAE intervention and therefore to support the contextual relevance of findings.

3.6.2 (ii) Access to the Sample

As a TEP working for the local authority, the researcher was well-placed to approach head teachers regarding access to students as participants. The researcher decided to select primary-aged students as existing literature suggested that a shift towards internal locus of control occurs with age (Frederickson & Dunsmuir, 2009a; Mamlin, Harris, & Case, 2001), hence older children might be undergoing this maturational shift during the intervention therefore interfering with experimental control of the locus of control variable. The OAE facilitators advised that they did not work with children before Year 4 for health and safety reasons. Year 5 was therefore selected from the Key Stage 2 year groups to avoid disrupting Year 6 Standardised Assessment Tests during the summer term 2012. Initial invitation letters (See Appendix 6) were emailed to 28 head teachers working in primary schools in the local area where the researcher was working as a TEP. Seven head teachers replied with six

expressing their interest in participating in the research project. However, the OAE facilitators offered the researcher enough intervention days to include four schools so the researcher arranged meetings with the first four head teachers to reply. The researcher provided the other two head teachers with contact details for the Outdoor Education Team to allow them to access the intervention outside the research project, ensuring that children were not denied access to the intervention. In individual interviews with head teachers during the initial exploratory phase, the OAE facilitators and the researcher detailed the criteria for selection of research participants (See Section 3.6.1). Each head teacher was advised to select, in consultation with the class teacher, between 12 and 16 Year 5 students to participate in the research project.

3.6.2 (iii) Sample Size

The size of a population sample affects the validity of research findings and the power of statistical analysis. Borg and Gall (1989) recommend a minimum sample size of 15 observations per experimental group for experimental studies. The current study adhered to this general recommendation but further analysis using Cohen's (1988) power tables identified limitations to statistical validity as a result of the sample size (See Section 4.2.1 (ix) for further details). For group interviews, existing guidance has suggested a range of minimum group sizes between three and seven and a maximum of 15 (Lewis, 1992; Mertens, 1998; Watts & Ebbutt, 1987). The researcher initially intended to interview all 39 participants in their school groups (i.e. 12/14) following completion of the wait-list control design. However, due to student absences and school transfers, the current study involved groups of nine in three schools.

Following the initial consultations with head teachers, 52 potential participants were identified and informed consent forms were sent to parents (See Appendix 7). Participants whose parents declined consent were not included in the research. Parental consent was obtained for 48 participants. However, as a result of student absences and school transfers, 45 participants formed the final participant sample in various combinations for different measurement tools (See Table 3-5 for details).

Measurement Tool	N		Reason for Missing Data
	Experimental Group	Control Group	
Locus of Control Scale for Children	20 (6M, 14F) *Average Age = 10 years 3 months*	18 (9M, 9F) *Average Age = 10 years 1 month*	School absence (6) Invalid questionnaire (1)
Self-Perception Profile for Children	20 (7M, 13F) *Average Age = 10 years 3 months*	18 (9M, 9F) *Average Age = 10 years 1 month*	Student school absence (6) Invalid questionnaire (1)
Strengths and Difficulties Questionnaire *(RCT)*	5 (0M, 5F) *Average Age = 10 years 5 months*	5 (2M, 3F) *Average Age = 10 years 1 month*	Errors in time of post measures i.e. no RCT (15) School transfer (1) No post measures obtained (19)
Strengths and Difficulties Questionnaire *(One group pre-test/post-test)*	15 (8M, 7F) *Average Age = 10 years*		
Group Interviews	27 (10M, 17F) *Average Age = 10 years 1 month*		Group interview not completed (14) School absence (3) School transfer (1)

Table 3-5: Details of numbers of participants included in experimental and control groups for each research investigation. Average ages are also provided for each group.

3.6.2 (iv) Sample Representativeness

Sample representativeness is concerned with the population validity i.e. the extent to which the population sample represents the target population (Mertens, 1998). There are several factors limiting the current population validity. The current sample was defined using a conceptual definition i.e. the use of constructs such as self-esteem to identify participants. Furthermore, teacher perceptions were used to identify the sample rather than standardised measurement tools. Strict operational definitions were not used to identify the sample, which limited the population validity to some extent. In addition, while the experimentally accessible population included all primary school children attending schools in the local authority, the sampling frame was limited by the response rate from head teachers interested in joining the research project. However, by using the existing referral criteria for the OAE intervention, the researcher hoped that the target population included the typical service users

who were identified as vulnerable by their teachers. Hence, the use of existing referral criteria was intended to support the population validity. This also enhanced the ecological validity of the current study by using features of a naturally occurring intervention. The use of purposive sampling introduced sampling bias in order to identify this target population; however such is the case in much real-world research (Mertens, 1998). The limitations of the current population validity are considered and addressed in the discussion of the research design, data analysis and interpretation of findings (See Chapter 5).

3.7 Intervention

3.7.1 The Outdoor Education Team (OET)

The Outdoor Education Team (OET) forms a significant part of the local authority provision for Outdoor and Environmental Education. The OET is located in the Social Inclusion Services division of the Children and Families Support Service, within the local authority's Communities Directorate. The OET is licenced by the Adventure Activities Licencing Authority branch of the Health and Safety Executive. The team consists of two skilled and experienced facilitators who are qualified secondary school teachers (P.G.C.E.) and hold appropriate Outdoor Education National Governing Body awards including:

- Mountaineering Instructor Certificate (MIC) from Mountain Leader Training UK
- Mountaineering Instructor Award (MIA) from Mountain Leader Training UK
- Level 3 Kayak and Canoe Coach from British Canoe Union

Both facilitators are highly experienced in the field of OAE and have worked in their current role for over ten years. The services offered by the OET include:

1. *Long Course:* Spread over a 3-4 week period totalling between 12-14 days with partial residential element in a local authority run residential centre or camping facilities
2. *Short Course:* Day course over 1-2 days using a journey model

Of these two services, the short course is most often offered to schools throughout the academic year and is accessed by more children due to its short duration. In the current study, in light of the short duration, this intervention was chosen for ease of evaluation to allow random allocation using a wait list control design over a single summer term. This intervention also corresponded to the local authority priority for evaluation of social inclusion services provided to schools (See Section 1.1).

3.7.2 The Journey Model

The short course journey model used by the OET and evaluated in the current study was developed by one of the team's facilitators. The 'journey' model refers to the fact that all activities must be completed by each participant in order for the group as a whole to progress through a predetermined route. However, activities are tailored to the individual abilities of the participants. The referrer is required to provide a proposal form for each participant detailing their needs and abilities so the facilitators can plan their activities appropriately. The facilitators' professional experience provides them with an effective knowledge of matching the difficulty level of activities to participants' abilities. The purpose of the journey model is to limit participants' opportunities to opt out of challenges and ensure success in activities. This model is designed to promote internal locus of control and feelings of competence, in line with the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993).

The journey model includes the key features of OAE i.e. backcountry settings, small groups of four to ten participants, a variety of mentally and physically challenging outdoor pursuits tasks, group interactions and problem-solving, and highly skilled facilitators (Hattie, Marsh, James, & Richards, 1997). The programme involves two four-hour days, usually spaced one week apart. The facilitators usually collect the participants from school in the morning, drive to the OET headquarters to prepare the equipment for the day and then drive to the backcountry location. The participants and facilitators follow a hiking route along which they complete a range of outdoor pursuit activities. One member of school staff accompanies the group and also takes part in the journey and

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activities. The participants are then returned to school at the end of the school day.

The backcountry settings are selected by the facilitators from their local knowledge and the routes have been developed over time. The routes follow public rights of way through natural woodland and include small sandstone cliffs, muddy approaches, small scrambles and small waterfalls. The activities include hiking, rock climbing, orienteering, abseiling, river crossing and treasure hunts. The equipment is provided by the OET and includes rucksacks, wellington boots, helmets, high visibility jackets, harnesses and metal clips. Before departure each day, the facilitators provide participants with instructions and explanations about the day and prepare the equipment. Throughout the journey, they prepare the technical aspects (i.e. ropes etc.) for the activities as they reach each activity point along the route. They also demonstrate the activities, provide opportunities for participants to rehearse difficult activities and provide assistance and encouragement where needed during the journey. Throughout the intervention, the facilitators also provide frequent prompts to encourage teamwork and positive peer interactions. They also provide ad hoc instruction regarding environmental features of the backcountry setting e.g. names of plants.

3.7.3 Treatment Fidelity

Due to possible variations in interpersonal and environmental contexts (e.g. weather) across different experimental groups, treatment fidelity was considered in the current study. Treatment fidelity in real world research has been defined as 'the strategies that monitor and enhance the accuracy and consistency of an intervention to ensure it is implemented as planned and that each component is delivered in a comparable manner to all study participants over time' (Smith, Daunic, & Taylor, 2007, p. 121). Poor treatment fidelity in outcome research can pose a significant threat to the validity of research findings and act as a possible source of researcher bias (Cohen et al., 2009; Mertens, 1998). The measurement of treatment fidelity has been identified as an important but commonly overlooked element within published psychological

and educational research (Moncher & Prinz, 1991; Smith et al., 2007). Within the field of OAE research, the range of different activities included in the intervention can impact upon treatment fidelity and are therefore hypothesised by several authors to be associated with the range of outcome measures and equivocal research findings from published studies (Gillis et al., 2008; Tucker & Rheingold, 2010). Hence, these authors have advocated a renewed focus on measuring and enhancing treatment fidelity in OAE research studies, with a focus on recording details of intervention settings and clinical factors.

In the current study, each of the experimental groups completed the intervention in the same backcountry settings, followed the same hiking route, completed the same combination of activities and were led by the same facilitators. The researcher has included details of these intervention settings and specific adventure activities in the current section. However, the group interactions, weather conditions and ability levels of individual participants naturally caused some variation in the intervention conditions. While acknowledging the difficulties of exerting strict experimental control over extraneous variables in real world research, the researcher developed a measure of treatment fidelity to explore whether the key features of an OAE intervention were present for each group (See Appendix 8). This measure was developed using existing research (Hattie et al, 1997) and exploratory field observations of the intervention prior to the experimental phase (See Appendix 4). The key features included:

- backcountry location
- small groups
- skilled facilitator
- mentally and physically challenging tasks
- group interaction and teamwork
- facilitator matching activities to participants' abilities

School staff accompanying the experimental groups were asked to complete the treatment fidelity measure following each intervention day. Five of eight sessions were evaluated using this tool i.e. 63%. The questionnaire asked the observer to confirm whether each feature was present (Yes, No, Partially) and

to provide some narrative comments as confirmatory evidence. The questionnaires revealed that the six key features were present in all of the evaluated sessions (100%) and this was supported by narrative examples. These findings therefore suggested that while some variation in the intervention conditions may have occurred, the core features of the intervention were present across the groups. However, the reliability of these findings are limited somewhat by the fact that the features were not operationally defined on the questionnaire.

3.7.4 Control Group

While the experimental groups completed the intervention, the control group followed their typical school routine. They were aware of their involvement in the research study due to their completion of the questionnaire measures. Following a waiting list protocol, the control group completed the intervention when the experimental phase was complete.

3.8 Additional Design Considerations

3.8.1 Ethical Considerations

Ethical approval for the current study was granted in March 2012 by the Ethics Committee at the University of Nottingham. The planning and implementation of the research was underpinned by the four key ethical principles set out by the Code of Human Research Ethics (BPS, 2010b, pp. 8-12).

1. Respect for the autonomy and dignity of persons
2. Scientific value
3. Social responsibility
4. Maximising benefit and minimising harm

Ethical considerations associated with working with a population of children under 16 were given particular attention. The following evidence demonstrates how ethical guidelines laid out in the British Psychological Society guidance (BPS, 2010a, 2010b) were adhered to.

Risk: Participants were protected from experiencing significant physical or psychological harm during the research project. The Outdoor Education Team held responsibility for the safety of participants during the intervention as professional service providers registered and licenced by the Adventure Activities Licencing Authority branch of the Health and Safety Executive. The researcher ensured that administration of the research measures did not cause psychological distress to the participants. The written measures and group interviews did not involve clinical diagnostic scales and the questions were not expected to cause participants' significant distress.

Valid Consent: As the participants were all under 16, written parental consent was obtained for participants to take part in both the OAE intervention and the research project. The OET collected parental consent for participants to take part in the intervention and the researcher obtained written parental consent for participants to take part in the research project i.e. complete the written measures, have teacher questionnaires completed and take part in the group interviews (See Appendix 7). This consent was volunteered and parents and children had the right to withdraw from the research at any time without having to give a reason. Parents were sent a letter providing key details of the research project and were encouraged to contact the researcher with any queries (See Appendix 7). Informed consent was also obtained from the children themselves. Children were provided with a letter detailing their potential involvement (See Appendix 9). Prior to the research, the researcher read the letter to all participants, provided them with the opportunity to ask questions and checked for participants' comprehension of the information. The letter informed participants of their right to withdraw from the research without giving a reason.

Confidentiality: Participants' names and the names of their school remained confidential in the publishing of this research project. Each participant was assigned an identification number for data analysis. Raw data including written measures and scripts of group interviews have been stored in a secure location.

Deception and Debriefing: Participants' parents were fully informed about all details of the research. Participants were also fully informed about the nature of

the measures taken. However, the details of the hypothesised relationship between the measures and the OAE intervention were not provided to participants until the measures were complete. This was intended to enhance the validity of participant data gathered. The researcher provided all participants with face-to-face debriefing following administration of the final written measures. Debriefing was provided to groups of participants and included the researcher reading a letter providing full details of the research project and thanking participants for their involvement (See Appendix 10). Participants were also provided with the opportunity to ask the researcher questions. None of the participants experienced emotional distress during the administration of the measures.

Monitoring and Duty of Care: To avoid withholding a beneficial intervention from the participants, a wait-list programme was administered with the control groups receiving the intervention after the initial randomised control trial was completed. The researcher maintained regular monitoring contact with the school throughout the research project. Following completion of the research examination process, face-to-face feedback sessions will be offered to stakeholders to present the current findings.

3.8.2 Stakeholder Involvement

The current research involved a range of stakeholders. The researcher took steps to engage all stakeholders, provide them with sufficient information about the research and to balance their needs with the research design in line with ethical principles (BPS, 2010). The research was undertaken as part of the researcher's completion of the Doctorate in Applied Educational Psychology (Professional Training) at the University of Nottingham. The university guidelines encouraged that the research should consist of an evaluation of an educational intervention. The research was also completed in partnership with the local authority, which employed the researcher as a TEP in the Social Inclusion Service. As mentioned previously, the OET was another service within the social inclusion directorate of the local authority. The OAE intervention was identified for evaluation in consultation with the Principal Educational

Psychologist (PEP), in line with his priorities for evaluation of social inclusion services within the local authority.

The facilitators from the OET were also key stakeholders as implementers of the naturally occurring intervention. During the initial exploratory phase of the research, the researcher spent time observing the intervention and consulting with the facilitators regarding the feasibility of the proposed research design. The head teachers of the schools involved were also key stakeholders and points of access to the participant sample. The selection of participants, random allocation of participants to experimental conditions and settings for administration of measures were negotiated with head teachers and varied slightly according to their preferences. Class teachers were also involved because of the disruption to their teaching caused by withdrawal of students to complete the intervention and measures, as well as analysis of their perceptions of the participants' EBD in the classroom using the SDQ. Parents of the participants were asked to provide consent for their children to participate in the research project. The children who took part were central stakeholders as recipients of the OAE intervention and its impact upon their physical and psychological well-being. Thus far, the methodology chapter has presented full details of the current research design. The final section of this chapter now considers the quality of the mixed-methods research design.

3.9 Evaluating Quality in the Current Study

The quality of each research strand in this mixed methods study is evaluated separately using associated quality measures discussed previously (See Section 3.4). The quantitative strand is discussed first, exploring issues of reliability and validity. The qualitative strand is then evaluated using measures of dependability, credibility and transferability. Finally, the quality of the combined mixed-methods study is considered with reference to the quality of the design and the rigour associated with data integration and interpretation.

3.9.1 Reliability of the Quantitative Research Strand

Within real-world quantitative research, reliability of a study is commonly demonstrated in the rigorous selection and administration of reliable and valid measurement tools. The psychometric properties of quantitative measurement tools are demonstrated using statistical techniques. The most common reliability correlation statistic is Cronbach's alpha which ranges from 0 to 1 (Cronbach, 1951). There is some disagreement within the literature regarding the cut-off point for acceptable reliability with some authors quoting 0.6 (Hair, Black, Babin, Anderson, & Tatham, 2006) and others 0.7 (George & Mallery, 2003). The former has been adopted in the current study. Each quantitative measure used in the current study is discussed now in detail and its reliability and validity evaluated.

3.9.1 (i) The Locus of Control Scale for Children
(LCSC: Nowicki & Strickland, 1973) (See Appendix 11)

LCSC: Content and Administration: The LCSC was originally standardised using a sample of 1017 primary and secondary school children in the US (Nowicki & Strickland, 1973) and has frequently been adopted by researchers for locus of control studies involving children (Furnham & Steele, 1993; Hans, 2000). The LCSC is a 40-item measure of generalised locus of control and is theoretically grounded in Rotter's (1966) concept of internal/external control of reinforcement. The items relate to reinforcement situations across a range of motivational and interpersonal dimensions. The items were designed in consultation with school teachers and clinical psychologists to measure the generalised locus of control orientation of an individual child's behaviour (Nowicki & Strickland, 1973). The pen and paper measure can be administered in a group or individual setting. The 40 items consist of direct questions for which children have to tick their response i.e. 'Yes' or 'No'. In a group setting, the questions are read aloud to participants who then record their response to each question. The content and layout of the individual items on the LSCS has been counterbalanced to control for the influence of socially desirable responding (Frederickson & Dunsmuir, 2009). Nowicki and Strickland (1973) did

not identify any statistically significant correlations between the LSCS and other measures of IQ or social desirability.

LCSC: Scoring and Interpretation: Individual items are scored either 1 or 0, with 1 indicating an externalising response. All items are included in the scoring to produce a single final score. Nowicki and Strickland (1973) provided descriptive data for the original standardisation sample of children aged 9-17 years, for comparison purposes. A high score on the LCSC is associated with an external locus of control, with scores two deviations above the mean indicating a significantly high externalising score (Frederickson & Dunsmuir, 2009a).

LCSC: Reliability and Validity: Nowicki and Strickland (1973) also demonstrated an acceptable internal consistency reliability alpha value of 0.63 for children aged 9-11 years using the split-half method. Acceptable stability (test-retest) reliability over a six-week period was also demonstrated as alpha = 0.67 for children aged 8-11 years. Nowicki and Strickland (1973) provided strong evidence for the construct validity of the LCSC. The measure was statistically significantly correlated ($p<0.01$) with other child measures of locus of control as well as adult measures i.e. Rotter's (1996) Internal-External Locus of Control Scale and the adult version of the LCSC (Nowicki & Strickland, 1973). LCSC scores have also been shown to be related to educational and emotional outcomes such as ability to delay gratification, academic confidence, social maturity, independence and self-motivated behaviour (Furnham & Steele, 1993; Nowicki & Strickland, 1973). The LCSC has been used in several studies evaluating OAE interventions for vulnerable young people (Langsner & Anderson, 1987; Minor, 1994; Sakofs, 1992).

3.9.1 (ii) The Self-Perception Profile for Children – UK modification
(SPPC: Hoare et al., 1993) (See Appendix 12)

SPPC: Content and Administration: The Self-Perception Profile for Children (Harter, 1985) was designed to measure children's individual perceptions of global self-worth as well as domain-specific perceptions of scholastic

competence, athletic competence, physical appearance, behavioural conduct and social acceptance. This measure was a further development of Harter's Perceived Competence Scale (Harter, 1982) and is theoretically grounded in Harter's (1999, 2006) multidimensional model of self-esteem. The current study utilised an anglicised version of the SPPC, standardised with a representative sample of 3509 Scottish children (Frederickson & Dunsmuir, 2009a; Hoare et al., 1993). The revision of Harter's original instrument involved rewording of ten items to ensure British children's comprehension (Frederickson & Dunsmuir, 2009a). The pen and paper measure consists of 36 items divided into six six-item subscales. The items consist of simple bipolar sentences for which responders must select one option and indicate 'really true for me' or 'sort of true for me'. The measure can be administered in a group or individual setting. In a group setting, the questions are read aloud to participants who are requested to tick their response to the question. The content and layout of the individual items has been counterbalanced to control for the influence of socially desirable responding (Frederickson & Dunsmuir, 2009) and Harter (1982) did not find any statistically significant correlation between the SPPC and measures of social desirability.

SPPC: Scoring and Interpretation: Responses are scored on a four-point scale with higher scores indicating higher levels of perceived competence. Within the Scottish sample, the average response for each question ranged from 2.26 to 3.05 with standard deviations of 0.48-0.72, suggesting significant variation between individuals (Hoare, et al., 1993). Hoare et al (1993) also provided descriptive data for their representative sample including means and centile scores for individual subscales according to gender. The authors intended this information to inform identification of children at higher risk in terms of psychological well-being. They advise that an average score of 1 on a single subscale would suggest that a child's responses are outside the normal range (Hoare et al., 1993).

SPPC: Reliability and Validity: Harter (1982) demonstrated acceptable internal consistency (alpha = 0.76-0.83 across subscales) and stability reliability

over three months (alpha = 0.7-0.87) for the Perceived Competence Scale administered with 133 9-12 year olds in the USA. Acceptable internal consistency reliability has also been demonstrated for the full SPPC with Cronbach's alpha values ranging from 0.73 to 0.81 across the individual subscales (Muris et al., 2003). Furthermore, acceptable stability reliability of the full measure was shown across a four-week period with a Cronbach's alpha value of 0.84 (Muris et al., 2003). Within Hoare et al (1993) normative data from the Scottish sample, patterns of responses as well as gender differences corresponded to findings from the US population data (Frederickson & Dunsmuir, 2009). Harter's original factor analysis of the Perceived Competence Scale for use with 9-12 year old children, established the factorial validity of the subscales with individual items loading moderately to highly on their associated factor and global self-worth, which was identified as an independent factor with correlations to all domain specific subscales (Harter, 1982). The stable factor structure has since been replicated by several authors using the full SPPC with children in Holland and Northern Ireland (Granleese & Joseph, 1993, 1994; Muris et al., 2003). Muris et al (2003) also demonstrated the construct validity of the SPPC identifying statistically significant correlations to well-being measures of trait anxiety and depression. The SPPC has been used in studies of OAE interventions for vulnerable young people in the UK (Farnham & Mutrie, 1997) and the USA (Pommier & Witt, 1995).

3.9.1 (iii) Strengths and Difficulties Questionnaire, Extended Version
(SDQ: Goodman, 1997, 1999) (See Appendix 13)

SDQ: Content and Administration: The SDQ is designed as a screening measure for a child's behaviour, emotions and relationships across five domains i.e. conduct problems, emotional symptoms, hyperactivity, peer relationships and prosocial behaviour. The 25-item measure comprises of five subscales each containing five items. The items consist of brief descriptions of behavioural attributes and the participant is required to respond using to a three-point Likert scale to indicate how the item corresponds to the young person in question i.e. 'not true', 'somewhat true', 'certainly true' (Goodman,

1997). There are three, almost identical versions of the SDQ i.e. a self-report measure for children aged 11-16 and parent and teacher informant measures for children aged 4-16. In the current study, the teacher version of the SDQ (See Appendix 13) was used to measure teachers' perceptions of participants' emotional and behavioural difficulties. This data was used to triangulate student data by exploring changes in teachers' perceptions following students' participation in the OAE intervention.

SDQ: Scoring and Interpretation: Items are scored 0,1 or 2 according to a scoring guide. A higher score indicates a higher level of perceived behaviour difficulties with the exception of the prosocial behaviour subscale for which higher scores indicate a higher level of positive behaviour. Total scores are calculated for each subscale with a Total Difficulties Score calculated as the sum of the behaviour difficulties subscale scores i.e. conduct problems, emotional symptoms, hyperactivity and peer relationships. The authors have provided data to support the interpretation of findings in relation to risk of mental health difficulties. The SDQ has been shown to be correlated with independently diagnosed psychiatric disorders with scores above the 90th centile indicating a raised probability of a psychiatric disorder diagnosis (Goodman, 2001). However, the SDQ is presented as a screening tool and does not claim to have diagnostic properties.

SDQ: Reliability and Validity: An investigation of the psychometric properties of the measure, involving 10,438 British children aged 4-16, established strong evidence for the reliability of the measure (Goodman, 2001). Acceptable internal consistency reliability was demonstrated with a mean Cronbach alpha of 0.73 across all subscales. Acceptable stability reliability was also demonstrated across the subscales over six months with particularly high stability for the teacher measure (mean alpha = 0.73)(Goodman, 2001). The factor validity of the SDQ has been demonstrated in several cross-cultural studies with items loading upon the original five-factor structure (Giannakopoulos et al., 2009). Goodman (1997) found that the SDQ showed strong concurrent validity (large correlation coefficients ranged from 0.78 to 0.92) with other established

behaviour screening tools i.e. Rutter's Parent and Teacher Behaviour Scales (Elander & Rutter, 1996) and The Child Behaviour Checklist (Achenbach, 1991). As previously mentioned, further research has also demonstrated the SDQ items' predictive validity for independently diagnosed psychiatric disorders amongst children (Goodman & Goodman, 2011; Goodman, 2001).

3.9.1 (iv) Summary of Reliability of Measurement

The three quantitative measures discussed are widely used student and teacher measures of psychological well-being concepts of interest to the current study i.e. locus of control, self-perceptions and EBD. The psychometric properties of each measure have been demonstrated above with populations similar to the current sample i.e. UK schoolchildren aged 9-10. As discussed, each measure has demonstrated acceptable statistical reliability and validity across a range of UK and cross-cultural studies. Hence, the measures have been selected as reliable and valid measures of the dependent variables in the current study. This evidence supports the reliability of measurement in the quantitative research strand.

3.9.2 Validity of the Quantitative Research Strand

The validity of quantitative research is typically demonstrated by exploring the internal and external validity of the research design. The random allocation of participants to experimental and control groups was incorporated in the current quantitative strand as a general measure to reduce the common threats to internal validity (Cook & Campbell, 1979, See Table 3-2). However, some further measures were incorporated in the research design to address individual threats (See Table 3-6).

Threat to Internal Validity	Measure Taken to Reduce Threat
History	Initial data analysis to detect any differences between school groups prior to the intervention which may be associated with history[3]
Testing and Instrumentation	Standardised administration procedures and timetables for participant measures across groups and time points[4]
Mortality and Maturation	Short timescale for intervention and testing Engagement of head teachers during planning stage through initial interviews
Diffusion of treatments	Key features of the intervention (e.g. new physical environment, adventure activities and skilled facilitator) were not present for the control group without direct participation in the intervention
Compensatory Equalization of Treatments and Compensatory Rivalry	Wait-list control group design Each control group completed the intervention relatively quickly i.e. 1/2 weeks after the experimental group

Table 3-6: Details of features of the current research design intended to reduce threats to internal validity (Cook & Campbell, 1979).

The RCT element of the quantitative research strand also enhanced the external validity of the research. However, the one group pre-test/post-test design was limited by its lack of randomisation procedures and a control group. Therefore the risk of the 'Hawthorne Effect' (Adair, 1984) i.e. the effect that mere participation in a research project can have on a participant's behaviour (Robson, 2000) is high and findings must be interpreted accordingly. Measures were also taken within the research design to reduce threats to external validity as identified by LeCompte and Goetz (1982). For example, the use of typical referral criteria to identify participants and use of the intervention in its natural form supported the generalisation of findings to other users of the specific intervention and similar programmes. Robust statistical tests were also used for data analysis supporting the validity of findings. However, a significant threat to

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[3] Head Teacher interviews indicated three of the four school groups had taken part in OAE previously, as part of their school curriculum. However, none of the participants had completed the journey model intervention with the Outdoor Education Team before.

[4] It is possible that the use of three measurement points may have increased the risk of testing effects.

external validity was apparent in the sampling procedures used. The lack of strict operationalized sampling criteria reduced the strength of the link between the participants and the concept under investigation i.e. self-concept and EBD. As discussed in the existing literature, children experiencing EBD are a heterogeneous population and this is a common problem within research relating to emotional and behavioural difficulties (Elliot, 1993). While the RCT design therefore supports the external validity of findings, findings should be generalised with caution considering the possible influence of the Hawthorne Effect and sampling methods.

3.9.3 Quality of the Qualitative Research Strand

Several measures were also taken in the research design, implementation and analysis stages to enhance the quality of the qualitative research strand (See Table 3-7). As discussed previously (See Section 3.5.3 (ii)), the validity was limited by data collection methods.

Quality Criteria	Measures to enhance quality
Dependability	Highly structured interviews with a standardised script Chain of evidence evident in thorough and transparent thematic analysis i.e. raw data (See Appendix 14), initial codes (See Appendix 15) and thematic map (See Chapter 3) are presented
Credibility	Researcher undertook prolonged, substantial engagement with participants (administering measures, attending intervention days) hence supporting genuine relationships during group interviews Use of open-ended, non-leading questions to reduce interviewer bias during group interviews Validity of qualitative data supported through triangulation with quantitative data
Transferability	Use of multiple cases i.e. 27 participants in 3 group interviews[5]

Table 3-7: Measures taken to enhance the quality of the qualitative research strand (Cohen et al., 2009; Mertens, 1998).

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[5] The data is small scale and does not provide thick description. The group facilitator did not engage in extensive probing and exploration of participants' views. However, this is counteracted by the triangulation of data with quantitative findings

3.9.4 Quality of the Mixed-Methods Design

The current mixed-methods design included quantitative and qualitative research strands, which have been shown to be generally reliable and valid with some limitations. For example, findings from the one group pre-test/post-test design may show the impact of the Hawthorne Effect and the sampling methods may also have limited the generalisability of findings. However, the RCT design used reliable and valid measurement tools and demonstrated acceptable internal and external validity. The qualitative strand also included group interviews utilising methods which are shown in the literature to demonstrate dependability, credibility and transferability e.g. structured interviews to support data triangulation (Lincoln & Guba, 1985). The triangulation of findings as part of the mixed-methods design supports the validity of meta-inferences made, although the depth of the qualitative data is limited and inferences should therefore be tentative.

The mixed-methods methodology was selected to answer the overarching question regarding the outcomes of the OAE intervention for young people perceived to be vulnerable. The use of mixed methods allowed exploration of programme efficacy as well as exploration of participants' experience of the intervention. Neither quantitative nor qualitative methods alone would have sufficiently addressed both questions simultaneously. It is argued that the methodology was therefore appropriate for the research questions. The treatment fidelity and rigorous data analysis procedures used also supported the quality of the current study. The meta-inferences incorporated findings from both research strands to provide a naturalistic evaluation of programme outcomes. These factors suggest that the current mixed methods study was of acceptable quality and rigour according to quality criteria presented by Teddlie and Tashakkori (2009).

3.10 Summary of the Methodology

The methodology chapter has discussed general issues of methodology in real world research to illustrate the implications of a researcher's ontological and epistemological approaches for research design. This discussion also

presented the rationale for the mixed-methods approach in the current study. The current methodology was adopted as a change of emphasis from the positivist/constructivist dichotomy. However, post-positivist methods were emphasised in the research design to support causal inferences regarding the efficacy of the OAE intervention. The methodology chapter has also detailed the research design in the current study including a RCT involving locus of control, self-perceptions and teacher reported EBD as outcome measures. The qualitative strand involved group interviews exploring participants' experience of the intervention. Issues of sampling were also discussed along with details of the current sample and sampling methods, which were guided by ecological validity considerations. Details of the OAE journey model intervention were also provided, as advised by previous OAE researchers (Hattie et al., 1997), followed be discussion of ethical and stakeholder considerations. Finally, in the discussion of quality in the current study, the reliability of the quantitative measures was considered and standard quality criteria were discussed in relation to the quantitative and qualitative strands as well as the mixed-methods study as a whole. Several strengths and limitations of the current study were discussed, which are returned to in Chapter 5. The results are now presented.

Chapter 4: Results

4.1 Introduction

The results consist of quantitative and qualitative data and analysis. The quantitative results are presented first, exploring the first three research questions:

1. Does participation in an OAE intervention have an impact upon the locus of control of primary school children perceived to be vulnerable?
2. Does participation in an OAE intervention have an impact upon the global and domain specific self-perceptions of primary school children perceived to be vulnerable?
3. Does participation in an OAE intervention have an impact upon teacher perceptions of emotional and behavioural difficulties experienced by primary school children perceived to be vulnerable?

The approach to quantitative data analysis is detailed initially including general discussions of statistical evaluation of group differences, selection of statistical tests and statistical power. These discussions are followed by the presentation of the results for each individual research question, with each section including details of null hypotheses, assumption testing activities, descriptive and inferential statistics and a summary of findings.

The qualitative results are then presented, exploring the final research question:

4. How do participants perceive the OAE intervention?

The qualitative approach to data analysis i.e. thematic analysis is discussed initially. The thematic analysis report then presents emergent themes and examples of qualitative data followed by a summary of qualitative findings. The final section presents a meta-inference summary of the quantitative and qualitative results in relation to the four research questions.

4.2 Quantitative Data Analysis

4.2.1 Approach to Data Analysis

4.2.1 (i) Statistical Evaluation of Group Differences

Quantitative data analysis in experimental group design research typically involves statistical evaluation of group differences. This process aims to explore whether people who differ on an independent variable can be distinguished statistically on a dependent variable (Kazdin, 2003). The core component of this exploration is Null Hypothesis Significance Testing (NHST), a procedure used to test the Null Hypothesis (No) that there is no actual difference between the population means from which particular data samples are drawn. NHST involves using a range of statistical tests to establish the probability (alpha/p value) that any differences observed between groups following introduction of an independent variable, would have occurred by chance in a population where No is true (Shadish et al., 2002). If this probability is sufficiently low ($p<0.05$) No is then rejected and a statistically significant difference is acknowledged in the data (Fisher, 1970). When analysing a sample of data from a population of interest, a researcher conducting NHST initially uses descriptive statistical tests to organise and present the data in numerical, graphical or tabular form; followed by inferential statistical tests to make conclusions about the Null Hypothesis (Argyrous, 2011). A critique of NHST and associated controversies is presented later as part of a discussion of statistical power (See Section 4.2.1 (vii)).

4.2.1 (ii) Parametric and Non-Parametric Tests

In light of the descriptive data analysis, a researcher must choose between two families of inferential tests i.e. parametric and non-parametric tests. Parametric tests are used for data which can be assumed to represent a wide population (Cohen et al., 2009). These tests address hypotheses related to the population mean i.e. the typical or average value within the data sample. Parametric tests make several assumptions about the characteristics of the data to be analysed, including normal distribution and equal variance, which will be discussed further below. On the other hand, non-parametric tests make little or no assumptions

about the nature of the data to be analysed and hence are suitable for use with small samples where data are not normally distributed. These distribution-free tests address hypotheses related to frequency measures of central tendency such as the median i.e. the specific value within a ranked-ordered series that divides the series in half (Argyrous, 2011). Parametric tests are often preferred to non-parametric tests due to their superior statistical power. However, decisions regarding the selection of parametric or non-parametric tests are guided by the extent to which the data to be analysed meets the appropriate assumptions (Dancey & Reidy, 2007; Pallant, 2006). There are a range of techniques available to support the exploration of these assumptions. The following discussion presents the assumption testing techniques used in the current study.

4.2.1 (iii) Normal Distribution

Parametric tests assume that the data to be analysed is normally distributed. A data set is said to be normally distributed when the greatest number of scores cluster towards the middle value on the measurement scale and smaller numbers of scores are located at the extremes. When presented on a frequency graph, this distribution forms a symmetrical, bell-shaped curve called the normal distribution curve (Pallant, 2006). Visual inspection of frequency graphs can therefore be used to identify a normal distribution. However, more accurate analysis of distribution is facilitated by statistical tests. The Shapiro-Wilk statistic identifies normal distribution when a statistically non-significant ($p > 0.05$) result is calculated. This statistic demonstrates superior power compared to alternative tests of normal distribution (Razali & Yap, 2011). Further statistics are also available to explore the skewness (i.e. the symmetry) and kurtosis (i.e. the peaked nature or concentration of scores around the centre of the distribution) of the normal distribution curve. Using skewness and kurtosis statistics, a value within the range of -1 to +1 indicates a normal distribution (Bowen & Guo, 2012; Dancey & Reidy, 2007). The decision regarding normal distribution was a cumulative one taken in light of the combination of data discussed previously. In the current data set, weight was given to visual

analysis of frequency graphs and calculation of the Shapiro-Wilk statistic, due to its superior statistical power (Razali & Yap, 2011).

4.2.1 (iv) Homogeneity of Variance

The variance in a data sample describes the average deviance of scores from the mean (Argyrous, 2011). Parametric tests used to compare groups assume homogeneity of variance within the data i.e. the variance in scores is equal across the groups. A non-significant result ($p>0.05$) using Levene's statistical test for homogeneity of variance indicates equal variance across groups (Levene, 1960). This statistic was used to establish homogeneity of variance in the current data set.

4.2.1 (v) Interval Data

The level of measurement of the data to be analysed also informs the selection of parametric and non-parametric tests. There are three levels of measurement i.e. nominal, ordinal and interval. Nominal measurement involves organisation of data into discreet categories. Ordinal measurement involves categorisation as well as rank-ordering of the categories in relation to each other. Finally, interval measurement involves categorisation and rank-ordering of data using intervals of equal distance between values of the measurement scale (Argyrous, 2011). It is advised that parametric tests are appropriate only for interval data (Cohen et al., 2009; Mertens, 1998). However, this convention is not strictly adhered to within real-world research. For example, extensive research in the area of OAE and physical activity has demonstrated the use of parametric statistics with ordinal level data (Bloemhoff, 2006; Lamb & Gulliford, 2011; Pommier & Witt, 1995). In fact, Gregoire and Driver (1987) used simulation experiments to demonstrate that both parametric and non-parametric tests were equally as sensitive to differences in a particular sample of ordinal data. In line with this existing research, the current study has relied on data meeting the parametric assumptions of normal distribution and homogeneity of variance, rather than level of measurement to inform decisions on the choice of statistical tests. Hence, ordinal data which met the assumptions of normal distribution and equal variance were analysed using parametric tests.

4.2.1 (vi) Choosing a Statistical Test

Once a researcher has chosen between parametric and non-parametric tests, their selection of individual tests is then informed by the research questions under investigation. Guided by the research questions, the research design and nature of the relationships between the experimental variables determine the individual test to be used. Parametric and non-parametric tests of equivalent function are often available (See Table 4-1). The current study involved the use of mixed between-within ANOVA's and a paired sample t-test.

Parametric Test		Purpose	Data Requirements	Non-Parametric Equivalent
T-Test	Independent t-test	To compare 2 groups	1 categorical IV[6] and 2 groups of participants 1 continuous DV[7]	Mann-Whitney Test
	Paired-samples t-test	To compare 1 group on 2 different occasions	1 categorical IV and 1 group 1 continuous DV and 2 measurement points	Wilcoxon Signed-Rank Test
ANOVA	One-way between-groups ANOVA	To compare 2/more groups or 2/more IVs	1 categorical IV and 2/more groups 1 continuous DV	Kruskal-Wallis Test
	Two-way between-groups ANOVA		2 categorical IVs 1 continuous DV	None
	Mixed between-within ANOVA (repeated measures)		1 between-groups IV 1 within-groups IV 1 continuous DV	Wilcoxon Signed-Rank Test (within-groups) Mann-Whitney Test (between groups)
ANCOVA		To compare 2/more groups while controlling for the influence of a covariate IV that varies between the groups prior to treatment	1 categorical IV 1 continuous DV 1/more continuous covariates	None
MANOVA		To compare more than 1 DV across 2/more groups	1 categorical IV 2/more continuous DVs	None

Table 4-1: Common parametric and non-parametric tests for statistical evaluation of group differences (Mertens, 1998; Pallant, 2006).

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[6] Independent Variable

[7] Dependent Variable

4.2.1 (vii) Statistical Power

As referred to previously, there is on-going controversy surrounding the central role that NHST plays within psychological research. The reductionist, 'all or nothing' nature of decisions based on NHST has been criticised for underestimating the rich data available from real world research (Kazdin, 2003). Cohen (1994) highlighted the arbitrary nature of p<0.05 and p<0.01 as cut-off criteria for judging statistical significance. Cohen (1994) and others have stressed that statistical significance does not imply the importance of an observed effect (Harrison, Thompson, & Vannest, 2009). These criticisms essentially relate to the power of statistical tests to accurately describe real-world phenomena.

In practice, statistical power represents 'the probability of finding an effect when an effect exists' (Shadish et al, 2002, p. 510). Three key factors impact upon the power of a statistical test:

1. *Cut off Alpha Level* i.e. p value = 0.05 / 0.01

2. *Sample Size* i.e. 'n', the number of participants involved in the study

3. *Effect Size* i.e. the magnitude of a difference observed between two conditions (Kazdin, 2003).

In his seminal work, Cohen (1988) presented numerical tables to help researchers calculate the statistical power of a study using these three factors. Two common inference errors effecting the statistical power of a test include Type I error i.e. incorrectly rejecting the Null Hypothesis when it is true, and Type II error i.e. incorrectly accepting the Null Hypothesis when it is false (Shadish et al., 2002).The power of a statistical test is denoted statistically as 1 - *beta*, where *beta* represents the statistical probability of conducting a Type II error. Statistical power of 0.8 is widely accepted as sufficiently high power to allow a researcher to accept their identified probability levels (Cohen, 1988). However, as a result of insufficient sample size, this level of statistical power is rarely reached in real world research, resulting in a high probability of Type II errors (Kazdin, 2003). Furthermore, the alpha level calculated in statistical

evaluation of group differences is a function of sample size i.e. the Null Hypothesis will nearly always be rejected at a sufficiently large sample size. In light of this limitation, there is a move within contemporary psychological research to reduce the reliance on arbitrary and dichotomous decisions using $p<0.05$ and to address the issue of limited statistical power in real world evaluation studies. Official guidelines for the reporting of psychological research findings therefore advocate the use of exact p values alongside effect sizes, which are independent of sample size (Wilkinson & the Task Force on Statistical Inference, 1999; Wright, 2003).

4.2.1 (viii) Effect Size

There are two common techniques for calculating effect sizes i.e. calculating the proportion of variance explained (PVE) and the standardized difference in means (Robson, 2002). Cohen's *d* is the most common form of the latter, typically calculated when comparing experimental and control groups using t-tests. Interpretation of this statistic is aided by Cohen's (1988) guidance on 'small', 'medium' and 'large' effect sizes (See Table 4-2). Cohen (1988) also advised that a minimum 'medium' effect size is satisfactory to identify real-world significance. However, in more complex, multivariate investigations eta squared is identified as the most robust and frequently used measure of effect size. This PVE statistic can be calculated when using ANOVAs and allows direct comparison to Cohen's d (Levine & Hullett, 2002) (See Table 4-2).

Descriptor	Cohen's *d*	Eta squared
'small'	.2	.01
'medium'	.5	.06
'large'	.8	.14

Table 4-2: Size descriptors for effect size statistics Cohen's d and eta squared (Cohen, 1988, p 283).

4.2.1 (ix) Statistical Power in the Current Study

Within the existing OAE research, three key meta-analyses have consistently identified small to medium effect sizes for self-concept and behavioural outcomes (i.e. Cohen's $d = 0.1 - 0.34$) (Cason & Gillis, 1994; Hattie et al., 1997; Wilson & Lipsey, 2000). The issue of insufficient statistical power in real-world

research has also been highlighted within the OAE research (Hattie et al., 1997; Langsner & Anderson, 1987). Using Cohen's power tables (Cohen, 1988, p. 55), the power of the current study to detect effect sizes similar to those identified in previous research (Cohen's d = 0.3) was calculated as less than 0.25 (i.e. there is a less than 25% chance of correctly identifying an existing effect). This is significantly below Cohen's (1988) recommended level of 0.8 and suggests that the risk of Type II errors is high in the current study. Low statistical power is therefore considered as a significant threat to the validity of statistical conclusions in the current study. Hence, in line with APA guidance (Wilkinson & the Task Force on Statistical Inference, 1999), the current study reports statistical findings using exact p values and effect sizes. Where eta squared has been calculated, findings are compared to existing research using Cohen's (1988) transformation tables (See Table 4-2).

4.2.2 Preparation of Raw Data

For each of the quantitative measures, responses from individual paper questionnaires were entered into a *Microsoft Excel® 2010* spread sheet pre-programmed to calculate total scores. Responses on the Locus of Control Scale for Children produced a total score for each participant. Missing data for individual questions was treated as missing data in the analysis. Responses on the Self-Perception Profile for Children and the Strengths and Difficulties Questionnaire produced a mean score for each subscale for each participant. Means were calculated for total questions completed, hence compensating for missing data. The raw data (See Appendix 16) was then transferred to *IBM® SPSS® Statistics Version 20* for statistical analysis. For each research question, the individual results include the null hypothesis, the results of assumption testing, descriptive and inferential statistics and finally a summary of findings.

4.2.3 Locus of Control Investigation

Research Question 1: Does participation in an OAE intervention have an impact upon the locus of control of primary school children perceived to be vulnerable?

Null Hypothesis: There will be no statistically significant group differences in changes in participants' locus of control scores as measured by the Locus of Control Scale for Children, following participation in an OAE intervention.

4.2.3 (i) Locus of Control: Assumptions Testing

1. Group Equivalence

Using a one way ANOVA, there were no statistically significant differences (p<0.05) detected in pre-intervention total locus of control scores across the four schools [F(3,37)= 1.156, p=.341]. This allowed the data from each school to be combined for analysis. Using an independent samples t-test, there were no statistically significant differences (p<0.05) detected between the pre-intervention total locus of control scores for the combined experimental and control groups [t(36)= -0.495, p=.624]. This established equivalent groups for data analysis.

2. Normal Distribution

Visual inspection of histogram and boxplot data (See Appendix 17) suggested the data were normally distributed within each of the experimental and control groups. In both groups, the Shapiro-Wilk statistic was not statistically significant (p<0.05) and skewness and kurtosis statistics did not exceed +/- 1 for all but one test (See Table 4-3). The decision regarding normality was a cumulative on with weight given to the Shapiro-Wilk statistic due to its statistical power (Razali & Yap, 2011). Furthermore, as the sample size (N=38) was sufficiently large (N>30) the use of parametric tests was judged be robust to the minor violation of kurtosis in the experimental group (Pallant, 2006; Sauro & Lewis, 2012)

These results indicated that the overall assumption of normal distribution was not violated and hence supported the use of parametric tests.

Group	Shapiro-Wilk			Skewness	Kurtosis
	Statistic	DoF[8]	Sig		
Experimental	.929	20	.147	.323	-1.009
Control	.955	18	.512	-.308	-.871

Table 4-3: Results from statistical tests establishing normal distribution for pre-intervention locus of control scores.

3. Homogeneity of Variance

Levene's test for equality of variance produced a statistically non-significant result at the $p<0.05$ probability level [$F(32)=1.356$, $p=0.253$], suggesting that the assumption of homogeneity of variance was not violated within the current data set. These findings further supported the use of parametric statistics.

4.2.3 (ii) Locus of Control: Descriptive Analysis

Inspection of the mean total locus of control scores revealed a slight decrease in scores across time within the experimental group, suggesting a shift towards internal locus of control. This pattern was not observed in the control group (See Table 4-4).

Group	Pre Intervention (Time 1)	Post Intervention Day 1 (Time 2)	Post Intervention Day 2 (Time 3)
Experimental	18.68 *(3.89)*	18.60 *(5.55)*	18.17 *(4.38)*
Control	19.29 *(3.63)*	19.26 *(3.61)*	19.39 *(4.03)*

Table 4-4: Means and standard deviations (in parentheses) for locus of control scores in the experimental and control groups across time.

4.2.3 (iii) Locus of Control: Inferential Analysis – Parametric Tests

A mixed between-within ANOVA was conducted to compare mean locus of control scores for participants in the experimental and control groups at Time 1 (prior to the intervention), Time 2 (following the first day of intervention) and Time 3 (following the second day of intervention). There were no statistically significant ($p<0.05$) main effects or interaction effects detected (See Table 4-5). All effect size and observed power statistics were also small.

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[8] DoF: Degrees of Freedom

Effect	F	DoF	Significance	Observed Power	Effect Size (Eta squared)
Group	.472	1,36	.496	.103	.013
Time	.091	2,35	.913	.060	.002
Interaction	.250	2,35	.780	.075	.005

Table 4-5: Results of mixed between-within ANOVA comparing mean locus of control scores for experimental and control groups across time.

4.2.3 (iv) Locus of Control: Further Descriptive Analysis

Further descriptive analysis of the pre-intervention mean locus of control scores was conducted to explore possible ceiling effects and hence support the interpretation of the inferential statistics. Frederickson and Dunsmuir (2009a) suggested that a significantly high external locus of control is indicated by a score two standard deviations above the standardised, age-related means (i.e. total LOC score greater than 25.6 for males and 26.06 for females). Inspection of the raw data revealed that none of the participants scored above this threshold at Time 1. Furthermore, the pre-intervention mean scores for both males and females in the current study were within one standard deviation of the age related means identified by Nowicki and Strickland (1973) in the original standardisation sample (See Table 4-6). This finding suggests the possible influence of ceiling effects in the current locus of control investigation.

Gender	Current Sample	Standardisation Sample
Male	18.01 *(3.76)*	18.44 *(3.58)*
Female	19.59 *(3.65)*	18.80 *(3.63)*

Table 4-6: Means and standard deviations (in parentheses) according to gender for pre-intervention locus of control scores in the current study and the original standardisation sample (Nowicki & Strickland, 1973).

4.2.3 (v) Summary of Locus of Control Investigation

The descriptive analysis suggested there was a decrease in mean locus of control scores (i.e. a shift towards internality) in the experimental group but not in the control group. However, the inferential statistics indicated that there were no statistically significant differences between the experimental and control groups in mean locus of control scores across time. This finding was also reflected in the effect sizes. Hence, the null hypothesis was retained. The results suggest that participation in the OAE intervention did not have a

statistically significant impact upon the participants' locus of control. However, further descriptive analysis identified a possible ceiling effect as participants did not demonstrate significantly high external locus of control scores before the intervention.

4.2.4 Self-Perceptions Investigation

Research Question 2: Does participation in an OAE intervention have an impact upon the global and domain specific self-perceptions of primary school children perceived to be vulnerable?

Null Hypothesis: There will be no statistically significant group differences in changes in participants' global and domain specific self-perceptions (i.e. scholastic competence, social acceptance, athletic competence, physical appearance, behavioural conduct and global self-worth) as measured by the Self-Perception Profile for Children, following participation in an OAE intervention.

4.2.4 (i) Self-Perceptions: Assumptions Testing

1. Group Equivalence

One-way ANOVA's, showed there were no statistically significant differences ($p < 0.05$) detected in any of the pre-intervention mean self-perception subscale scores across the four schools (See Table 4-7). This allowed the entire data set to be combined for analysis.

Subscale	F	Degrees of Freedom	Significance
Scholastic Competence	1.684	3	0.189
Social Acceptance	0.921	3	0.441
Athletic Competence	0.961	3	0.422
Physical Appearance	1.076	3	0.372
Behavioural Conduct	1.656	3	0.195
Global Self-Worth	0.815	3	0.494

Table 4-7: Results from one-way ANOVAs comparing pre-intervention self-perception subscale scores across four participating schools.

Independent t-tests also indicated that there were no statistically significant differences ($p < 0.05$) between the combined experimental and control groups across five self-perception subscales at Time 1 (See Table 4-8). These results established group equivalence for data analysis. However, there was a statistically significant between-groups difference identified for pre-intervention

scores on the Behavioural Conduct subscale [t(36)=-.2042, p=.049]. Inferential analysis for the Behavioural Conduct scale was interpreted accordingly in light of this initial group difference.

Subscale	T score	Degrees of Freedom	Significance (2-Tailed)
Scholastic Competence	-.971	36	.338
Social Acceptance	.902	36	.373
Athletic Competence	-.705	36	.485
Physical Appearance	-.904	36	.372
Behavioural Conduct	-.2042	36	.049*
Global Self-Worth	-.907	36	.370

*Statistically significant p<0.05

Table 4-8: Results from independent t-tests comparing pre-intervention self-perception subscale scores across experimental and control groups.

2. Normal Distribution

The assumption of normal distribution was explored within the experimental and control groups for each subscale using visual inspection of histogram and boxplot data with some difficulties identified for individual subscales in the control group (See Appendix 17). Statistical analysis (See Table 4-9) showed that the Shapiro-Wilk statistic was statistically significant (p<0.05) in the control group for two subscales i.e. Athletic Competence and Global Self-Worth. Kurtosis statistics also indicated flat distributions in the control group for Scholastic Competence and Athletic Competence subscales. However, skewness statistics were within the range -1 to +1 for all subscales.

Self-Perception Subscale	Group	Shapiro-Wilk			Skewness	Kurtosis
		Statistic	DoF	Sig		
Scholastic Competence	*Experimental*	.956	20	.462	-.425	-.617
	Control	.922	18	.140	.321	-1.240**
Social Acceptance	*Experimental*	.911	20	.068	-.964	.616
	Control	.949	18	.404	.131	-.613
Athletic Competence	*Experimental*	.941	20	.253	-.439	-.601
	Control	.875	18	.021*	-.046	-1.403**
Physical Appearance	*Experimental*	.942	20	.259	-.498	-.849
	Control	.924	18	.149	-.573	-.809
Behavioural Conduct	*Experimental*	.950	20	.366	.236	-.983
	Control	.933	18	.215	-.659	-.236
Global Self-Worth	*Experimental*	.933	20	.178	-.562	-.160
	Control	.894	18	.045*	-.560	-.638

*Statistically significant at p<0.05 ** Kurtosis value exceeds +/- 1

Table 4-9: Results from statistical tests establishing normal distribution for pre-intervention self-perception subscale scores.

Statistical analysis therefore established normal distribution in both experimental and control for the Social Acceptance, Physical Appearance and Behavioural Conduct subscale data. This supported the use of parametric tests for these subscales. Equivocal findings regarding normal distribution in the control group in the remaining three subscales were carefully interpreted. On balance, as the sample size (N=38) was sufficiently large (N>30), the use of parametric tests was judged be robust to these possible violations of normality (Pallant, 2006; Sauro & Lewis, 2012).

3. Homogeneity of Variance

Levene's test for equality of variance did not produce statistically significant results ($p < 0.05$) for any of the subscales (See Table 4-10). This suggested that the assumption of homogeneity of variance was not violated within the current data set and further supported the use of parametric tests.

Subscale	F	Degrees of Freedom	Significance
Scholastic Competence	0.707	1,36	0.406
Social Acceptance	0.018	1,36	0.893
Athletic Competence	0.062	1,36	0.887
Physical Appearance	0.031	1,36	0.861
Behavioural Conduct	0.185	1,36	0.670
Global Self-Worth	1.587	1,36	0.216

Table 4-10: Results of Levene's test for homogeneity of error variance for pre-intervention self-perception subscale scores across experimental and control groups.

4.2.4 (ii) Self-Perceptions: Descriptive Analysis

Descriptive analysis did not suggest a consistent pattern of differences between the experimental and control groups following the intervention. For most of the subscales, mean self-perception scores increased in both experimental and control groups across Time 1, Time 2 and Time 3 (See Table 4-11). The only exceptions were decreases over time in experimental group scores for Social Acceptance and control group scores for Behavioural Conduct. This overall pattern suggested the possible influence of testing or maturation threats to internal validity.

Self-Perception Subscale	Group	Pre Intervention (Time 1)	Post Intervention Day 1 (Time 2)	Post Intervention Day 2 (Time 3)
Scholastic Competence	Experimental	2.45 (0.71)	2.68 (0.84)	2.66 (0.70)
	Control	2.69 (0.82)	2.68 (0.92)	2.75 (0.81)
Social Acceptance	Experimental	3.04 (0.83)	3.00 (0.77)	2.95 (0.76)
	Control	2.80 (0.76)	2.73 (0.64)	2.90 (0.68)
Athletic Competence	Experimental	2.80 (0.86)	2.78 (0.75)	2.92 (0.55)
	Control	2.30 (0.86)	2.92 (0.73)	2.91 (0.68)
Physical Appearance	Experimental	2.76 (0.87)	2.71 (1.11)	2.80 (1.01)
	Control	3.01 (0.84)	2.96 (1.00)	3.18 (0.81)
Behavioural Conduct	Experimental	2.50 (0.74)	2.65 (0.78)	2.77 (0.73)
	Control	2.98 (0.72)	3.09 (0.74)	2.96 (0.76)
Global Self-Worth	Experimental	2.89 (0.69)	2.99 (0.84)	3.03 (0.72)
	Control	3.11 (0.85)	3.07 (0.90)	3.15 (0.65)

Table 4-11: Means and standard deviations (in parenthesis) for self-perception subscale scores for the experimental and control groups across time.

4.2.4 (iii) Self-Perceptions: Inferential Analysis – Parametric Tests

Mixed between-within ANOVAs were conducted to compare scores on all subscales of the Self-Perception Profile for Children for the experimental and control groups at Time 1 (Prior to the intervention), Time 2 (following the first day of intervention) and Time 3 (following the second day of intervention). There were no statistically significant ($p < 0.05$) main effects or interaction effects detected (See Table 4-12). The observed power and effect sizes were also small. A medium effect size (eta squared = 0.76) suggested a possible main effect of Group for the Behavioural Conduct scale. However, this score was judged to be associated with initial group differences at Time 1.

Subscale	Effect	F	DF	Significance	Observed Power	Effect Size (Eta squared)
Scholastic Competence	Group	0.214	1,36	0.646	.074	.006
	Time	2.099	2,35	0.138	.327	.042
	Interaction	1.097	2,35	0.345	.226	.028
Social Acceptance	Group	0.759	1,36	0.389	.136	.021
	Time	0.290	2,35	0.750	.092	.006
	Interaction	0.840	2,35	0.440	.182	.019
Athletic Competence	Group	0.281	1,36	0.599	.081	.008
	Time	0.194	2,35	0.825	.078	.004
	Interaction	0.441	2,35	0.647	.116	.014
Physical Appearance	Group	0.983	1,36	0.328	.162	.027
	Time	2.193	2,35	0.127	.322	.042
	Interaction	0.429	2,35	0.655	.099	.009
Behavioural Conduct	Group	2.973	1,36	0.093	.389	.076*
	Time	1.212	2,35	0.310	.247	.032
	Interaction	1.069	2,35	0.354	.222	.036
Global Self-Worth	Group	0.394	1,36	0.534	.094	.011
	Time	0.313	2,35	0.733	.096	.010
	Interaction	0.246	2,35	0.784	.086	.007

Table 4-12: Results of mixed between-within ANOVAs comparing mean self-perception subscale scores for experimental and control groups across time.

4.2.4 (iv) Self-Perceptions: Further Descriptive Analysis

Further analysis of the pre-intervention mean self-perception scores was conducted to explore possible ceiling effects and hence support the interpretation of the inferential statistics. Results from the Scottish standardisation sample (Hoare et al., 1993) suggested that a mean subscale score of 1 or less was identified as outside the normal range. This study also suggested that children consistently rated themselves above the midpoint of 2.5 on individual subscales. Inspection of the mean scores in the current study suggested that all mean subscale scores were above 1.0 and all but two were above 2.5 (i.e. Mean Scholastic Competence for Experimental Group = 2.45, Mean Athletic Competence for Control Group = 2.30). This pattern suggests the influence of sampling error and resulting ceiling effects in the current results.

4.2.4 (v) Summary of Self-Perceptions Investigation

The descriptive and inferential statistics indicated that there were no statistically significant differences between the experimental and control groups in global and domain specific self-perception scores across time. This pattern was also

reflected in the effect sizes. Hence, the null hypothesis was retained for each subscale. The results suggest that participation in the OAE intervention did not have a statistically significant impact upon the participants' domain specific self-perceptions. However, analysis of descriptive statistics suggested the influence of sampling error and resulting ceiling effects.

4.2.5 Emotional and Behavioural Difficulties (EBD) Investigation

Research Question 3: Does participation in an OAE intervention have an impact upon teacher perceptions of emotional and behavioural difficulties experienced by primary school children perceived to be vulnerable, as measured by the Strengths and Difficulties Questionnaire?

As discussed in Chapter 3 (Section 3.5.2 (ii)), the SDQ data was impaired due to errors in the completion of teacher questionnaires. The current research question was therefore explored using two data sets. Results from each data set are presented individually as follows:

1. Small n randomised control trial (n=10)
2. One group pre-test/post-test design (n=14)

4.2.5 (i) EBD: RCT

Null Hypothesis 3a: There will be no statistically significant group differences in changes in teacher perceptions of pupil's total emotional and behavioural difficulties following pupil participation in an OAE intervention.

EBD (RCT): Assumption Testing

1. Group Equivalence[9]

Using an independent samples t-test, there were no statistically significant differences (p<0.05) in mean total EBD scores detected between the experimental and control groups prior to intervention (t(8) = .189, p=.955). This allowed the researcher to assume group equivalence.

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[9] The data were taken from a single school hence testing for group equivalence across schools was not needed.

2. Normal Distribution

Visual inspection of histogram and boxplot data (See Appendix 17) and statistical analysis (See Table 4-13) identified a normal distribution in pre-intervention experimental group Total EBD scores. However, analysis suggested the assumption of normal distribution was violated in the control group. The Shapiro-Wilk statistic was calculated at the exact cut-off for statistical significance (p<0.05) and both skewness and kurtosis values exceeded +/- 1. Non-parametric statistics were therefore used to analyse the data in light of the small sample size (n=10), which was not sufficiently large to support the robustness of parametric tests against these violations (Pallant, 2007).

Group	Shapiro-Wilk Statistic			Skewness	Kurtosis
	Statistic	DoF	Sig		
Experimental	.990	5	.980	-.123	.676
Control	.776	5	.050	1.816	3.384

Table 4-13: Results from statistical tests exploring normal distribution for pre-intervention total emotional behavioural difficulties scores.

Emotional and Behavioural Difficulties (RCT): Descriptive Statistics

Descriptive statistics associated with non-parametric inferential tests (i.e. median, range) were calculated for the total EBD scores (See Table 4-14). The descriptive statistics suggested there was a decrease in total EBD scores in the experimental group from Time 1 (pre-intervention) to Time 2 (post-intervention). This decrease was not identified in the control group.

Group	Time 1	Time 2
Experimental	10 *(11)*	8 *(8)*
Control	7 *(14)*	8 *(14)*

Table 4-14: Medians and ranges (in parentheses) for total emotional behavioural difficulties scores in the experimental and control groups across time.

EBD (RCT): Inferential Statistics – Non-Parametric Tests

Using the Wilcoxon Signed-Rank Test, there were no statistically significant within-group differences in total EBD scores detected in either the experimental (p=.141) or control groups (p=.480). Using the Mann-Whitney test, there were

no statistically significant between-group differences in total EBD scores detected at Time 1 (p=.690) or at Time 2 (p=1.00). Hence, the null hypothesis was retained.

4.2.5 (ii) EBD: One Group Pre-test/Post-test Design

Null Hypothesis 3b: There will be no statistically significant differences in teacher perceptions of pupils' total emotional and behavioural difficulties across time following pupil participation in an OAE intervention.

EBD (Pre-test/Post-test): Assumption Testing

1. Group Equivalence – An independent t-test showed that there were no statistically significant differences in mean total EBD scores across the two schools at Time 1 (t(12)=.952, p=.360). This allowed the groups to be combined for inferential analysis.

2. Normal Distribution – A statistically non- significant result (p<0.05) using the Shapiro-Wilk test (Shapiro-Wilk Statistic=.958, DF=14, p=.686) and skewness (.626) and kurtosis (.317) statistics within the +/- 1 range indicated that the assumption of normal distribution was met for the current data set. This supported the use of parametric statistics. [10]

EBD (Pre-test/Post-test): Descriptive and Inferential Analysis – Parametric Tests

Descriptive analysis suggested that there was a decrease in mean total EBD scores between Time 1 (M=16.5, SD =3.956) and Time 2 (M=13.86, SD=4.849). A paired samples t-test identified that this difference was statistically significant [t(13)=2.365, p=.034] and calculation of Cohen's *d* indicated a medium effect size (d=.643). However, the lack of a control group limited the validity of and confidence in these statistical conclusions.

4.2.5 (iii) Summary of EBD Investigation

In the RCT investigation, descriptive statistics suggested that there was a significant decrease in total EBD scores in the experimental group and not in

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[10] Homogeneity of Variance was not calculated as this was a single group design

the control group. However, inferential statistics did not identify any statistically significant within-group or between-group differences. Hence the Null Hypothesis was retained. Analysis of the data from the one-group pre-test/post-test investigation identified a statistically significant decrease in total EBD scores with a medium effect size, following the intervention. However, the lack of a control group limited the statistical validity of this conclusion and may suggest the influence of a Hawthorne Effect.

4.2.6 Summary of Quantitative Results

Analysis of the participant measures suggested there were no statistically significant changes in participants' locus of control and self-perceptions scores following participation in the OAE intervention. However, descriptive analysis suggested that there was a shift towards internal locus of control in the experimental group but not in the control group. Descriptive analysis also identified the influence of sampling error and possible ceiling effects for both participant measures. Furthermore, the low statistical power of the test limited the validity of the statistical conclusions. Analysis of teacher measures from a one-group pre-test/post-test investigation suggested that there was a statistically significant decrease in total EBD scores following the intervention. However, these findings are limited by the lack of a control group and were not replicated in the randomised control trial investigation. Overall, the quantitative results suggest that participants did not perceive changes in their self-concept following the intervention, although there is some tentative evidence that teachers may have perceived a reduction in participant's emotional and behavioural difficulties. The findings are equivocal and are limited by sampling error and the low statistical power of the research design. The issues and questions arising from this analysis are explored in Chapter 5.

4.3 Qualitative Analysis

4.3.1 Approach to Data Analysis

Thematic analysis is a commonly used method of qualitative data analysis within real-world psychological research. This method of data analysis involves the identification, analysis and reporting of patterns of meaning, or themes,

within a qualitative data set (Braun & Clarke, 2006). This method of data analysis was used in the current study because of its accessibility and flexibility, allowing it to be used within a mixed-methods methodology. As advised by Braun and Clarke (2006), the current study aimed to produce a high quality thematic analysis involving robust thematic coding, coherent progression from data description to analysis and transparency in reporting, particularly in relation to the analytic process. However, due to resource limitations, the researcher did not use inter-rater reliability checks, which limited the validity of conclusions somewhat.

The current thematic analysis was used to explore the research question:

4. How do participants perceive the OAE intervention?

Guided by this question, the thematic analysis adopted an essentialist epistemology, identifying semantic or surface-level themes within participant responses and interpreting them in relation to theoretical models of OAE. This surface level analysis did not incorporate in-depth interpretation and checking of meanings with participants which also limited the validity of findings. The current thematic analysis identified themes according to their prevalence within the data i.e. according to the number of comments made relating to a specific theme. Thematic analysis was conducted on participant data from three group interviews combined for analysis. The raw data consisted of pupils' responses scribed by the researcher during group interviews (See Appendix 14). As part of the mixed-methods research design, the interpretation of the qualitative data was intended to facilitate data triangulation and to support findings from quantitative research strand.

The analysis was conducted according to the six-step process defined by Braun and Clarke (2006).

1) Familiarise yourself with the raw data (See Appendix 14)
2) Generate the initial codes (See Appendix 15)
3) Search for themes
4) Review themes

5) Define and name themes (See Section 4.3.2)

6) Write the report

4.3.2 Thematic Analysis Report

During a series of three group interviews involving a total of 27 participants, three questions were used to explore participants' experiences of the OAE intervention. Three individual thematic analyses were conducted to explore participants' responses to each interview question. The themes and subthemes are presented below according to the related interview questions. For each question, a thematic map initially presents themes, subthemes and initial codes. The following discussion then presents examples of data for each theme and subtheme followed by a summary of findings.

Figure 4-1: Thematic map for Question 1 – What did you like about the Outdoor Adventure Education days?

4.3.2 (i) What did you like about the OAE days? (See Figure 4-1)

Theme 1: The Physical Experience

The most common theme involved participants discussing specific elements of the OAE days that they particularly liked.

i. **Adventure Activities**

'The second day where we had things tied on us and we had to do this relay down' (Student J).

'I liked when I had to climb up the ladder' (Student G).

ii. **Events**

'Remember we saved the fish' (Student S).

Theme 2: Feelings Triggered

Participants also said they liked the feelings they experienced during the intervention.

i. **Having Fun**

''Cos it was really fun and even though it was really high up it was still funny' (Student B).

ii. **Being Brave**

'No, I wasn't scared' (Student N).

iii. **Sense of Achievement**

'I was the fastest one up the ladder. We had to do a little challenge on our own' (Student G).

Theme 3: Teamwork

Many participants also spoke about times during the intervention when they worked together with their peers.

'I like it when I was helping people' (Student S).

'..And teamwork you had to do' (Student D).

Summary

Participants appeared to enjoy specific adventure activities, suggesting their overall perception of the intervention was at a physical level of enjoyment and engagement with activities. Additional themes of feelings triggered experienced and teamwork were less prominent in participants' responses. This suggested that participants may have experienced the intervention in physical terms before emotional and interpersonal terms.
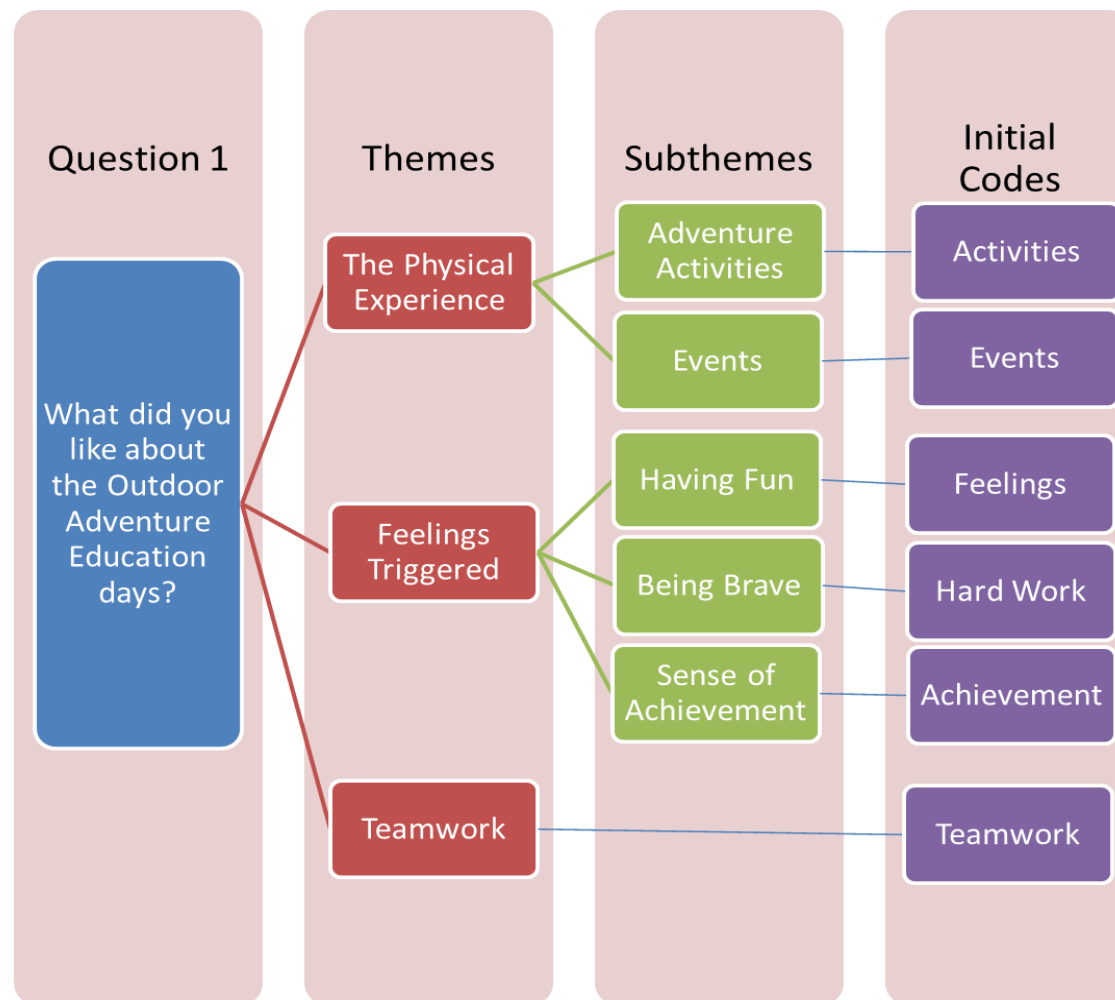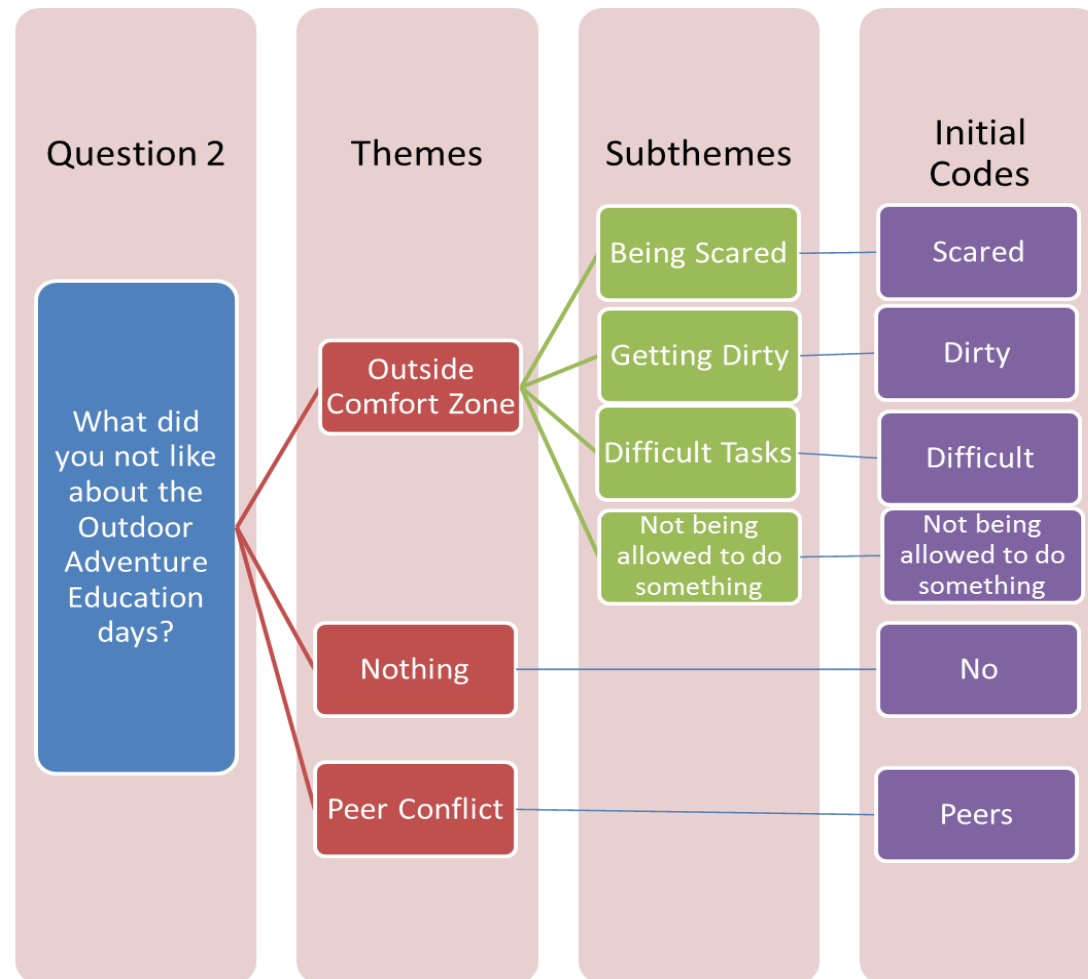
Figure 4-2: Thematic map for Question 2 – What did you not like about the Outdoor Adventure Education days?

4.3.2 (ii) What did you not like about the OAE days? (See Figure 4-2)

Theme 1: Outside Comfort Zone

The most prominent theme involved participants discussing times when they felt outside their comfort zone. These discussions referred to physical discomfort and associated emotional discomfort.

   i.   **Being Scared**

   '*When I had to go down the cliff I was crying like a baby*' (Student CW).

   ii. **Getting Dirty**

   '*I didn't like when my feet were wet, we jumped across the river, there were bugs and mud*' (Student D).

   iii. **Difficult Tasks**

   '*We had to run across this massive field*' (Student M).

   iv. **Not Allowed to do Something**

   '*We couldn't jump in the water*' (Student M).

Theme 2: Nothing

Several participants reported that they did not dislike anything about the intervention.

   '*Nothing was scary*' (Student S).

   '*When we don't go again*' (Student N).

Theme 3: Peer Conflict

One participant spoke about experiencing difficulties working with a peer.

   '*When I had to work with someone I didn't like*' (Student A).

Summary

The dominant theme of participants feeling outside their comfort zone suggested that participants experienced physical and mental challenge during the intervention, which formed a significant part of their overall perception of the intervention. The fact that several people did not identify anything negative

about the intervention suggested that participants generally perceived the intervention as a positive experience.
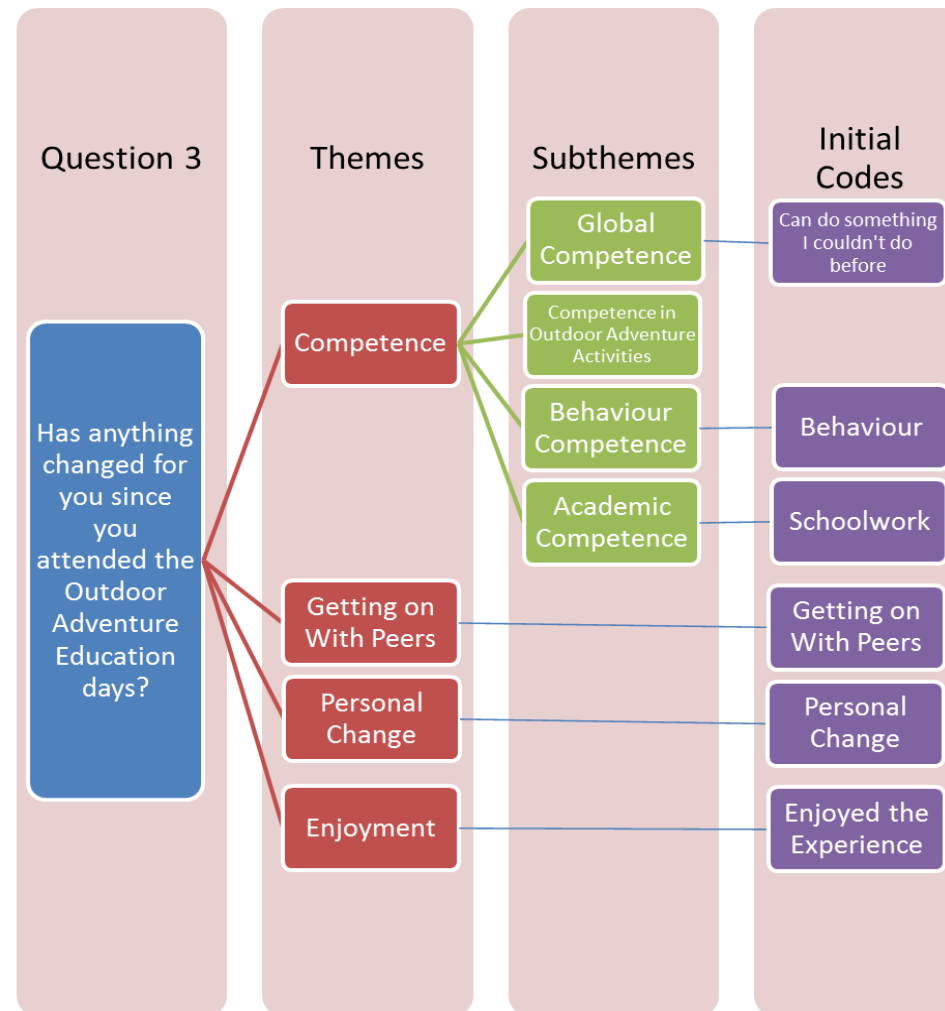
Figure 4-3: Thematic map for Question 3 – Has anything changed for you since you attended the Outdoor Adventure Education days?

4.3.2 (iii) Has anything changed for you since you attended the OAE Days? If so, tell me about that. (See Figure 4-3)

Theme 1: Competence

The dominant theme involved participants identifying increased feelings of confidence and bravery following the intervention. This involved feelings of global and domain specific competence.

i. **Global Competence**

   'Yes, my confidence changed' (Student C).

   'We had to change 'I can't' to 'I can' …I learned that' (Student D).

ii. **Competence in Outdoor Adventure Activities**

   'I used to hate getting my face dirty but now I know I can' (Student B).

   'Yes, I used to be afraid of jumping off stuff and now I'm not afraid' (Student F).

iii. **Behaviour Competence**

   'I think I've become a little, little, little bit more sensible' (Student P)

   'Yeah, she's amazing in class' (Student B).

   'It's my attitude towards teachers' (Student M).

iv. **Academic Competence**

   'Improving my work, getting to a Level 5' (Student K).

   'I been knuckling down on my work, been concentrating' (Student CW).

Theme 2: Getting on with Peers

Participants also discussed positive experiences of working effectively with peers during the intervention.

   'Yes, we was all working as a team and I got more friends' (Student J).

   'I had some friends to keep me company' (Student E).

Theme 3: Personal Change

Several participants identified a general sense of personal change without identifying specific feelings or areas of competence.

'It changed everything inside me' (Student J).

'I feel better now' (Student B).

Theme 4: Enjoyment

One participant simply identified the experience of enjoying the intervention as a personal change.

'At least I've gone on a good trip' (Student B).

Summary

Participant responses to the question about change were more varied than for other questions, perhaps reflecting the fact that the OAE intervention affects many different outcomes according to individual participants' needs. The dominant theme of increased competence arguably reflected a theoretical link to the Adventure Experience Paradigm (Priest, 1993). Further themes of getting on with peers and enjoyment reflected participants' experiences of positive emotions following the intervention. The theme of personal change was also interesting, suggesting that some participants experienced a sense of change without fully understanding it.

4.3.3 Summary of Qualitative Results

The thematic analysis suggested that overall, pupils perceived the OAE intervention to be a positive experience which led to positive feelings of change associated with competence, peer interactions, personal change and enjoyment. Participants appeared to experience the intervention at a physical level, enjoying specific adventure activities and dealing with physical and mental challenges as a result of the novel physical environment. Participant comments about change following the intervention reflected a wide range of themes, perhaps varying according to participants' individual needs. These conclusions are made tentatively considering the methodological limitations described in Section 4.3.1. Further discussion of the implication of these findings is presented in Chapter 5.

4.4 Summary of Results

4.4.1 Quantitative Results

Null Hypothesis 1: There will be no statistically significant group differences in changes in participants' locus of control scores as measured by the Locus of Control Scale for Children, following participation in an OAE intervention.

Findings: There were no statistically significant within or between group differences in participants' locus of control scores identified across time. This pattern was also reflected in the eta squared effect sizes. Descriptive analyses suggested an increase in locus of control scores across time in the experimental group but not in the control group. Further analysis also suggested the possibility of ceiling effects in the locus of control data.

Conclusion: The null hypothesis was accepted, acknowledging the low statistical power in the current investigation. Ceiling effects may have been associated with this result.

Null Hypothesis 2: There will be no statistically significant group differences in changes in participants' global and domain specific self-perceptions (i.e. scholastic competence, social acceptance, athletic competence, physical appearance, behavioural conduct and global self-worth) as measured by the Self-Perception Profile for Children, following participation in an OAE intervention.
Findings: There were no statistically significant within or between group differences in participants' self-perception scores identified across time. This pattern was also reflected in the eta squared effect sizes. Further analysis also suggested the possibility of ceiling effects in the self-perceptions data.

Conclusion: The null hypothesis was accepted, acknowledging the low statistical power in the current investigation. Ceiling effects may have influenced this result.

Null Hypothesis 3a: There will be no statistically significant group differences in changes in teacher perceptions of pupils' total emotional and behavioural difficulties following pupil participation in an OAE intervention.

Findings: There were no statistically significant within or between group differences in teacher perceptions of participants' total emotional and behavioural difficulties. This pattern was also reflected in the eta squared effect sizes. Further analysis also suggested the possibility of ceiling effects in the self-perceptions data.

Conclusions: The null hypothesis was accepted, acknowledging the low statistical power in the current investigation.

Null Hypothesis 3b: There will be no statistically significant differences in teacher perceptions of pupils' total emotional and behavioural difficulties across time following pupil participation in an OAE intervention.

Findings: There was a statistically significant decrease in teacher perceptions of participants' total emotional and behavioural difficulties across time. This decrease had a medium effect size. Due to the lack of a control group, this finding may have been influenced by the Hawthorne Effect.

Conclusion: The null hypothesis was rejected, whilst acknowledging the low statistical power in the current investigation. The Hawthorne Effect may have influenced this result.

4.4.2 Qualitative Results

Exploratory Research Question: How do pupils perceive the OAE intervention?

Findings: The dominant themes in response to the group interview questions tentatively suggested the following:

- Participants seemed to enjoy the intervention as a physical experience.
- Participants appeared not to like feeling outside their comfort zone during the intervention.

- Participants expressed increased feelings of competence following the intervention including global competence, competence in outdoor adventure activities, behaviour competence and academic competence

Conclusion: Participants perceived the OAE intervention to be a positive experience associated with increased feelings of competence. Further interpretation of the current results is undertaken in Chapter 5.

Chapter 5: Discussion

5.1 Introduction

The purpose of the current mixed-methods study was to evaluate the psychological impact of an OAE intervention for primary school children perceived to be vulnerable. The discussion reviews the qualitative and quantitative results to consider their utility in answering the four research questions. A summary of findings in relation to each individual research question is followed by interpretation of the integrated findings in relation to existing theory and research evidence reviewed in Chapter 2. Findings are also discussed specifically in relation to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) to facilitate a real world application of this theoretical model. The discussion also critiques the strengths and limitations of the current methodology addressing issues of research design, measurement tools and sampling procedures. Following this critique, a brief summary evaluates the reliability and validity of the current study to inform generalisation of findings. Finally, the implications of the current findings are considered in relation to future research as well as professional practice for local authorities, schools and educational psychologists (EPs). A reflection on the researcher journey is included briefly in the discussion of professional implications.

5.2 Summary of Current Findings

1. **Does participation in an OAE intervention have an impact upon the locus of control of primary school children perceived to be vulnerable?**

The results did not show that the intervention had a statistically significant impact upon participants' locus of control scores, although a shift towards internal locus of control for the experimental group was indicated in the means. Analysis of effect sizes also supported the statistically non-significant findings. However, the validity of these findings was limited by the low statistical power of the study and ceiling effects resulting from sampling error.

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2. **Does participation in an OAE intervention have an impact upon the global and domain specific self-perceptions of primary school children perceived to be vulnerable?**

The results did not show that the intervention had a statistically significant impact upon participants' global and domain specific self-perception scores. Inspection of the means suggested the possible interference of testing effects i.e. increases in mean self-perception scores for both experimental and control groups across time for four of the five subscales. Analysis of effect sizes also supported the statistically non-significant findings. However, the validity of these findings was also limited by the low statistical power of the study and ceiling effects resulting from sampling error.

3. **Does pupil participation in an OAE intervention have an impact upon teacher perceptions of emotional and behavioural difficulties experienced by primary school children perceived to be vulnerable?**

The results suggested that the intervention had a statistically significant positive impact on teacher perceptions of participants' total emotional and behavioural difficulties. However, the validity of these findings was limited by the research design i.e. one-group pre-test/post-test design with no control group. The results were not replicated in a small randomised control trial, although in this case the means showed a decrease in total emotional and behavioural difficulties for the experimental group. These findings were also limited by the low statistical power of the study.

4. **How do participants perceive the OAE intervention?**

The participants perceived the intervention as a physical experience which they enjoyed. They enjoyed specific activities and experienced physical and mental challenge outside their comfort zone. Participants also identified increased feelings of competence across several domains following the intervention. Some participants also discussed interpersonal and emotional experiences during the intervention. However, these conclusions have been made tentatively due to the surface-level nature of the thematic analysis.

- **Meta inferences**

The quantitative measures failed to unequivocally identify a statistically significant impact of the intervention upon participant measures. Tentative findings suggest that teachers perceived a decrease in participants' emotional and behavioural difficulties following the intervention, but the validity of these findings was limited by the research design. Overall, the quantitative findings were limited by ceiling effects as a result of sampling error and the low statistical power of the study.

The qualitative findings tentatively suggested that participants experienced the intervention as a physical experience, perhaps explaining the lack of statistically significant effects on self-concept measures identified by quantitative measurement tools. However, participants also reported increased feelings of competence following the intervention which arguably reflect elements of the self-concept variables explored in the quantitative investigation. These findings are now interpreted further in relation to existing theory and research.

5.3 Interpretation of Quantitative Findings: Links to Existing Research

5.3.1 Locus of Control Findings

The current findings suggest that participation in an OAE intervention did not have a statistically significant impact on the locus of control of children perceived to be vulnerable, as measured by the Locus of Control Scale for Children (Nowicki & Strickland, 1973). These findings reflect to several possible explanations (See Table 5-1).

Current Finding	Possible Explanation
There were no statistically significant group differences detected for participants' locus of control scores following the OAE intervention	• Participation in the OAE intervention did not have any impact on participants' locus of control • Ceiling Effect: Participants' locus of control could not become any more internal during the intervention because their locus of control was already within the average range before the intervention began • Type II Error: Participation in the OAE intervention had an impact on participants' locus of control scores but the current research design was unable to detect this effect because of poor statistical power (<0.25) and/or the sensitivity of measurement tools.

Table 5-1: Details of current locus of control findings and possible explanations.

The current findings support previous research which failed to find a statistically significant impact of OAE interventions on locus of control scores for young offenders (Minor, 1994) and children with emotional and behavioural difficulties (Langsner & Anderson, 1987) using the Locus of Control Scale for Children (Nowicki & Strickland, 1973). However, similar to the current study, Langsner and Anderson (1987) also highlighted the limited statistical power of their study as a result of small sample size, and therefore suggested the possibility that their results reflected Type II errors. Furthermore, the current findings contradict previous research which showed that participation in an OAE intervention led to positive gains in perceptions of control for young offenders (Sakofs, 1992) and 'at risk' children (Cross, 2002). Notably, Sakofs (1992) also used the Locus of Control Scale for Children (Nowicki & Strickland, 1973). These two studies support the idea that the current findings may reflect ceiling effects or Type II errors.

5.3.2 Self-Perceptions Findings

The current findings suggest that participation in an OAE intervention did not have a significant impact on the global and domain specific self-perceptions of children perceived to be vulnerable, as measured by the Self-Perception Profile for Children, UK modification (Hoare et al., 1993). These findings suggest several possibilities (See Table 5-2).

Current Finding	Possible Explanation
There were no statistically significant group differences detected for participants' global and domain specific self-perceptions following the OAE intervention	• Participation in the OAE intervention did not have any impact on participants' self-perceptions • Ceiling Effect: Participants' self-perceptions could not increase during the intervention because their self-perceptions were already within the average range before the intervention. • Type II Error: Participation in the OAE intervention had an impact on some or all of the global and domain specific self-perceptions measured but the current research design was unable to detect this effect because of poor statistical power (<0.25) and/or the sensitivity of measurement tools • Participation in the OAE intervention had an impact on domain specific self-perceptions which were not measured in the current study e.g. competence in OAE activities

Table 5-2: Details of current self-perceptions findings and possible explanations.

The current findings support previous research which failed to find significant changes in measures of self-concept of young offenders (Minor, 1994) and children with emotional and behavioural difficulties (Farnham & Mutrie, 1997; Langsner & Anderson, 1987) following participation in an OAE intervention. Once again, the limited statistical power of Langsner and Anderson's (1987) study must be considered. However, the current findings also contradict existing research, which suggested that young offenders experienced statistically significant gains in self-concept following participation in OAE interventions (Pommier & Witt, 1995; Walsh & Russell, 2010b). These existing findings also support the idea that the current findings may have been due to the interference of ceiling effects and Type II errors. While some studies have demonstrated gains in self-perceptions as measured by the Self-Perception Profile for Children (Harter, 1985) (Farnham & Mutrie, 1997; Pommier & Witt, 1995), the existing research demonstrates the use of a range of self-concept measurement tools and terminology including self-perceptions (Pommier & Witt, 1995), self-efficacy (Walsh & Russell, 2010b), self-concept (Minor, 1994) and self-esteem (Langsner & Anderson, 1987). This conceptual variation makes the comparison of different studies challenging. As discussed in Chapter 2, the current study

adopted the self-perceptions of competence concept as an outcome measure because of its theoretical links to perceived competence (See Section 2.4.4 (i)), which is implicated in the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993).

5.3.3 Emotional and Behavioural Difficulties Findings

The current findings provide some evidence that participation in an OAE intervention led to decreased total emotional and behavioural difficulties among children perceived to be vulnerable, as measured by The Strengths and Difficulties Questionnaire (Goodman, 1997) completed by teachers. However, once again the findings reflect several possible explanations (See Table 5-3).

Current Finding	Possible Explanation
1. There were no statistically significant group differences detected for teacher reported total EBD following the OAE intervention (RCT)	• Participation in the OAE intervention did not have any impact on participants' total EBD, as perceived by their class teachers • Type II Error: Participation in the OAE intervention had an impact on teacher reported total EBD but the current research design was unable to detect this effect because of poor statistical power (<0.25) and/or the sensitivity of measurement tools
2. There was a statistically significant decrease in teacher reported total EBD following the OAE intervention (Pre-test/post-test)	• Participation in the OAE intervention led to a decrease in participants' total EBD as perceived by their class teachers • Hawthorne Effect, Type I error: The fact that participants were taking part in an intervention rather than the intervention itself led to a decrease in teachers' perceptions of participants' total EBD

Table 5-3: Details of current emotional and behavioural difficulties findings and possible explanations.

The current one group pre-test/post-test positive findings support several studies which demonstrated positive effects on behavioural assessment by others for young offenders following OAE interventions, as reported in Cason and Gillis' (1994) meta-analysis. In the current study, the class teachers did not have any opportunity to observe the children during the OAE intervention and they completed the SDQ informed by the children's behaviour in the classroom environment. This suggests the children may have generalised gains from the OAE intervention to a new environment, something which has been

demonstrated in previous research e.g. rates of recidivism among young offenders (Gillis et al., 2008). However, the current RCT statistically non-significant findings support Sakofs (1992) and Walsh and Russell (2010b) research which failed to find statistically significant effects on behaviour assessment measures for young offenders following OAE interventions.

5.4 Interpretation of Qualitative Findings: Links to existing research

The current qualitative findings suggest that participants reported positive perceptions of the OAE intervention and also experienced feelings of change across personal and interpersonal dimensions following participation in the intervention. As discussed previously, the overall validity of the qualitative findings is limited by the surface-level thematic analysis adopted during the data analysis phase. The following interpretation is therefore made tentatively with this limitation in mind. Several themes and subthemes identified from participants' comments during group interviews in the current study arguably reflect themes reported in previous qualitative research (See Table 5-4).

Current theme / subtheme	Similar theme from previous research
Global competence	Empowerment *(Autry, 2001)* Recognition of personal value *(Autry, 2001)* Feel more confident *(Braiden, McCann, Barry, & Carrie, 2009)* Subtle behaviour and attitudinal change *(Sakofs, 1992)* Affective development *(Dismore & Bailey, 2005)*
Behaviour competence	One's own behaviour *(Karppinen, 2011)*
Academic competence	Experience of learning *(Karppinen, 2011)* Intellectual development *(Dismore & Bailey, 2005)*
Teamwork Getting on with peers	Teamwork *(Autry, 2001)* Behaviour in a group *(Karppinen, 2011)* Social development *(Dismore & Bailey, 2005)* Perceptions of trust *(Autry, 2001)*

Table 5-4: Details of themes and subthemes from current research and corresponding themes in previous qualitative research studies.

The current findings may reflect socially desirable responding from participants interviewed using peer group interviews. However, the validity of findings is supported by links to existing qualitative research (See Table 5-4) and fact that current themes also reflect several categories of outcomes of OAE interventions identified in existing meta-analyses of quantitative studies (See Table 5-5). These links to previous quantitative findings demonstrate the potential for

integration of quantitative and qualitative findings in exploring issues of programme efficacy. Furthermore, this suggests the potential use of qualitative data for validating quantitative findings and perhaps informing further quantitative investigation.

Current theme /subtheme	Outcome from quantitative adult and children studies (Hattie et al., 1997)	Outcome from quantitative adolescent studies (Cason & Gillis, 1994)
Academic competence	Academic achievement	Academic grades School attendance
Global competence	Self-concept	Self-concept Attitudes
Personal change	Personality	Locus of control
Teamwork Getting on with peers	Interpersonal	-
OAE competence	Adventure outcomes	-
Behavioural competence	-	Behavioural assessment

Table 5-5: Details of current themes and subthemes and corresponding categories of outcomes in previous quantitative research.

The current findings suggest that the participants experienced the OAE intervention positively and perceived personal change following the intervention. The comparison of the current findings across existing studies is tentative due to variation in sample populations (See Chapter 2). For example, possible variation in the interview questions presented and in the methods of data analysis used in previous studies may also limit the transferability of findings to different contexts. Nonetheless, the current qualitative findings support existing qualitative (See Figure 5-4) and quantitative research (See Figure 5-5) but appear to contradict the current quantitative findings. Therefore, by identifying evidence of participant perceptions of change following the intervention, the qualitative findings may suggest further support for the possibility of Type II errors in the current quantitative data analysis.

5.5 Summary of Mixed-Methods Findings

The data gathered from each of the three quantitative measurement tools have produced mixed findings with several possible interpretations. Overall, the findings suggest that the intervention did not have a statistically significant impact upon participants' locus of control or self-perceptions but may have led to a statistically significant reduction in teacher perceptions of participants'

emotional and behavioural difficulties. Due to the equivocal nature of existing evaluation research, the current findings both support and challenge existing research. However, inferences based on the current findings must be made tentatively considering the limited statistical power of the current study, the possible Hawthorne Effect (Landsberger, 1958) and the possible influence of sampling error, as discussed in Chapters 3 and 4. The qualitative findings tentatively suggest that the participants perceived the OAE intervention to be a positive experience, identifying feelings of increased competence following the intervention. These findings reflect themes from previous qualitative research (See Table 5-4) as well as two quantitative meta-analyses (See Table 5-5). These findings appear to contradict the current quantitative findings, hence supporting the idea that the quantitative findings may reflect Type II inference errors.

The current findings will now be considered together with an evaluation of the strengths and limitations of the current research design. This evaluation is presented below (See Section 5.7), but it is preceded by a discussion of the theoretical implications of the current findings, with specific reference to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993).

5.6 Theoretical Interpretation of Findings: The Adventure Experience Paradigm

As called for by previous authors (e.g. Nichols, 2000), the current study was designed to facilitate a real-world application of an existing theoretical model of OAE i.e. The Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993). As discussed in Chapter 2, this paradigm identifies a perceived risk/competence balance and locus of control as key factors influencing participant change in OAE situations. At first glance, the current quantitative findings appear to challenge the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) by suggesting there were no statistically significant effects on participants' locus of control or self-perceptions of competence following the OAE intervention. This evidence could suggest that the paradigm is flawed. However, it is also possible that the findings can be

interpreted using the paradigm. Perhaps participants did not experience sufficient 'peak adventure' (Priest, 1993) or 'flow' (Csikszentmihalyi, 1997) to catalyse personal growth during the OAE interventions. This may have been a result of the short duration of the intervention i.e. two days, an insufficient level of challenge, or limited opportunities for participants to make choices and set personal goals (McKenzie, 2000). It is also possible that the concepts associated with the paradigm cannot be applied to the current population sample which includes children in mainstream schools e.g. existing research exploring locus of control concepts has included several studies of young offenders (Hans, 2000). The following section will further explore the theoretical implications of the current findings in relation to the locus of control concept.

5.6.1 Theoretical Interpretation: Locus of Control

The current findings suggest that prior to the intervention, participants did not demonstrate significant external locus of control, as expected in light of existing research involving children experiencing EBD (Nunn & Parish, 1992). These findings regarding the locus of control for the current sample support the work of Elliot (1993, 1996) who did not find any relationship between locus of control and EBD. This also suggests that the impact of ceiling effects may have influenced the validity of current locus of control findings and challenges the use of locus of control as an outcome measure in the current study. It is also possible that gender differences influenced individual outcomes following the OAE intervention. Witman (1993) found that young people's perceptions of an OAE intervention varied according to their gender, with males discussing issues of control, risk, leadership and learning and girls discussing issues of trust. Similar findings have been identified in another study by Autry (2001). This qualitative research suggests that males more than females may experience the OAE intervention according to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) i.e. in terms of locus of control. However, in the current study, the sample involved a higher proportion of females than males for the participant measures i.e. 60% female. This may have led to more participants experiencing the intervention in terms of interpersonal factors instead of self-concept and locus of control. This idea is supported by the

common themes of 'teamwork' and 'getting on with peers' emerging in the current qualitative data. Further analysis of the qualitative data according to gender was not undertaken in the current study due to resource constraints but future research using this strategy might illuminate this issue further.

5.6.2 Theoretical Interpretation: Perceived Competence

The current findings can also be interpreted in relation to the concept of perceived competence. Although existing evidence suggests that self-perceptions or self-esteem are typically associated with general emotional wellbeing (Fox, 2000; Muris et al., 2003), the average self-perceptions of the current population sample identified as vulnerable by their school, were within the average range prior to the intervention. As discussed previously, this evidence suggests that ceiling effects may have influenced the current findings. However, the conceptual link between Priest's (1992, p. 128) competence, 'a combination of skill, knowledge, attitude, behaviour, confidence and experience' and Harter's (1985) domain specific competencies may be limited. Perhaps a measure of outdoor adventure experience competence would be more appropriate to measure the impact of short-term OAE interventions. For example, Bloemhoff (2006) identified statistically significant gains in participants' enjoyment of and perceived competence in OAE activities following an OAE intervention. OAE specific factors are also apparent in the current qualitative data i.e. participants appeared to experience the intervention as a physical experience and reported gains in OAE competence. However, a dominant theme in participants' interview responses in the current study was that of competence across a range of domains, supporting the inclusion of the competence concept proposed by the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993). This finding is also reflected in existing qualitative research in which female participants reported a sense of 'empowerment' following an OAE intervention (Autry, 2001). This theme involved feelings of personal control, sense of accomplishment, self-confidence and self-esteem, perhaps reflecting locus of control and competence concepts according to the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993).

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5.6.3 Summary of Theoretical Interpretation

The current findings therefore present mixed support and challenge for the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) and its application for children perceived to be vulnerable. The quantitative findings appear to challenge while the qualitative findings provide some support for the application of the paradigm. However, the paradigm presents a simplistic model of the OAE experience. While this could be considered a strength, it is likely that its simplicity also underestimates the complexity of the OAE experience and the range of variables at work. For example, the model places a central emphasis on individual outcomes rather than interpersonal and group outcomes, which are suggested in the current qualitative data. This idea also reflects Brookes' argument (2003a, 2003b), discussed in Chapter 2, criticising the dominant emphasis on dispositional rather than situational factors in OAE practice and research literature. Perhaps the Adventure Experience Paradigm represents one specific mechanism of action for some participants rather than a general model. A general model may be beyond the scope of current knowledge about the OAE intervention. If this is so, research such as the current study which aims to apply and test theoretical models in real world settings can help to build upon previous research working towards common theories and models. As indicated previously, the current findings are now considered alongside a critique of the current methodology.

5.7 Strengths and Limitations of the Current Methodology

As discussed in Chapter 4, the validity of the current findings was affected by the methodology adopted by the researcher in this study. The following section reviews the strengths and limitations of the current methodology in order to evaluate its utility and appropriateness in answering the current research questions. This involves consideration of the research design, sampling procedures and measurement tools. A summary then presents a synthesised evaluation of the reliability and validity of the current research design.

5.7.1 Mixed Methods Research Design

The current study utilised a mixed-methods research design in order to evaluate the impact of an OAE intervention using qualitative and quantitative measures. This approach was arguably a strength of the current study as it allowed the researcher to conduct a naturalistic evaluation, addressing limitations within the existing research associated with purely quantitative and qualitative studies. The mixed-methods approach also allowed the researcher to use qualitative data to enhance and triangulate quantitative findings. Mixed-methods approaches have been scarce within the OAE research involving vulnerable young people with existing studies failing to provide detailed integration of data and meta-inferences (e.g. Sakofs, 1992).

5.7.1 (i) Quantitative Research Design

Another arguable strength of the current study was the use of a RCT design in the quantitative research strand. As discussed in Chapters 2 and 3, the RCT design allowed the researcher to make causal inferences from the quantitative data and also supported the internal and external validity of the findings (Campbell & Stanley, 1963; Shadish et al., 2002). This design therefore helped the researcher to answer quantitative research questions associated with issues of intervention efficacy. However, while the randomisation procedures reduced the influence of many threats to internal and external validity (Campbell & Stanley, 1963), some features of the quantitative research design warrant further discussion. The RCT involved combined experimental and control groups each consisting of smaller groups from four different schools, with random allocation having occurred within each school sample i.e. in four stages. This method did not reflect true random allocation of participants and may have limited the validity of causal inferences slightly. However, this method of combining small intervention groups to make larger experimental groups is common within the OAE literature (Hazleworth & Wilson, 1990; Walsh & Russell, 2010b) due to the nature of the intervention involving small groups. Furthermore, the researcher used statistical analysis to support the combination of data to form equivalent groups prior to intervention (See Section 4.2).

As detailed in Chapter 3, the implementation of the RCT design was also incomplete in the current study. The one group pre-test/post-test design used in the teacher investigation limited the validity of findings due to the lack of a control group. The possible influence of a Hawthorne Effect (Adair, 1984) is likely, particularly considering Hattie et al' (1997) finding that increased randomisation and experimental control in OAE evaluation literature was negatively correlated to statistically significant participant outcomes. A similar pattern seems apparent in the current study. However, the pattern identified by Hattie et al (1997) may also reveal the results of researchers using statistical analyses in studies of insufficient statistical power e.g. the current study revealed differences between group means following the intervention which were not found to be statistically significant. Future research should incorporate issues of statistical power into the planning stages in order to unpick this issue further.

5.7.1 (ii) Qualitative Research Design

The qualitative research strand involved the use of group interviews to explore participants' perceptions of the OAE intervention. The use of a human data collection tool strengthened the naturalistic element of the current evaluation addressing the limitations of post-positivist approaches in accessing the complexities of human perceptions and meaning making (Lincoln & Guba, 1985). However, the current qualitative research strand was small-scale involving a small sample, limited data and surface-level data analysis. The dependability of the data was also limited by the highly structured nature of group interviews and the limited opportunities for participant interactions (Lewis, 1992). Alternative prioritisation and timing of data collection methods may have altered the validity of the qualitative findings. For example, the current qualitative data highlighted participant outcomes such as teamwork and OAE specific competence which were not measured by quantitative measures. Perhaps an extended exploratory phase and the use of qualitative data to inform quantitative data gathering could have facilitated a more effective quantitative design. The current qualitative findings may support this approach in future research.

5.7.2 OAE Intervention

Features of the OAE intervention also impacted on the external validity of current findings. As demonstrated in Chapter 3, the current study involved the common features of OAE interventions as identified by Hattie et al (1997) in 100% of sessions observed (i.e. 63%). These factors included:

- backcountry location
- small groups
- skilled facilitator
- mentally and physically challenging tasks
- group interaction and teamwork
- facilitator matching activities to participants' abilities

The measurement and reporting of treatment fidelity could be considered a strength of the current study. Reporting of treatment fidelity is a feature missing from much existing OAE research and this methodological issue has been highlighted for improvement by several authors (Gillis et al., 2008; Tucker & Rheingold, 2010). The level of treatment fidelity in the current study also supports the external validity of findings. However, a significant limitation of the current study was the duration of the OAE intervention employed. According to Hattie et al (1997), OAE interventions typically last between two and four weeks, with programmes of longer duration leading to larger outcome effect sizes. The lack of statistically significant findings in the current study for participant measures may have been a result of the duration of the intervention being too short to impact upon self-concept and personality concepts. However, the duration of the current intervention was pre-determined by the existing format used by the Outdoor Education Team. To support a naturalistic evaluation, the researcher studied the intervention in its naturally occurring state. While this use of an intervention of unique duration may have limited the external validity of the current findings, as discussed in Chapter 2, several studies of OAE interventions for vulnerable children have found statistically significant positive effects using measures of personal control, self-esteem and

protective factors following short interventions i.e. five days (Cross, 2002; Farnham & Mutrie, 1997) and four hours (Bloemhoff, 2006).

Perhaps the current findings reflect issues of intervention content and process rather than duration. Significant change in participant's self-perceptions and locus of control may have been facilitated by more opportunities for processing during the intervention i.e. involving participants in planning and debriefing activities, providing opportunities for reflection and reinforcement of learning, focusing participants' attention on opportunities for change (Luckner & Nadler, 1995). McKenzie (2000) also suggested that OAE interventions that provide participants with opportunities to make choices and identify personal goals lead to the best outcomes for participants. Tailoring the content and focus of OAE interventions according to gender might also lead to positive participant outcomes in future research (Autry, 2001; Witman, 1993).

5.7.3 Sample

The current research involved a sample of primary school children identified by school staff as experiencing a range of vulnerability risk factors identified within the literature (Barnes et al., 2011; Walker & Donaldson, 2011) including emotional and behavioural difficulties. The participants were identified according to the typical referral criteria used by the OET, hence supporting the ecological validity of the sampling procedures. However, the data gathered prior to the intervention suggested that participants did not rate themselves outside the average range on measures of locus of control and self-perceptions, factors thought to be associated with emotional wellbeing (Fox, 2000; Nunn & Parish, 1992). This disparity between teacher and pupil perceptions again raises issues of identifying vulnerable children. The findings suggest that vulnerable children may not have developed sufficient self-awareness to support an understanding of their emotional needs. However, this may also challenge the accuracy of adult perceptions of children's' vulnerability based on assessment of behaviour in a classroom environment. As discussed in Chapter 2, several authors have warned researchers against identifying children with EBD as a distinct population independent of their learning environment (Elliot, 1993, 1996; Fox &

Avramidis, 2003). This assertion is also supported by the nature of the definition of EBD contained in the SEN Code of Practice (DfES, 2003). This finding regarding the pre-intervention measures completed by the current sample limits the generalisability of findings to other populations of vulnerable young people. The sampling method therefore also poses the most significant threat to the internal validity of the study as it is not clear whether the sample effectively represented vulnerable young people. As identified in Chapter 3, variation in participants' previous experience of OAE interventions (history) and participant dropout due to school transfers and absences (mortality) also threatened the validity of the sample.

The use of more detailed operational definitions of vulnerable young people may have increased the validity of the sample. However administrative systems and adult perceptions are typically used to identify children with EBD for additional support and research purposes (DfES, 2003; Elliot, 1996). Perhaps the identification of participants using independent screening measures may have validated sampling procedures further, as demonstrated by Lamb and Gulliford (2011). The use of a larger sample would also have enhanced the statistical validity of current findings by increasing the statistical power of the study. According to Cohen's power tables (Cohen, 1988), the minimum sample size needed to reach power of 0.8 for medium effect sizes of 0.3 (Cason & Gillis, 1994; Hattie et al., 1997) was n = 201. Unfortunately, as in much real world research, such a large sample size was beyond the resources available in the current research.

5.7.4 Measurement Tools

The choice of quantitative measurement tools, their administration and subsequent data analysis also impacted upon the reliability and internal validity of the current study. As discussed in Chapter 2, the Locus of Control Scale for Children (Nowicki & Strickland, 1973) and the Self-Perception Profile for Children – UK standardisation (Hoare et al., 1993) were used to apply the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) within the current evaluation. These measurement tools have been used in

previous OAE evaluation research involving vulnerable young people, with mixed findings (Farnham & Mutrie, 1997; Langsner & Anderson, 1987; Minor, 1994; Sakofs, 1992). The Strengths and Difficulties Questionnaire (Goodman, 1997) was used to gather teacher perceptions of participants' behaviour. Acceptable statistical reliability and validity has been demonstrated for each of the quantitative measures as discussed in Chapter 3 (Eklund, Whitehead, & Gregory, 1997; Goodman, 2001; Granleese & Joseph, 1994; Nowicki & Duke, 1983; Nowicki & Strickland, 1973). The triangulation of pupil and teacher data was intended to strengthen the validity of findings in the current study.

For each group of participants, the pupil measures were administered according to a standard schedule with a standardised script. However, while all teachers were provided with standard instructions regarding completion of the Strengths and Difficulties questionnaire, variation in the times at which teachers completed the measures limited the validity of findings. The fact that participants completed the measures on three occasions may have increased the threat to internal validity. For example, a measurement effect appears to be apparent in the means of the SPPC data. However, in order to reduce measurement effects, the researcher administered the questionnaire items in reverse order at Time 2 to reduce participants' familiarity with the questions. Finally, while the current findings have suggested that participation in the OAE intervention did not have an impact on participants' locus of control or self-perceptions, it is possible that the measurement tools were not sensitive enough to detect changes following a two-day intervention. As the qualitative data suggests participants appear to have experienced the intervention as a physical experience, measures of OAE specific variables may have been more appropriate for a short intervention.

5.8 Reliability and Validity of the Current Study

The reliability and validity of the current study has been reviewed in detail in Chapter 3. The following discussion presents an integrated summary of the reliability, internal validity and external validity of the current findings, taking into account the critique of the current methodology. The current study has

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demonstrated reliability and dependability in both quantitative and qualitative research strands respectively. The use of reliable and valid measurement tools, standardised administration of participant measures and attempts to demonstrate treatment fidelity were intended to support the reliability of the quantitative research strand. The structured, standardised interview questions and chain of evidence with data analysis were also designed to support the dependability of the qualitative research strand, although the lack of tape-recording during interviews may have led to the loss of some data. The internal validity of the current study is supported by the random allocation of participants to experimental and control conditions in the quantitative research strand. However, sampling error, ceiling effects and threats of history, testing and instrumentation threatened internal validity. The qualitative strand demonstrated credibility involving prolonged researcher engagement with participants and the use of open-ended interview questions to reduce interviewer bias. However, the surface-level nature of the thematic analysis created a significant threat to the credibility of the design, as discussed previously throughout the current research report. The triangulation of qualitative and quantitative data also supported the overall internal validity of the mixed-methods study.

The external validity of the study was also supported by randomisation procedures. The selection of participants and the setting were somewhat unique to the current intervention but also corresponded to young people perceived to be vulnerable by school staff across all mainstream schools in the UK. However, the relationships between the population sample and the constructs measured were also unclear, as demonstrated by the possible ceiling effects. Generalisation of findings should be informed by details of the setting and population sample provided in Chapter 3. The transferability of the qualitative findings was supported by the use of multiple-cases but limited by the small scale investigation which did not produce thick description.

The current study therefore included a mixed-methods design with internal and external validity supported by randomisation procedures. However, the influence of the Hawthorne Effect and sampling error limited the internal and

external validity of findings. The research findings can be generalised to other children using the OAE intervention in the same local authority but generalisation to different contexts and samples must be tentative due to the threats of selection strategies and the relationship between the constructs studied and the participant sample (LeCompte & Goetz, 1982). The final section of the discussion further explores the implications of the current findings for future research and professional practice.

5.9 Implications of Current Findings

5.9.1 Implications for Future Research

Interpretation of the current findings has highlighted many implications for future research, particularly issues of methodology and research design.

5.9.1 (i) Changes to the Mixed-Methods Research Design

In light of the current findings, future research could also include mixed-methods approaches in order to address the quantitative/qualitative debate within the current OAE research. Future studies could develop the current design further by using alternative mixed-methods designs involving different combinations of quantitative and qualitative data. For example, this could involve the use of qualitative data to inform more effective quantitative evaluation, particularly in tailoring the selection of outcome measures to the needs of participants. Future research designs could also increase the quality of quantitative and qualitative research strands. As detailed in the discussion of the current study (See Section 5.7.1) this could involve larger RCT designs with full implementation, perhaps facilitated by clear instructions and researcher checks to ensure completion of measures not directly administered by the researcher e.g. teacher measures. A larger RCT including more participants could also enhance the statistical power of future studies. The quality of qualitative data gathering could also be enhanced using more detailed interviews involving more follow-up questioning from group facilitators, more participant interactions and more rigorous recording procedures e.g. tape recording group interviews.

The intervention employed could also be of longer duration (Hattie et al., 1997) and could include more participant involvement and processing opportunities (Luckner & Nadler, 1995; McKenzie, 2000). Future research designs could also endeavour to exert more experimental control over independent variables and extraneous variables in the OAE intervention. This could include the use of a comparison group who would also complete outdoor activities without the backcountry environment and adventure activities, therefore isolating these features of the OAE intervention for study. This approach would control for the interference of extraneous variables associated with the OAE intervention e.g. opportunity to complete activities outdoors, changes to the typical school routine. As discussed previously, more rigorous sampling procedures could also facilitate greater experimental control in future studies i.e. operational definitions of EBD and vulnerability, the use of screening measures to identify research participants and the inclusion of participants with no prior experience of OAE interventions. Comparison of single-sex groups of participants might also control for the impact of gender in participants' experiences of OAE interventions (Autry, 2001; Witman, 1993).

5.9.1 (ii) Alternative Intervention Outcomes

The current findings also suggest that future research should explore the impact of alternative dependent variables for the current population of young people perceived to be vulnerable. As suggested in the qualitative data and in previous research (Bloemhoff, 2006) future studies could use measures of OAE specific outcomes such as competence in OAE activities. This could involve standardised measures or new measures developed from previous research or an initial qualitative data gathering phase. Information from these OAE specific measures could also be directly compared to measures of psychological well-being or behaviour assessment to explore transferability of OAE competence to other environments. Qualitative data gathered by Autry (2001) suggested that female adolescent participants struggled to transfer their personal concept gains from the OAE intervention to other environments such as the residential psychiatric facility they were attending. Brookes (2003b) suggested that the transfer of behaviour gains during OAE interventions should not be expected in

alternative non-adventure contexts as any behaviour changes are a result of situational rather than dispositional factors. However, the current findings suggest that teachers perceived a change in participants' behaviour in the classroom environment following the OAE intervention. Further exploration of this transferability in future research could illuminate a key mechanism underpinning outcomes of OAE intervention and may also explain equivocal research findings across the existing literature.

Future research might also evaluate the impact of an OAE intervention on the interpersonal and teamwork skills of vulnerable young people. According to the SEN Code of Practice, difficulties building relationships and underdeveloped social skills are used to identify difficulties in emotional and social development i.e. 'immature social skills'.. [and difficulties].. 'acquiring the skills of positive interaction with peers and adults' (DfES, 2003, p. 87). OAE interventions have also been shown to impact upon vulnerable children's interpersonal skills across the quantitative and qualitative evaluation literature (Autry, 2001; Dismore & Bailey, 2005; Farnham & Mutrie, 1997; Hattie et al., 1997; Karppinen, 2011). The theme of teamwork is particularly common in the qualitative literature and is reflected in the current data i.e. themes of 'teamwork' and 'getting on with peers'. Measurement tools could involve measures of group interactions during the OAE intervention e.g. The Group Environment Questionnaire (Carron, Widmeyer, & Brawley, 1985) or general measures of children's social skills (See Frederickson & Dunsmuir, 2009b; Humphrey et al., 2011 for reviews). Interpersonal variables are not directly included in the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) and therefore findings may warrant extension or alteration of the model. For example, Priest (1993) presented an extension of the paradigm which identified positive feedback and encouragement from group facilitators and peers as triggers for participants entering positive or negative feedback loops during OAE interventions. As discussed previously, consideration of interpersonal skills as a dependent variable might also be important for predominantly female samples (Witman, 1993).

5.9.1 (iii) A New Methodological Approach?

The current findings and much of the OAE research reflect a within-child conceptualisation of OAE outcomes, with an emphasis on participant self-report measures and adult assessment of participant behaviour. However, as identified in the current literature review (Chapter 2), the research suggests that vulnerable young people should be identified using a systemic, multi-layer risk and protective factors model. Adopting this approach as a central tenet, future research could evaluate OAE interventions by taking account of the many systems surrounding the developing child (Bronfenbrenner, 1979). This approach is apparent in some OAE research involving 'at risk' children which utilised self-report measures of participants' perceptions of their risk and protective factors (Bloemhoff, 2006; Green et al., 2000). Future research might also involve parents' and teachers' perceptions of risk and protective factors impacting on young people. This systemic approach could provide an effective evaluation tool for researchers exploring the complex OAE intervention and help them to explore how the intervention leads to such variation in individual outcomes.

Alternatively, acknowledging the relative nature of the vulnerability concept as discussed in Chapter 2, future research could perhaps adopt a purely constructionist epistemology with extended qualitative data gathering to explore participants' experiences of OAE interventions. However, this would involve the dismissal of any post-positivist elements for evaluation research exploring questions of intervention efficacy. Torgerson and Torgerson (2001) emphasised the importance of a quantitative RCT approach to educational research, acknowledging the epistemological and methodological challenges associated with real-world research in this area. In fact, the combination of quantitative and qualitative approaches using mixed-methods designs seems to be the answer to problems of evaluating complex, psychological interventions. Robust, quantitative data can support evidence-based practice for educational professionals implementing interventions such as OAE for vulnerable children. Perhaps qualitative explorations of individual experience could be used to inform more effective quantitative research design, intervention and

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measurement tools. For example, an action research methodology (Lewin, 1946) involving several research cycles could help researchers, participants and OAE facilitators to generate effective OAE interventions tailored to the particular needs of vulnerable children. This evidence could then inform a robust quantitative evaluation with appropriate and sensitive measurement tools.

5.9.2 Implications for Local Authorities and Schools

The current findings suggest that participation in an OAE intervention may provide children perceived to be vulnerable with a positive experience leading to increased feelings of competence and decreased EBD as perceived by their teachers. These findings therefore have implications for local authorities as champions for vulnerable children and families, and for schools as promoters of children's health and wellbeing (Casey, 2012; DfE, 2010). The current research contributes to the evidence base on which local authorities and school can draw when planning and implementing interventions for children perceived to be vulnerable. The current study also provides an example of how local authorities and schools can engage in real world research to extend the evidence base supporting interventions for children perceived to be vulnerable. Projects such as these can increase awareness and use of evidence-based practice associated with OAE among educational professionals such as teachers and local authority officials. OAE facilitators can also use the current findings to inform on-going service evaluation and monitoring. In particular, the qualitative data provides insights into how children perceive the intervention, which can inform planning and implementation of future group interventions. The current research therefore demonstrates a range of benefits and implications for practice for key stakeholders.

However, the tentative findings suggest that either the two-day OAE intervention should be implemented alongside additional interventions to promote the learning and emotional wellbeing of these children, or perhaps that children should have opportunities to participate in longer OAE interventions, which may lead to more positive outcomes. The current research also raises

issues of identification for vulnerable children, as demonstrated in the disparity between participant and teacher measures prior to the intervention. Local authorities and schools should consider their identification processes carefully and reflect upon their working definitions of vulnerability to identify the children at greatest risk. The use of a risk and protective factors framework to identify vulnerable children also presents the potential for a systemic approach to identification and intervention for vulnerable children (Barnes et al., 2011; Walker & Donaldson, 2011).

5.9.3 Implications for Educational Psychologists

EPs are service providers for vulnerable children experiencing multiple risk factors including disengagement from education, low attainment and emotional health difficulties (Barnes et al., 2011). The evidence-based practice approach has become a dominant approach within contemporary medical and social service delivery including educational psychology (Fox, 2003; Frederickson, 2002). The traditional evidence-based practice approach has incorporated the hierarchy of evidence, which prioritises evidence from randomised control trials (Scott et al., 2001). However, Fox (2003) criticised the dominance of positivist epistemology, particularly for evidence informing EP professional practice. Fox's (2003) argument is that a rigid positivist approach to evidence-based practice does not allow EP's to incorporate their personal values and experiences into their professional practice. Rather, he called for the creation of a constructional evidence base to inform EP professional practice, incorporating personal reflection. Alternatively, Torgerson and Torgerson (2001) have highlighted the possible influence of bias in non-controlled qualitative approaches and argued for the value of RCT designs in evaluative educational research. However, these authors also argued that RCTs and qualitative designs are not mutually exclusive and can be complementary, an argument reflected in recent attempts to include qualitative research in Cochrane Reviews, traditionally quantitative systematic reviews (Noyes et al., 2011). Reflecting this idea, which arguably suggests the value of a mixed-methods approach, the current research provides a naturalistic evaluation of the efficacy of an OAE intervention for promoting children's emotional well-being as well as exploring their views and experiences

of the intervention. The current methodology also demonstrates the utility of a mixed-methods research design in facilitating real-world research incorporating quantitative and qualitative data.

The current findings can inform future educational psychology practice for example, considerations of recommending an OAE intervention for individual service users. However, the tentative findings highlight the need for care in interpretation and dissemination of research findings in professional practice. The current study also highlights the importance of a systemic approach to identification and intervention for children perceived to be vulnerable. OAE interventions provide opportunities for children to engage in learning outside of the typical school context, providing opportunities for disengaged children to engage with learning in a new setting.

5.10 Summary and Review of Research Journey

The discussion has reviewed the current findings and considered their interpretation in relation to existing literature and theory. The critique of the current methodology has highlighted several methodological limitations which make the current findings tentative. However, the current study has several implications for future research and professional practice as discussed above. The conclusion chapter presents an overarching summary of the current study. Before this, the following section presents a reflective review of the researcher's journey through the development, implementation and evaluation of the current research study. This will involve a narrative summary of the development of the current research design followed by critical reflection and consideration of alternative courses of action.

The purpose of the current research was to evaluate the psychological impact of a naturally occurring OAE intervention. The researcher reached this starting point guided by several factors including university and local authority preferences for evaluation research, a personal interest in the area of the psychological benefits of physical exercise and a personal goal to contribute to evidence-based practice in educational psychology.

The first stop along the research journey involved consulting the existing research literature in order to further understand the OAE intervention and the established evidence-base. The literature review had a significant impact on the researcher's thinking regarding the epistemology and research design in the current study. Notably, the literature review highlighted the lack of high-quality randomised control trials among experimental studies, the sharp divide between qualitative and quantitative researchers in this area and the lack of a unified theory of intervention processes and outcomes. In response to these gaps in the existing literature, the researcher initially adopted a post-positivist approach to the research design and began planning a randomised control trial designed to facilitate a real-world application of a dominant theoretical model of OAE. In order to familiarise herself with the OAE intervention, the researcher also engaged in an initial explorative phase taking part in the intervention and gathering qualitative data regarding how the intervention was perceived by head teachers, facilitators and participants. Following this exploratory phase, and a return to the evaluation literature, the researcher wondered about the utility of a more constructionist epistemological approach incorporating participant views and perceptions of the intervention. The absence of such an approach had been highlighted by several authors as a significant limitation of post-positivist designs in this area. Therefore, in order to incorporate both quantitative and qualitative research questions, the researcher developed a pragmatic epistemological standpoint which led to the current mixed methods design. Following the planning of the RCT design but prior to implementation, the researcher designed a qualitative research strand to gather participants' views. However, the quantitative strand was prioritised as the researcher retained her initial desire to contribute to evidence-based practice.

Throughout the planning, implementation and evaluation phases, the researcher engaged in an on-going process of critical self-reflection, keeping a research journal to record decision points and the development of ideas. During the write-up phase, the researcher also considered what she could have done differently. The most significant critique regards the limitations of the current sampling procedures and resulting population sample. During the initial

planning phase, the researcher was wary about the lack of operational definitions in the existing OAE referral criteria. However, she was determined to facilitate a naturally occurring sample to support a naturalistic evaluation. It was not until the data analysis phase that the extent of the sampling error was realised, revealed by the ceiling effects in the pre-intervention quantitative data analysis. At this point, the researcher decided to continue with the research due to time and resource limitations associated with initialising a second data collection phase or a revision of the research design. As discussed previously, this decision was also supported by the researcher's desire to retain the contextual relevance of the population sample. Alternatively, the researcher could have implemented a systematic screening process to identify a more valid sample of vulnerable children using operational definitions, These alternative approaches have been discussed in detail in Sections 5.7.3 and 5.9.1 (i).

The researcher also considered alternative approaches regarding the qualitative element of the study. As detailed in the discussion chapter, the researcher considered the possibility of adopting a purely qualitative research design. However, within the framework of the current mixed-methods design, the researcher would have liked to have completed more rigorous and thorough planning of the qualitative phase to incorporate the following

- Rigorous data collection and analysis during the initial exploratory phase to inform a focused RCT and more in-depth focus group interviews
- Audio recording of focus group interviews facilitated by obtaining parental consent
- In-depth focus groups involving more group discussion, probing and clarifying questions from the researcher and checking-out of meanings with participants
- In-depth thematic analysis incorporating independent verification of thematic maps

Overall, during this research the researcher has developed her knowledge and experience in planning, implementing and disseminating real world research. She has also developed an understanding of epistemology and methodology in

psychological research and an appreciation of the utility of mixed-methods approaches particularly for research-practitioners. The researcher has become acquainted with the world of OAE and the potential support it has to offer vulnerable young people. The current project has also provided the researcher with an opportunity to contribute to the evidence base supporting EPs' work with children perceived to be vulnerable.

Chapter 6: Conclusion

The current mixed-methods study involved the use of a randomised control trial and group interviews to evaluate the psychological impact of an OAE intervention for primary school children perceived to be vulnerable in a west-midlands city authority. The quantitative findings suggested that the intervention did not have a statistically significant impact on measures of children's locus of control and global and domain specific self-perceptions of competence. However, the findings presented some evidence that the intervention led to a decrease in teacher perceptions of children's emotional and behavioural difficulties. The qualitative data tentatively suggested that children perceived the intervention as a positive experience. They viewed the intervention primarily as a physical experience and found it challenging to be outside their comfort zone. The children also reported positive feelings of increased competence across a range of domains following the intervention.

The internal and external validity of the current findings was supported by the use of a randomised control trial and multiple group interviews. The reliability of the study was supported by the use of reliable and valid measurement tools and highly structured group interviews. However, significant threats to the internal validity of the study mean that the findings must be interpreted with caution. These threats include low statistical power associated with insufficient sample size, errors in sampling procedures leading to the possible influence of ceiling effects for participant measures and a possible Hawthorne Effect for teacher measures as a result of a one-group pre-test/post-test design.

The current research provides tentative evidence that OAE can be used as an intervention to affect positive outcomes for primary school children perceived to be vulnerable. However, future research should address the methodological limitations of the current study in order to build upon current findings. The quantitative findings challenge the application of the Adventure Experience Paradigm (Martin & Priest, 1986; Priest, 1992, 1993) for children perceived to be vulnerable. However, by identifying a theme of competence, the qualitative findings offer some tentative support for this model, highlighting again the

methodological limitations of the quantitative research strand. Future research should also further develop the use of mixed-methods approaches and real world applications of theoretical models to develop unity between qualitative and quantitative findings and theoretical coherence about outcomes and processes within the OAE evaluation literature.

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Appendices

Appendix 1: Systematic Literature Search Log

Database Searched	Date + Time	Time Period	Filter Used	Search Engine
Psych INFO	30.10.2011 3.00 pm	All	Inclusion criteria*	OVID SP
SCOPUS	27.3.2012 1.50 pm	All	Subject area and inclusion criteria*	Sciverse
ERIC (1966 to date)	27.3.2012 3.36 pm	1966 to date	Current inclusion criteria*	Dialog Datastar
Cochrane Groups	29.6.2012	All	Subject area	Manual search
EPPI Centre	29.6.2012	All	Subject area	Manual Search

* See Tables 2-1 and 2-3 for inclusion criteria

Appendix 2: Notes from Initial Interview with OAE Facilitators – 12.10.2011

Intervention: Content and Access

- Referrals come from schools and multi-agency support teams – most come from schools
- Long and short courses are offered to schools. The OET offer universal and targeted interventions. Early intervention is very important; 'no failure' is the key objective.
- Long course = 3-4 week residential course. This is a 'top end' i.e. specialist service offered to schools
- Short courses = 2-day interventions during term time with a 1 or 2-week break between the intervention days. The second day sometimes acts as a reward for positive behaviour in school i.e. conditioned behaviour rewards system.
- Groups complete different activities and locations on different days but facilitators don't think it matters. Activities are designed to change the 'can't' philosophy.
- Activities are designed to promote changes in behaviour. They involve challenge, achievement, working outside a comfort zone, a journey model with no opt out option.
- The types of issues children experience include poor school attendance, social withdrawal, lack of confidence and low self-esteem.

Research Design Decisions:

- Research sample to be identified using existing referral pathway. Students to be identified by schools.
- Primary school students to be targeted for practicality e.g. withdrawal from lessons, facilitators work with Year 5 and 6, Year 5 chosen so as not to disturb SATS.
- Control group is important – wait list control to be used.
- Every group will have the same intervention.

Actions:

1. Researcher to contact schools to request involvement. Facilitators suggested possible schools
2. Researcher to contact an educational psychologist who previously evaluated the OAE intervention.
3. Researcher to attend OAE days to get ideas for the research project

Appendix 3: Excerpt from Outdoor Education Team Handbook

Outdoor Education Provision

A guide for all agencies who may consider using Outdoor Education as a resource for promoting social inclusion and providing additional support.

Picture from – Working out of Doors With Young People

Children's Services

Introduction

The following document is a guide for all concerned agencies who may consider using Outdoor Education as a resource for promoting social inclusion and providing additional support. It is not intended to be prescriptive but form a base from which to structure suitable courses. The core programme will consist of a two-day consecutive course and a longer course. Students will have the opportunity to attend the longer course as a result of the evaluation of the shorter course, as outlined on page eight. The longer course will be spread over three to four weeks and may be between eight and twelve days long. In addition to the criteria specified in the course selection and content diagrams the provision of courses can be developed to suit specific needs i.e. those with special needs, girls only groups, school generated groups or as a reward. Time set aside for courses outside the core programme will have specific dates to enable forward planning i.e. if being used as a carrot or incentive.

The general aim of all courses is to provide: -

- A positive and rewarding educational experience.
- Raise curriculum relevance through cross-curricular links.
- Improvement in self-confidence.
- Raised level of self-esteem.
- Increased social awareness with peers.
- Increased social awareness with adults.
- Help for children who are experiencing problems in school or at home and using Outdoor Education to address them.
- Use of Outdoor Education as a medium to accelerate and confront social and life skills needs.
- Positive mentoring roles.

"No Student should be compelled into opinions, but it is criminal negligence not to impel them into experiences"

Kurt Hahn

Confidence   Overcoming   Facing consequences   Making real decisions   Thinking under pressure   Learning for life   Problem solving   Friendships   Planning   Risk   Fun   Action

Frightening   New places   Wild   Quiet   Imagination   Relevance   Frustration   Confidence   Fragile   Safe   Bad   Caring   Empathy   Sharing   Strive   Shy

Happy　Sad　Fear　Hope　Reality　Stress　Wicked　Rain　Alone　Together　Open space　Experiences

Confidence　Overcoming　Facing consequences　Making real decisions　Thinking under pressure　Learning for life　Problem solving　Friendships　Planning　Risk　Fun　Action

Frightening　New places　Wild　Quiet　Imagination　Relevance　Frustration　Confidence　Fragile　Safe　Bad　Caring　Empathy　Sharing　Strive　Shy

Details of the Outdoor Education Structure / Children's Services Flow Diagram shown on the following page.

1. **Schools** – all authority schools. Agencies working with schools.

2. **Districts and Areas** – all referrals filtered through area teams .

3. **Referrals / admission** – once the referral has been accepted or rejected notification will be sent to the person making the referral with a course date if appropriate.

4. **Short Outdoor Education Course** – a short course over two consecutive days, to provide a rewarding and positive experience . This course will be used to recognise those children who are most likely to benefit by placing on the longer outdoor education course.

5. **Assessments** - a shorter assessment following the two day course (see assessment of courses).

6. **Long Outdoor Education Course** – a much longer course of between eight and twelve days over a two/three week period. A large cross curricular element with some time spent indoors planning, preparing, discussing, and using a prompted course diary / booklet.

7. **Full monitoring and assessment feedback** – a full assessment (see assessment of courses). Continuous monitoring during the course to enable the focus and content of the course to be designed to address any problems. Exit strategies for follow up support with case workers / mentors / school staff etc.

Adventure　Challenge　Motivation　Teamwork　Building　Fear　Hope　Success　Failure　Wet　Cold　Hungry

Outdoor Education Structure / Children's Services

Top border words: Happy   Sad   Fear   Hope   Reality   Stress   Wicked   Rain   Alone   Together   Open space   Experiences

Left border words (bottom to top): Action   Fun   Risk   Planning   Friendships   Problem solving   Learning for life   Thinking under pressure   Making real decisions   Facing consequences   Overcoming   Confidence

Right border words (top to bottom): Frightening   New places   Wild   Quiet   Imagination   Relevance   Frustration   Confidence   Fragile   Safe   Bad   Caring   Empathy   Sharing   Strive   Shy
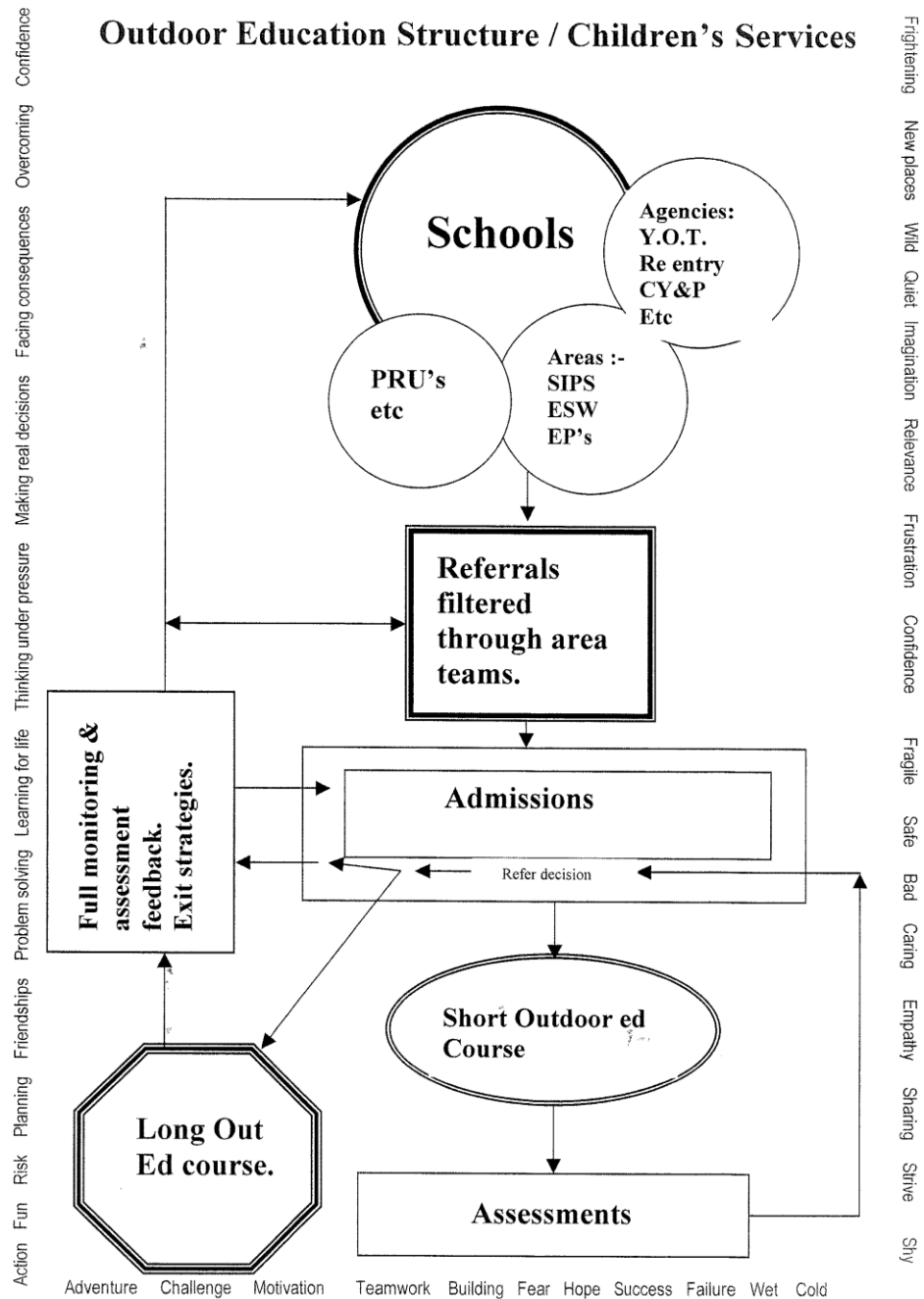
Bottom border words: Adventure   Challenge   Motivation   Teamwork   Building   Fear   Hope   Success   Failure   Wet   Cold

Schools

Agencies:
Y.O.T.
Re entry
CY&P
Etc

PRU's etc

Areas :-
SIPS
ESW
EP's

Referrals filtered through area teams.

Admissions

Refer decision

Full monitoring & assessment feedback. Exit strategies.

Short Outdoor ed Course

Long Out Ed course.

Assessments

4

Happy   Sad   Fear   Hope   Reality   Stress   Wicked   Rain   Alone   Together   Open space   Experiences

Some of the criteria for the inclusion of children to the Short Course

In need of a positive educational experience

*Social skills need help (see note *)*

Refer to course content of short course (page 7)

Low self esteem

Recognising the need

Victim of bullying or abuse

Refer to content of long course to see relevant progression (pages 8 & 9)

As a reward

May benefit from a change of environment

*Note - it must be recognised that some children could present an unacceptable safety risk to themselves or others & that careful consideration must be given to controlling & managing that risk.

Left margin (bottom to top): Action   Fun   Risk   Planning   Friendships   Problem solving   Learning for life   Thinking under pressure   Making real decisions   Facing consequences   Overcoming   Confidence

Right margin (top to bottom): Frightening   New places   Wild   Quiet   Imagination   Relevance   Frustration   Confidence   Fragile   Safe   Bad   Caring   Empathy   Sharing   Strive   Shy

Adventure   Challenge   Motivation   Teamwork   Building   Fear   Hope   Success   Failure   Wet   Cold   Hungry

Course content – Short Course

Left margin (bottom to top): Action   Fun   Risk   Planning   Friendships   Problem solving   Learning for life   Thinking under pressure   Making real decisions   Facing consequences   Overcoming   Confidence

Right margin (top to bottom): Frightening   New places   Wild   Quiet   Imagination   Relevance   Frustration   Confidence   Fragile   Safe   Bad   Caring   Empathy   Sharing   Strive   Shy

Co operation

Get wet

Help others

Getting dirty

Be happy

Play

The course will give the opportunity for each child to experience *some* of the following :-

Laughter

Have fun

Experience praise

Experience new situations

Some wild & natural places.

Experience success

Be faced with stressful situations in a controlled environment.

Group*:* The group included two boys and three girls from Year 5, identified by school staff who thought they would benefit from activities to increase their confidence. The school was a frequent user of the OET's service. This was the 1st day out for all students i.e. 'journey' day. The students were accompanied by the OAE group facilitator, a teaching assistant from the school and the researcher. The adults also completed the activities with the students.

Preparation: We collected the students from school and then collected the kit from OET headquarters. Students organised the kit bags and materials under the facilitator's supervision i.e. emphasis on personal responsibility. The facilitator spoke to the students on the bus on the way to the backcountry location. He spoke about teamwork and helping others. He emphasised listening and told the students to make sure they put their lunch into their kitbags. The students were singing 'The Lion Sleeps Tonight' on the bus.

Hiking: The facilitator told students about features of the natural environment e.g. acorns, potatoes, kissing gate in the field, ivy, holly, laurel.

I spoke to the teaching assistant accompanying the students and asked her about the outcomes of the intervention for the students. She said they become more alert and confident after the intervention. She also said she gets to see another side to naughty students during the intervention.

The facilitator included all students in the group activities by using direct questions to include everyone.

Facilitator: '*What do we do if some-one needs help?'*

Students: *'Help them.'*

Facilitator: *'What do we do if some-one gets upset?'*

Students: *'Cheer them up.'*

Scramble: The students completed a follow the leader lead by the facilitator. They walked along a path and climbed down a steep path. The facilitator gave students a choice to walk down on feet or all fours. He also encouraged the group to help each other and the adults 'X, give Miss a hand'. The group then climbed up a steep hill. The students needed to help each other here. They were pulling each other up e.g. when one girl slipped, a boy grabbed her and pulled her up. The students waited at a tree at the top for everyone to arrive. One girl demonstrated great perseverance, slipping three times but succeeding eventually.

Abseiling: The group had to Abseil down some rocks harnessed together on a rope. They practised waiting and turn taking. One girl was scared, shouted 'No, no, I'm gonna fall' and laughed nervously. The facilitator was extremely reassuring and supporting. After she successfully completed the abseil, I asked

her how she felt. She said 'That was scary….something I've achieved'. Another girl said the experience was 'a bit scary' but that she felt 'happy' after completing the abseil. The girls who completed the task were encouraging those who were still waiting to go. 'Come, on. Don't worry you won't fall'.

Researcher question: *'How did you feel when you were doing the abseil?'*.

Student responses: *'That was scary', 'A bit scary', 'A bit scary but I made it'.*

Researcher question: '*How do you feel now?'*

Student responses: *'Something I've achieved', 'Happy', 'Relieved', 'Brilliant'.*

Water task: This task involved jumping across a small stream. The facilitator gave students a chance to practice the jump on the ground first, to experience success. Then the students had to climb up a tree and over some stepping stones to reach the stream. The facilitator encouraged teamwork. Each student jumped across the stream secured by safety harnesses.

Rock climbing: Students were apprehensive at first. They said things like *'I'm not going up there', 'This is getting harder', 'I don't want to do it' and 'I can't get up there'.* The facilitator patiently reassured the students and provided support where needed. He encouraged students to push and pull each other up and also encouraged students to work as a team. The students had to decide the order in which they would climb. The facilitator told them to *'Look at your group and see who needs help'.* The facilitator gave advice about the preferred route to take as students climbed up e.g. *'Move your foot to the left', 'Grab that rock above your right hand'.* Everyone succeeded in climbing up the rocks and the students helped each other out.

Abseiling: The group climbed up a ravine and abseiled down. The facilitator encouraged the students and accompanied the most nervous students down the abseil by supporting them halfway down.

Lunch: During lunch, the facilitator encouraged students to follow all instructions. One boy said 'we've been learning about following instructions in literacy'.

Orienteering: The facilitator drew a cowboy map in the sand and students had to follow it to the next activity point.

End of the Day: We returned to the bus and returned the students and staff member to school. The facilitator and I then returned the kitbags to the headquarters.

Appendix 5: Notes from Head Teacher Interviews

<u>**Head Teacher 1: 21.02.2012**</u>

What experience do you have of OAE interventions at this school?

- We use OAE interventions a lot at this school.
- Students take part in interventions as part of the curriculum.
- We have a one-day OAE intervention in Year 2 and residential OAE trips in Year 4,5, and 6.

What is the value of OAE for your students?

- Three of our staff have now completed initial forest school training, its good if they can even just use this training in the school field.
- Huge opportunity to explore the immediate environment with knock-on effects.
- Imaginative play
- Physical side
- Emotional side – develop awareness of countryside, a bit of awe and wonder, very important for church schools like ours.
- Social side – working together
- Instil a bit of independence, they become independent.
- In Year 6 they have their own personal challenges and they are pushed.

Which students benefit most from the OAE intervention?

- They all do – lots of our students come from very deprived backgrounds with issues of drugs, alcohol and domestic violence, there's a lot being brought into the mix.
- Students who are not able to do anything for themselves, their parents are running their lives for them.
- Students who are materially rich and quality poor.
- We want to achieve independence and break down some of the barriers they put up themselves, everyone is seen in a different way.
- Learning becomes more incidental than planned.
- Year 6 benefit – preparing for transition, getting a better view of their own self, higher self-esteem, independence, being able to work in real life situations, helping creative writing.

<u>**Head Teacher 2: 21.02.2012**</u>

What experience do you have of OAE interventions at this school?

- We've been working with the Outdoor Education Team, our Year 5's.

What is the value of OAE for your students?

- Teamwork, consider others, changing children with EBD's thinking.
- Structured activities
- Self-esteem, they achieve something different that's not schoolwork, something outside school.

Which students benefit most from the OAE intervention?

- The intervention has worked as an incentive for behaviour.
- Children with poor attendance previously.
- Children with behaviour problems, social and emotional problems.
- Students who don't want to work, can't be bothered.

Head Teacher 3: 06.03.2012

What experience do you have of OAE interventions?

- Trips and residentials in Nursery, Reception, Year 3 and Year 6.

What is the value of OAE for your students?

- Self-esteem is sky-high when they come back.
- Bonding exercise, children wouldn't play together normally.
- They are away from home, sometimes we are surprised at who gets upset.
- 9/10 times children with emotional problems (e.g. bedwetting) have no problems during the residential week.

Which students benefit most from the OAE intervention?

- Gains for students who are not academically able but are brilliant at activities, they didn't know they could do it, didn't have the opportunities.

Appendix 6: Initial Invitation Letter to Head Teachers

The University of
Nottingham

Dear *Head Teacher*

My name is Órlaith Donnelly and I am a Trainee Educational Psychologist currently working with ███████████████████████. I am also studying for a Doctorate in Applied Educational Psychology at the University of Nottingham. As part of my thesis research project, I am undertaking a study in partnership with the ████████ Outdoor Education Team entitled 'Evaluating the impact of an Outdoor Adventure Education intervention on primary school children's locus of control, self-perceptions and teacher-reported emotional and behavioural difficulties'.

I would like to give your school the opportunity to take part in this project. If you become involved, this will involve selecting some of your students to take part in a two-day Outdoor Education programme and to complete some questionnaires about their locus of control and self-perceptions. Class teachers will also be asked to complete a brief questionnaire regarding students' emotional difficulties and behaviour in school.

I would very much like for your school to become involved in this project and feel that the experience could be a beneficial one for you and your school.

I have included my contact details above. Please feel free to contact me for more information or to discuss your participation.

Yours faithfully,

_____

Órlaith Donnelly

Trainee Educational Psychologist, ████████

Appendix 7: Informed Consent Forms - Parents

The University of Nottingham

Dear Parent/Guardian

My name is Órlaith Donnelly. I am a Trainee Educational Psychologist working with ████████████████████ at ████████████████████. I am also studying for a Doctorate in Applied Educational Psychology at the University of Nottingham. I am currently undertaking a study in partnership with the ████████████ Outdoor Education Team. This work will form part of my final year thesis and is an area of special interest for me.

I am writing to request consent for your child to be involved in this project which aims to explore children's thoughts, emotions and behaviour before and after taking part in an Outdoor Education programme. Your child might be involved in the study when they are taking part in the programme or when they are on a waiting-list to take part. If your child is selected to take part, they will be involved in the Outdoor Education Programme at some point during this academic year.

I will be attending (*School Name)* between January and July 2012 and I will be asking groups of children to complete questionnaires on three occasions. These questionnaires will ask children to reflect on their locus of control and self-perceptions (i.e. different types of thoughts and feelings). Class teachers will also fill out questionnaires about students' emotions and behaviour at school. A member of staff at *School Name* will be present when the children are completing the questionnaires. This should not take more than 30 minutes for each group of children. All of this information will remain confidential and your child's name will not be used at any stage during the research project.

It is likely that your child will enjoy the tasks given to them and complete them without any problems. However if at any time your child appears distressed or unhappy with the questions, they will be stopped immediately. Your child will also be able to withdraw at any time. If you are happy that your child should participate in this study, please sign and return the consent form to the school before *date.* If you permit your child to participate you still have the right to withdraw from the study at any point without having to give a reason. Even if you sign the consent form and start the study you may withdraw your child at any point. If you require any further information on the study, or its results, please feel free to contact myself, or my supervisor.

Thank you for your time

_____

Órlaith Donnelly - Researcher

The University of Nottingham

I _____ give consent for my child
_____ to take part in the research project '**Evaluating the impact of an Outdoor Adventure Education intervention on primary school children's locus of control, self-perceptions and teacher-reported emotional and behavioural difficulties'** being conducted by Órlaith Donnelly, Trainee Educational Psychologist.

I have read and understood the letter of information provided.

Signed _____ Date _____

The University of Nottingham

Dear Parent/Guardian

I am writing to thank you for your child's participation in my research project *'Evaluating the impact of an Outdoor Adventure Education intervention on primary school children's locus of control, self-perceptions and teacher-reported emotions and behaviours'*. Your child's contribution will form part of my final research report which will hopefully be available in September 2013. I will be happy to share my findings with students, parents and school staff, on request.

I am hoping to complete one more school visit to hold a discussion group with the children and to gather their spoken views about the Outdoor Adventure Education days. I am writing to ask your permission for your child to be involved in this discussion group and for me to include your child's comments in my final report. These comments will remain anonymous and your child's name will not be used in any written reports I produce.

Please return the final attached consent form to school as soon as possible.

Again, I would like to thank you very much for your support with my research project.

Yours Sincerely

_____

Órlaith Donnelly - Researcher

NAME OF CHILD: _____

I give consent /do not give consent (please circle) for my child's comments to be included in the research project '**Evaluating the impact of an Outdoor Adventure Education intervention on primary school children's locus of control, self-perceptions and teacher-reported emotions and behaviours'** being conducted by Órlaith Donnelly, Trainee Educational Psychologist.

I have read and understood the letter of information provided.

Signed _____ Date _____

Appendix 8: Treatment Fidelity Checklist

Date: Location:

OAE Facilitator(s):

Other Adults Present:

Adventure Activity	Present? Y/N
Hiking	
Rock Climbing	
Orienteering	
Abseiling	
River Crossing	
Other	

Features	Present? Y/N/P (Yes/No/Partially)	Behavioural Observations
Backcountry location		
Small Group		
Skilled Facilitator		
Mentally and physically challenging tasks		

Group interaction and teamwork		
Facilitator matching activities to abilities		

Appendix 9: Informed Consent Form - Children

The University of Nottingham

Dear Student,

My name is Órlaith Donnelly and I am a Trainee Educational Psychologist. I would like to invite you to take part in my research project. This project will explore children's locus of control and self-perceptions, which are different types of thoughts and emotions.

You have been approached because your school has been chosen to take part in this research project. I will need a group of Year 5 students to help me with this research. Before you decide if you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

If you take part, you will be asked to fill out two questionnaires which will ask you to think about your thoughts, feelings and behaviours. You will complete these questionnaires in a group with other students. It will take no more than 30 minutes to complete the questionnaires. You will be asked to complete these questionnaires three times over three weeks.

Your decision to take part is completely voluntary. You may chose not to take part at any time before, during or after the study. All information collected will be kept confidential and used for research purposes only.

If you have any questions or concerns please do not hesitate to ask now. You can also contact me at the above address.

Thank You!

The University of Nottingham

EXPLORING LOCUS OF CONTROL AND SELF - PERCEPTIONS
Researchers: Órlaith Donnelly   Supervisor: Anthea Gulliford

Please complete the whole of this sheet yourself.

Please <u>circle</u> your answer for each question and then sign below.

1. Have you read and understood the participant information sheet? **YES/NO**

2. Have you had the opportunity to ask questions and discuss the study? **YES/NO**

3. Have all the questions been answered satisfactorily? **YES/NO**

4. Have you received enough information about the study? **YES/NO**

5. Do you understand that you are free to withdraw from the study at any time? **YES/NO**

   - without having to give a reason? **YES/NO**

6. Do you agree to take part in the study? **YES/NO**

"This study has been explained to me to my satisfaction, and I agree to take part. I understand that I am free to withdraw at any time."
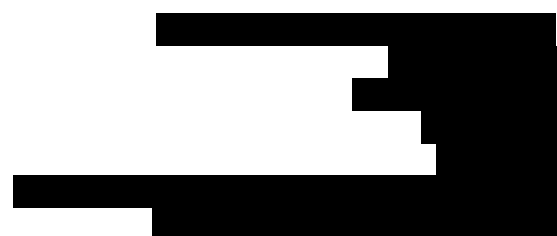
Signature of the Participant: _____ Date: _____

Name (in block capitals) _____

"I have explained the study to the above participant and he/she has agreed to take part".

Signature of Researcher: _____ Date: _____

Appendix 10: Debrief Letter - Children

The University of Nottingham

Dear Student,

Thank you very much for taking part in my research project. I would like to give you some more information to help you to understand the importance of your participation. The title of my project is 'Evaluating the impact of an Outdoor Adventure Education intervention on primary school children's locus of control, self-perceptions and teacher-reported emotional and behavioural difficulties'.

I am exploring the outcomes of an Outdoor Education programme for primary school children in ▮▮▮▮▮▮▮▮. Some of you will have completed this programme during my research. I would like to compare the answers you gave in the questionnaires before and after the Outdoor Education programme to see if your thoughts and feelings changed. I have also gathered information from your teachers to find out what they thought about your behaviour at school before and after the programme.

If you have not taken part in an Outdoor Education programme, I will be using your questionnaires to compare with people who did take part. You will also be taking part in the programme in the next few weeks but you will not have to complete any more questionnaires.

All of the information will remain anonymous and your name will not be included in any reports I write about this project. I will share the results with you, your school and your parents when I have finished my project.

If you have any more questions, please ask me now.

Thank you again for all of your help

_____
Órlaith Donnelly
Trainee Educational Psychologist

Appendix 11: Locus of Control Scale for Children

THE LOCUS OF CONTROL SCALE FOR CHILDREN

Name…………………………………………… Date……………………
Age…………. Class………………………………. Please circle: Male/Female

We are trying to find out what young people think about certain things. We want you to answer the following questions about the way you feel. There are no right or wrong answers. Don't take too much time answering any one question, but do try to answer them all.

One of your concerns during the test might be, 'What should I do if I can answer both **yes** and **no** to a question? It is not unusual for that to happen. If it does, think about whether your answer is just a little more one way than another. For example, if you would assign 51 per cent to **yes** and 49 per cent to **no**, mark the answer **yes**. Try to pick one or the other response for each of the questions and do not leave any blanks. Tick **yes** and **no** next to each item. Thank you.

		Yes	No
1	Do you believe that most problems will solve themselves if you just leave them?		
2	Do you believe that you can stop yourself from catching a cold?		
3	Are some people just born lucky?		
4	Most of the time do you feel that getting good marks at school means a great deal to you?		
5	Are you often blamed for things that aren't your fault?		
6	Do you believe that if somebody studies hard enough, he or she can pass any subject?		
7	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?		
8	Do you feel that if things start out well in the morning it is going to be a good day no matter what you do?		
9	Do you feel that most of the time parents listen to what their children have to say?		
10	Do you believe that wishing can make good things happen?		
11	When you get punished, does it usually seem it is for no good reason at all?		
12	Most of the time do you find it hard to change a friend's mind?		
13	Do you feel that cheering, more than luck helps a team to win?		
14	Do you feel that it is nearly impossible to change your parents' mind about anything?		
15	Do you believe that your parents should allow you to make most of your own decisions?		
16	Do you feel that when you do something wrong there is very little you can do to make it right?		
17	Do you believe that most people are just born good at sports?		
18	Are most of the other people your age stronger than you are?		
19	Do you feel that one of the best ways to handle most problems is just not to think about them?		
20	Do you feel you have a lot of choice in deciding who your friends are?		

		Yes	No
21	If you find a four-leaf clover, do you believe that it might bring you good luck?		
22	Do you often feel that whether you do your homework has much to do with what kind of marks you get?		
23	Do you feel that when someone your age decides to hit you, there is little you can do to stop him or her?		
24	Have you ever had a good luck charm?		
25	Do you believe that whether or not people like you depends on how you behave?		
26	Will your parents usually help you if you ask them to?		
27	Have you felt that when people were mean to you it was usually for no reason at all?		
28	Most of the time do you feel that you can change what might happen tomorrow by what you do today?		
29	Do you believe that when bad things are going to happen they are going to happen no matter what you try to do to stop them?		
30	Do you think that people can get their own way if they just keep trying?		
31	Most of the time do you find it useless to try to get your own way at home?		
32	Do you feel that when good things happen they happen because of hard work?		
33	Do you feel that when somebody your own age wants to be your enemy there is little that you can do to change matters?		
34	Do you feel that it is easy to get friends to do what you want them to do?		
35	Do you feel that you have little to say about what you eat at home?		
36	Do you feel that when someone doesn't like you there is little you can do about it?		
37	Do you usually feel that it is almost useless to try in school because most other children are cleverer?		
38	Are you the kind of person who believes that planning ahead makes things turn out better?		
39	Most of the time, do you feel that you have little say about what your family decides to do?		
40	Do you feel it is better to be clever than to be lucky?		

Appendix 12: Self-Perception Profile for Children

THE SELF-PERCEPTION PROFILE FOR CHILDREN

Name…………………………………… Date …………….. Age ……. Class ……………… Please circle – Male/Female

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
A			Some kids would rather play outside in their spare time	BUT	Other kids would rather watch TV		
	Really true for me	Sort of true for me				Sort of true for me	Really true for me
1.			Some kids feel they are very good at their school work	BUT	Other kids worry about whether they can do their school work		
2			Some kids find it hard to make friends	BUT	Other kids find it's pretty easy to make friends		
3			Some kids do very well at all kinds of sports	BUT	Other kids don't feel they are good when it comes to sports.		
4			Some kids are happy with the way they look	BUT	Other kids are not happy with the way they look		
5			Some kids often do not like the way they behave	BUT	Other kids usually like the way they behave		
6			Some kids are often unhappy with themselves	BUT	Other kids are pretty pleased with themselves		
7			Some kids feel they are just as clever as other kids	BUT	Other kids aren't so sure and wonder if they are clever		
8			Some kids have lots of friends	BUT	Other kids don't have very many friends		
9			Some kids wish they could be a lot better at sports	BUT	Other kids feel they are good enough at sports		
10			Some kids are happy with their height or weight	BUT	Other kids wish their height or weight was different		
11			Some kids usually do the right thing	BUT	Other kids often don't do the right thing		
12			Some kids don't like the way they are leading their life	BUT	Other kids do like the way they are leading their life		
13			Some kids are pretty slow in finishing their work at school	BUT	Other kids can do their school work quickly		

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
14			Some kids would like to have a lot more friends	BUT	Other kids have as many friends as they want		
15			Some kids think they could do well at any new sport	BUT	Other kids are afraid they do not do well at new sports		
16			Some kids wish their body was different	BUT	Other kids like their body the way it is		
17			Some kids usually behave the way they know they're supposed to	BUT	Other kids often don't behave the way they know they're supposed to		
18			Some kids are happy with themselves as a person	BUT	Other kids are often not happy with themselves		
19			Some kids often forget what they learn	BUT	Other kids can remember things easily		
20			Some kids are always doing things with a lot of kids	BUT	Other kids usually do things by themselves		
21			Some kids feel they are better at sports that their friends	BUT	Other kids don't feel they can play as well		
22			Some kids wished they looked different	BUT	Other kids like the way they look		
23			Some kids usually get in trouble because of things they do	BUT	Other kids don't do things that get them into trouble		
24			Some kids like the kind of person they are	BUT	Other kids often wish they were someone else		
25			Some kids do very well at their class work	BUT	Other kids don't do very well at their class work		
26			Some kids wish more people their own age liked them	BUT	Other kids feel that most people their own age do like them		
27			In games and sports, some kids usually watch instead of play	BUT	Other kids usually play rather than just watch		
28			Some kids wish something about their face or hair was different	BUT	Other kids like their face and hair the way it is		
29			Some kids do things they know they shouldn't do	BUT	Other kids hardly ever do things they know they shouldn't do		
30			Some kids are very happy being the way they are	BUT	Other kids wish they were different		
31			Some kids have trouble working out the answers in school	BUT	Other kids almost always can work out the answers		
32			Some kids are very popular	BUT	Other kids are not very popular		
33			Some kids don't do well at new outdoor games	BUT	Other kids are good at new games right away		

	Really true for me	Sort of true for me				Sort of true for me	Really true for me
34			Some kids think they are good looking	BUT	Other kids think that they are not very good looking		
35			Some kids behave themselves very well	BUT	Other kids often find it hard to behave themselves		
36			Some kids are not happy with the way they do a lot of things	BUT	Other kids think the way they do things is fine		

Appendix 13: The Strengths and Difficulties Questionnaire: Teacher Versions

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! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name ....   Male/Female

Date of Birth...

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

	No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
	☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	☐	☐	☐	☐

- Do the difficulties upset or distress the child?

	Not at all	Only a little	Quite a lot	A great deal
	☐	☐	☐	☐

- Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐

- Do the difficulties put a burden on you or the class as a whole?

	Not at all	Only a little	Quite a lot	A great deal
	☐	☐	☐	☐

Signature .... Date ....

Class Teacher/Form Tutor/Head of Year/Other (please specify:)

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! Please give your answers on the basis of the child's behaviour **since the intervention**

Child's Name .... Male/Female

Date of Birth...

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children (treats, toys, pencils etc.)	☐	☐	☐
Often has temper tantrums or hot tempers	☐	☐	☐
Rather solitary, tends to play alone	☐	☐	☐
Generally obedient, usually does what adults request	☐	☐	☐
Many worries, often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, down-hearted or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets on better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Sees tasks through to the end, good attention span	☐	☐	☐

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Since the intervention are the child's problems:

Much worse	A bit worse	About the same	A bit better	Much better
☐	☐	☐	☐	☐

Has **the intervention** been helpful in other ways, e.g. providing information or making the problems more bearable?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Since the intervention, has the child had difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
☐	☐	☐	☐

If you have answered "Yes", please answer the following questions about these difficulties:

• Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

• Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐

• Do the difficulties put a burden on you or the class as a whole?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature .... Date ....

Class Teacher/Form Tutor/Head of Year/Other (please specify):

Thank you very much for your help

Appendix 14: Qualitative Raw Data - Group Interviews

<u>**School 1: 18.5.2012**</u>   **9 students: B M J P G A M G D**

WHAT DID YOU LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

B – 'Cos it was really fun and even though it was really high up it was still funny.

M – I liked everything especially the abseiling.

J – I liked going down the chimney and we had to find 20p coins.

P – I don't know what it was called…the white slopey thing that M helped me with….'cos it was scary.

G – I liked when I had to climb up the ladder. I was the fastest one up the ladder. We had to do a little challenge on our own.

A – Lunch time…didn't have to…

M – The last one …the last obstacle, where we had to swing.

J – The bit where M got JP's Vans instead of his lunch!

D – I liked all the hard work and teamwork you had to do.

WHAT DID YOU NOT LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

G – I didn't like….

B – How high it was …you can see the tops of the trees. I'm scared of heights. I felt like crying.

M – I didn't exactly not like it 'cos me and J P were at the front 'cos we had most stamina...then M kept tricking me to go the wrong way…then we had to go through thorns.

J – I didn't like getting my hands dirty and eating my lunch.

B – I liked rubbing dirt on my face and hands.

M – We had to run across this massive field.

P – Yeah, when I fell off the abseiling thing and went off course, I thought I was going to die.

A – When I had to work with someone I didn't like.

M – We couldn't jump in the water.

J – Heights

D – No

DO YOU THINK ANYTHING HAS CHANGED FOR YOU SINCE YOU WENT ON THE OUTDOOR ADVENTURE EDUCATION DAYS? IF SO, TELL ME ABOUT THAT.

J – When I was scared of heights and now I'm not.

M – I think yeah, probably something that's changed...it's my attitude towards teachers and my hatred of G…being friendly has rewards and being nasty has consequences.

P – I think I've become a little, little, little bit more sensible…my writing's got better.

B – She's amazing in class.

B – I used to hate getting my face dirty but now I know I can.

G – Nothing for me.

A – No…I now learned that it is so awesome to swim over a river.

M – Yea, me and A have been closer friends.

J – Not to be afraid of heights.

D – I'm braver…my braveness…my teamwork….started to get on with people.

School 2: 12.7.2012   9 students: C D E A J F J S I

WHAT DID YOU LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

A – When I saw the crocodile swamp. I liked when we went down from the top of the cave, that rock thing.

E – I liked the zip lining. I liked when we had to climb up the cave, even though it was tricky… just couldn't reach the top.

S – I liked it when I was helping people… remember we saved the fish.

J – I liked it when M told us there's a swamp at the bottom and all lines around… had to unclip and kept falling.

D – We had to go down the cave.

C – The rock climbing.

I – I like help children.

WHAT DID YOU NOT LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

A – Scary

E – No

S – No

J – When M told us there was crocs in water.

D – Didn't like when my feet were wet… we jumped across the river…there were bugs and mud.

C – Slide down the mud and back up… I fell and slipped… D was helping.

F – No

I – No

DO YOU THINK ANYTHING HAS CHANGED FOR YOU SINCE YOU WENT ON THE OUTDOOR ADVENTURE EDUCATION DAYS? IF SO, TELL ME ABOUT THAT.

A – No

E – Yes, I had some fun… I had some friends to keep me company.

S – Yeah, when I was going down the mud I thought I would slip but I didn't.

D – Yes, my confidence changed… made I'm not rude anymore.

C – We had to change 'I can't' to 'I can'…I learned that.

J – Yes, before me and C used to have a couple of arguments and now we don't.

I – No.

J – Yes, we was all working as a team and I got more friends.

F – Yes, I used to be afraid of jumping off stuff and now I'm not afraid.

School 3: 30.5.2012   9 students: CT, C, N, L, B, C, C, K, J

WHAT DID YOU LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

CT – I liked it when we was jumping from rock to rock…I liked the bit where the man tied the rope and we had to slide down to him.

C – I was crying.

N – I liked it when we go straight down…No, I wasn't scared.

L – Well,[where] we had out lunches there was a cliff that we had to go down so I liked it there.

B – I liked the bit where we had to put our bags in the cave and climbed to the top of the cave.

C – Swing across the water on the swing.

C - My favourite one was when we had to jump to the other side of the lake.

K – My favourite thing was when we had our lunch….climb up….go down and hold the rope. I was waving and I wasn't even scared.

 J – The second day when we had things tied on us and we had to do this relay down.

WHAT DID YOU NOT LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

CT – We had to tie our things to the rope and M pulled us down.

S – Nothing was scary.

N – When we don't go again!

L – Nothing.

B – I wasn't scared of nothing.

C – No.

J – I feared nothing.

CW – When I had to go down the cliff I was crying like a baby.

K – I was scared of nothing but, no.

DO YOU THINK ANYTHING HAS CHANGED FOR YOU SINCE YOU WENT ON THE OUTDOOR ADVENTURE DAYS? IF SO, TELL ME ABOUT THAT.

B – I feel better now. At least I've gone on a good trip, had fun with other people.

C – It's made me focus more on work.

J – It changed everything inside me, behaviour, work ability, handwriting.

CW – I been knuckling down on my work, been concentrating and then I've never been in trouble.

K – Nothing hasn't changed. I have changed, improving my work, getting to a Level 5.

CT – Thing that's changed for me is that I get to eat more food 'cos I'm at school… that I can do braver things.

S – No.

N – My behaviour, 'cos before I used to say to my mum I need to go on a trip, then she said you can go.

L – Nothing.

Appendix 15: Initial Codes for Qualitative Data

WHAT DID YOU LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

24 comments

Green = an activity (18)

Yellow = teamwork (3)

Blue = feelings (3)

Pink = an event (2)

Red = hard work / achievement (2)

1. B – 'Cos it was really fun and even though it was really high up it was still funny.

2. M – I liked everything especially the abseiling.

3. J – I liked going down the chimney and we had to find 20p coins.

4. P – I don't know what it was called…the white slopey thing that M helped me with….'cos it was scary.

5. G – I liked when I had to climb up the ladder. I was the fastest one up the ladder. We had to do a little challenge on our own.

6. A – Lunch time – didn't have to…

7. M – The last one …the last obstacle, where we had to swing.

8. J – The bit where M got JP's Vans instead of his lunch!

9. D – I liked all the hard work and teamwork you had to do.

10. CT – I liked it when we was jumping from rock to rock…I liked the bit where the man tied the rope and we had to slide down to him.

11. C – I was crying.

12. N – I liked it when we go straight down…No, I wasn't scared.

13. L – Well,[where] we had out lunches there was a cliff that we had to go down so I liked it there.

14. B – I liked the bit where we had to put our bags in the cave and climbed to the top of the cave.

15. C – Swing across the water on the swing, my favourite one was when we had to jump to the other side of the lake.

16. K – My favourite thing was when we had our lunch….climb up….go down and hold the rope, I was waving and I wasn't even scared.

17. J – The second day when we had things tied on us and we had to do this relay down.

18. A – When I saw the crocodile swamp. I liked when we went down from the top of the cave, that rock thing.

19. E – I liked the zip lining. I liked when we had to climb up the cave, even though it was tricky, just couldn't reach the top.

20. S – I liked it when I was helping people…remember we saved the fish.

21. J – I liked it when M told us there's a swamp at the bottom and all lines around, had to unclip and kept falling.

22. D – We had to go down the cave.

23. C – The rock climbing.

24. I – I like help children.

WHAT DID YOU NOT LIKE ABOUT THE OUTDOOR ADVENTURE EDUCATION DAYS?

28 Comments

Red = no (13)

Green = scared (7)

Yellow = getting dirty (4)

Blue = difficult (2)

Purple = peers (1)

Blue = not allowed to do something (1)

1. G – I didn't like….

2. B – How high it was …you can see the tops of the trees. I'm scared of heights. I felt like crying.

3. M – I didn't exactly not like it 'cos me and J P were at the front 'cos we had most stamina...then M kept tricking me to go the wrong way…then we had to go through thorns.

4. J – I didn't like getting my hands dirty and eating my lunch.

5. B – I liked rubbing dirt on my face and hands.

6. M – We had to run across this massive field.

7. P – Yeah, when I fell off the abseiling thing and went off course, I thought I was going to die.

8. A – When I had to work with someone I didn't like.

9. M – We couldn't jump in the water.

10. J – Heights.

11. D – No.

12. CT – We had to tie our things to the rope and M pulled us down.

13. S – Nothing was scary.

14. N – When we don't go again!

15. L – Nothing.

16. B – I wasn't scared of nothing.

17. C – No.

18. J – I feared nothing.

19. CW – When I had to go down the cliff, I was crying like a baby.

20. K – I was scared of nothing but, no.

21. A – Scary.

22. E – No.

23. S – No.

24. J – When M told us there was crocs in water.

25. D – Didn't like when my feet were wet, we jumped across the river, there were bugs and mud.

26. C – Slide down the mud and back up, I fell and slipped, D was helping.

27. F – No.

28. I – No.

HAS ANYTHING CHANGED FOR YOU SINCE GOING ON THE OUTDOOR ADVENTURE DAYS?

27 comments

Yellow – can do something I couldn't do before - 9

Pink – getting on with peers - 7

Red – no - 5

Grey – behaviour - 5

Green – schoolwork - 5

Mustard – enjoyed the experience - 2

Blue – personal change - 2

1. J – When I was scared of heights and now I'm not.

2. M – I think yeah, probably something that's changed...it's my attitude towards teachers and my hatred of G…being friendly has rewards and being nasty has consequences.

3. P – I think I've become a little, little, little bit more sensible…my writing's got better 'She's amazing in class' (another student).

4. B – I used to hate getting my face dirty but now I know I can.

5. G – Nothing for me.

6. A – No…I now learned that it is so awesome to swim over a river.

7. M – Yea, me and A have been closer friends.

8. J – Not to be afraid of heights.

9. D – I'm braver…my braveness…my teamwork….started to get on with people.

10. B – I feel better now at least I've gone on a good trip, had fun with other people.

11. C – It's made me focus more on work.

12. J – It changed everything inside me, behaviour, work ability, handwriting.

13. CW – I been knuckling down on my work, been concentrating and then I've never been in trouble.

14. K – Nothing hasn't changed, I've changed, improving my work, getting to Level 5.

15. CT – Thing that's changed for me is that I get to eat more food 'cos I'm at school… that I can do braver things.

16. S – No.

17. N – My behaviour, 'cos before I used to say to my mum I need to go on a trip, then she said you can go.

18. L – Nothing.

19. A – No.

20. E – Yes, I had some fun, I had some friends to keep me company.

21. S – Yeah, when I was going down the mud I thought I would slip but I didn't.

22. C – Yes, my confidence changed, made I'm not rude anymore.

23. D – We had to change 'I can't' to 'I can' …I learned that.

24. J – Yes, before me and C used to have a couple of arguments and now we don't.

25. I – <mark>No</mark>.

26. J – <mark>Yes, we was all working as a team and I got more friends</mark>.

27. F – <mark>Yes, I used to be afraid of jumping off stuff and now I'm not afraid</mark>.

Appendix 16: Quantitative Raw Data: Questionnaire Measures

ID	Sex	Age	Group	LOC1	LOC2	LOC3

ID	Sex	Age	Group	LOC1	LOC2	LOC3
2	Female	10	1	22.91	32	28
4	Female	10	1	24	20	19
6	Male	9	1	20	22	22
13	Male	9	1	16	24	23
14	Female	9	1	15	10	11.23
15	Male	10	1	16	11	12
17	Female	9	1	23	24	25.6
18	Male	10	1	14	14	13
25	Female	10	1	18	15	17
26	Female	10	1	23	21	21
28	Female	10	1	18	19	17
29	Female	10	1	17.90	19	17.90
30	Female	10	1	25	18	19
37	Female	10	1	18.79	17	16
38	Female	10	1	17	16	20
39	Male	10	1	15	16	16
40	Female	10	1	12	9	12.56
42	Female	10	1	17	18	16
43	Female	10	1	16	22	19
44	Male	10	1	25	25	18
9	Female	9	2	21	24	24
10	Male	9	2	22.36	23.54	20
12	Male	10	2	16	18	18
19	Male	10	2	20	20	19
20	Male	9	2	18	22	19
22	Male	10	2	16	22	20
24	Female	9	2	23	22.14	24
32	Female	9	2	13	15.59	9
34	Female	10	2	24	13.34	19

The Locus of Control Scale for Children

ID	Age	Group	SC1	SC2	SC3	SA1	SA2	SA3	AC1	AC2	AC3	PA1	PA2	PA3	BC1	BC2	BC3	GSW1	GSW2	GSW3
37	10	1	1.5	3	2.66	3	4	3.83	1.5	1.5	3.4	1.5	1	1.5	3	3.5	4	2.5	3	3
38	10	1	1.83	1.83	2	3	3.66	4	2	2.33	2.5	1.66	3.16	3.83	2.33	2.83	3	2.83	3	3.33
39	10	1	2.66	2.83	3	3.33	3	2.66	3.16	2.5	2.83	3	3	3	2.33	2.5	2.66	2.8	3	2.83
40	10	1	2	2.5	2.83	3.2	3.33	3	3	3	3	3.83	3.66	3.8	3.33	3.16	3.33	3.83	3.83	4
42	10	1	1.4	1.83	1.6	3.83	3	4	3	2.33	3.2	1.66	1.16	1.4	2.5	2.66	2.16	2.16	2.16	2.5
44	10	1	1.66	1.16	1.4	1.5	2.5	2.83	3.33	3.16	3.5	2.83	2.5	2.4	2.33	2.16	2.66	2.83	3.16	3.5
25	10	1	3.5	3.83	4	3.16	3.83	3.83	3	3.8	3	2.83	3.8	3.66	3.33	3.4	4	3.5	4	3.5
26	10	1	2.66	1.66	3.16	2.33	1.66	2	1.8	2.66	2.16	2.5	1.5	2	2.16	2.5	1.75	2.66	2.16	2.66
28	10	1	2.83	3.16	3	3	3.33	3.16	3.33	3.83	4	3.33	3.66	3.83	3.5	4	3.66	3	4	4
29	10	1	3	3.33	2.83	3	3.5	3	4	3.33	3.16	3.5	3.8	3	1.66	1.4	2	1.5	2	2
30	10	1	2.4	2.66	3.2	2	2.33	2	3	2.66	2.66	3.33	2.83	3.83	2.66	2.5	3	3.5	3.33	2.66
2	10	1	1	1	1	1	1	1	1	2	3	1	1	1	1.5	3.5	3.16	1.5	2	3.5
3	9	1	3	3.5	2.5	2.5	2.5	2.5	3.5	2	3.5	2	1.5	1	3.5	4	3	3.4	2	1.5
4	10	1	2.5	2.5	2.66	4	3	3	2.5	2.66	2.5	2.5	2.33	2.5	3.83	2.66	2.83	3.83	2.5	2.33
6	9	1	3.5	3.5	3	4	3.33	3	4	3.33	3.66	4	4	3.83	2.83	3	2.83	2.83	4	3.83
13	9	1	3	3.5	2.83	4	3.5	2.33	4	4	2.33	3.16	4	2.83	1.5	1.5	3.33	3.5	3.5	2.5
14	9	1	3.16	2.66	3	3.5	3.16	3.33	2	2	1.83	3.66	3.33	3.5	2	2.16	2.83	3.66	4	3.66
15	10	1	2.66	2.83	2.83	2.83	3	3	3.33	3	3	3.33	3	3	2	2	2	3	2.83	3
17	9	1	2	2.33	2.33	3.66	2.33	2.66	1.83	1.66	2.33	2	1.16	2.16	2.16	2	1.5	2.66	1.33	2.33
18	10	1	2.6	3.83	3.33	3.83	4	3.83	2.66	3.83	2.83	3.6	3.83	4	1.4	1.5	1.66	2.16	4	4
45	10	2	2.66	2.83	2.83	1.83	2.16	3.16	2.66	2.33	2.5	3.66	3.8	3.83	3.5	3.33	4	3.5	3.66	4
46	10	2	1.83	1.33	2	1.5	2.5	2.33	1.5	1.83	2	2.16	2.33	2.5	3	1.83	2.16	1.33	1.5	2.16
47	9	2	1.5	2.16	2.16	2.66	2.33	2.83	1.83	2.5	2.16	1.33	1	1.33	3	2.5	3.33	1.83	2.33	2.5

ID	Age	Group	SC1	SC2	SC3	SA1	SA2	SA3	AC1	AC2	AC3	PA1	PA2	PA3	BC1	BC2	BC3	GSW1	GSW2	GSW3
										The Self-Perception Profile for Children										
48	10	2	4	4	4	4	4	3.5	4	4	4	4	4	4	3.83	3.5	3.5	4	4	4
50	10	2	2.5	2.33	2.16	2.33	1.66	1.83	2.16	2.5	2.5	3.16	3	3.16	3	3	3.16	3	3	3.16
51	9	2	3.83	3.16	3.83	3.16	3	3	3	3	3	3	2.66	2.83	2.83	3	3	2.83	3	3
52	9	2	1.66	1.66	1.66	2.6	2.6	2.66	2.66	2.66	2.5	3.5	2.66	3	2.8	2.83	2.66	2.83	3.16	2.33
32	9	2	3.83	4	4	4	3	4	4	4	4	4	4	4	3.83	4	4	4	3.5	4
34	10	2	2.5	3.16	3	2.83	2.5	3.5	2.16	2.83	2.83	2	2.5	2.5	2.33	2.66	2.4	3.16	2.83	2.8
35	10	2	2.5	2.66	2	2.2	2.5	3	2.66	4	4	2.5	4	3.66	2.8	3.4	3.83	2.5	3.5	3.25
36	9	2	3.33	3.5	2.5	3.16	4	3.5	4	3.5	3	4	4	3.5	3.5	4	3	4	4	4
19	10	2	3.8	3.5	3.166	4	3.33	4	4	4	3.83	3.67	3.66	4	1.83	2.66	2.5	4	4	3.16
20	9	2	2.2	2.5	2.66	3.6	2.5	2.5	4	2.33	2.83	3.16	2.5	3	1.83	2.66	2	2.83	2.66	2.33
22	10	2	2.16	1	2.33	2.66	2.83	2	3.66	2.5	2.83	2.33	2.66	3.5	4	3.83	2.5	4	3.83	3.83
23	9	2	1.83	2.33	1.83	1.66	2.16	2	2.83	2.5	2.16	3.5	3.66	4	3.5	4	3.83	3.66	3.33	3.5
9	9	2	3.33	4	4	3	3	3.5	4	3.5	3	3.8	4	4	3.33	3.5	3.5	4	4	3.5
10	9	2	2.83	2.16	3.4	2.5	1.83	2.66	2.6	2.83	3.16	2.8	1.4	2.5	3.16	3.5	2.5	2.5	1.83	2.6
12	10	2	2	1.83	2	2.66	3.16	2.2	2.16	1.83	2	1.66	1.33	1.83	1.5	1.33	1.33	2	1	2.5

ID	Sex	Age	Group	Total 1	ED 1	BC 1	H 1	PP 1	Ps 1	Total 2	ED 2	BC 2	H 2	PP 2	Ps 2
									Strengths and Difficulties Questionnaire (Randomised Control Trial						
25	F	10	1	8	0	3	2	3	3	8	0	3	3	2	5
26	F	10	1	10	0	4	4	2	5	7	0	2	3	2	5
28	F	10	1	4	0	1	3	0	5	5	2	0	3	0	6
29	F	10	1	15	7	3	3	2	5	13	5	3	3	2	5
30	F	10	1	11	1	3	3	4	5	8	0	2	3	3	6
31	M	9	2	7	1	2	2	2	4	8	3	0	2	3	6
32	F	9	2	9	0	1	8	0	5	11	0	1	10	0	5
34	F	10	2	5	1	0	2	2	5	6	2	0	2	2	7
35	F	10	2	5	1	0	2	2	7	4	1	0	2	1	7
36	M	9	2	19	2	3	8	6	4	18	1	3	7	7	4

ID	Sex	Age	Total 1	ED1	BC1	H1	PP1	Ps1	Total 2	ED2	BC2	H2	PP2	Ps2
								Strengths and Difficulties Questionnaire (One Group Pre-Post)						
25	F	10	8	0	3	2	3	3	8	0	3	3	2	5
26	F	10	10	0	4	4	2	5	7	0	2	3	2	5
28	F	10	4	0	1	3	0	5	5	2	0	3	0	6
29	F	10	15	7	3	3	2	5	13	5	3	3	2	5
30	F	10	11	1	3	3	4	5	8	0	2	3	3	6
1	F	9	11	4	2	3	2	9	10	2	1	4	3	5
2	F	10	17	4	4	6	3	7	19	5	3	6	5	3
3	M	9	18	3	3	10	2	5	19	3	5	8	3	5
4	F	10	16	3	5	3	5	3	7	0	1	2	4	6
6	M	9	25	2	8	10	5	0	20	1	8	9	2	2
7	F	9	15	4	4	7	0	7	12	1	5	6	0	4
9	F	9	11	1	3	5	2	8	6	1	0	4	1	10
10	M	9	15	1	1	10	3	6	14	2	1	8	3	7
11	M	9	22	2	8	10	2	1	9	3	5	7	4	2
13	M	9	16	0	6	9	1	3	15	0	5	9	1	3
14	F	9	11	2	3	5	1	5	11	2	3	5	1	5
15	M	10	13	0	5	7	1	4	10	0	4	6	0	5
16	M	10	14	0	3	10	1	5	14	0	3	10	1	5
17	Fe	9	20	3	6	9	2	4	20	5	6	8	1	4
18	M	10	18	3	4	9	2	4	18	3	5	9	1	4

Appendix 17: Histograms and Boxplots

NOTE: Group 1 = Experimental, Group 2 = Control

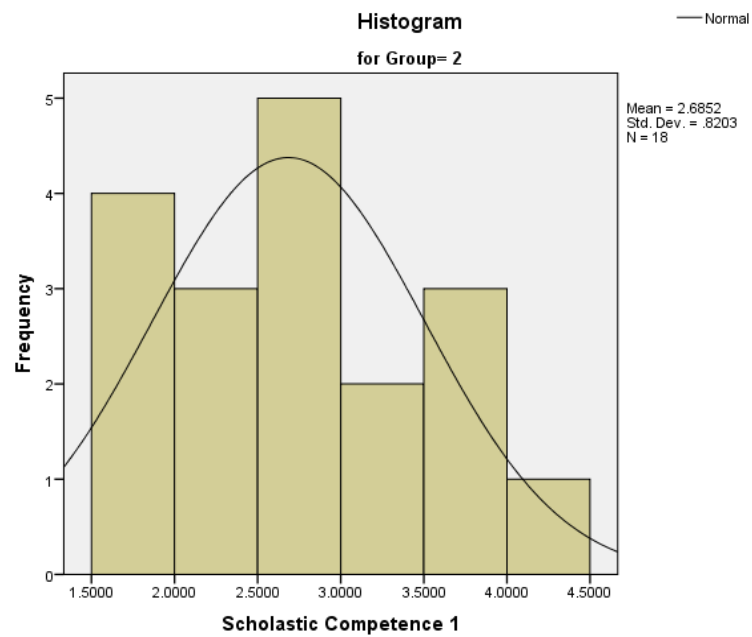## <u>1. Locus of Control Investigation: Assumption Testing - Normal Distribution</u>
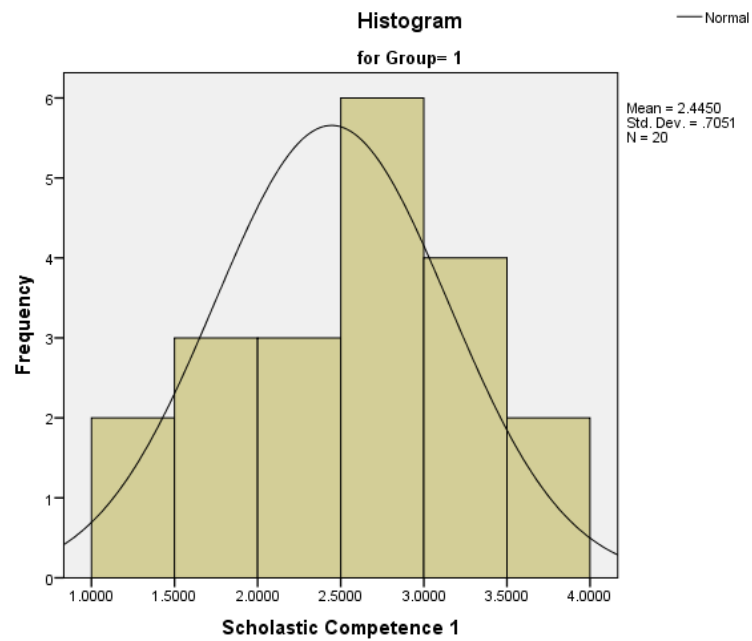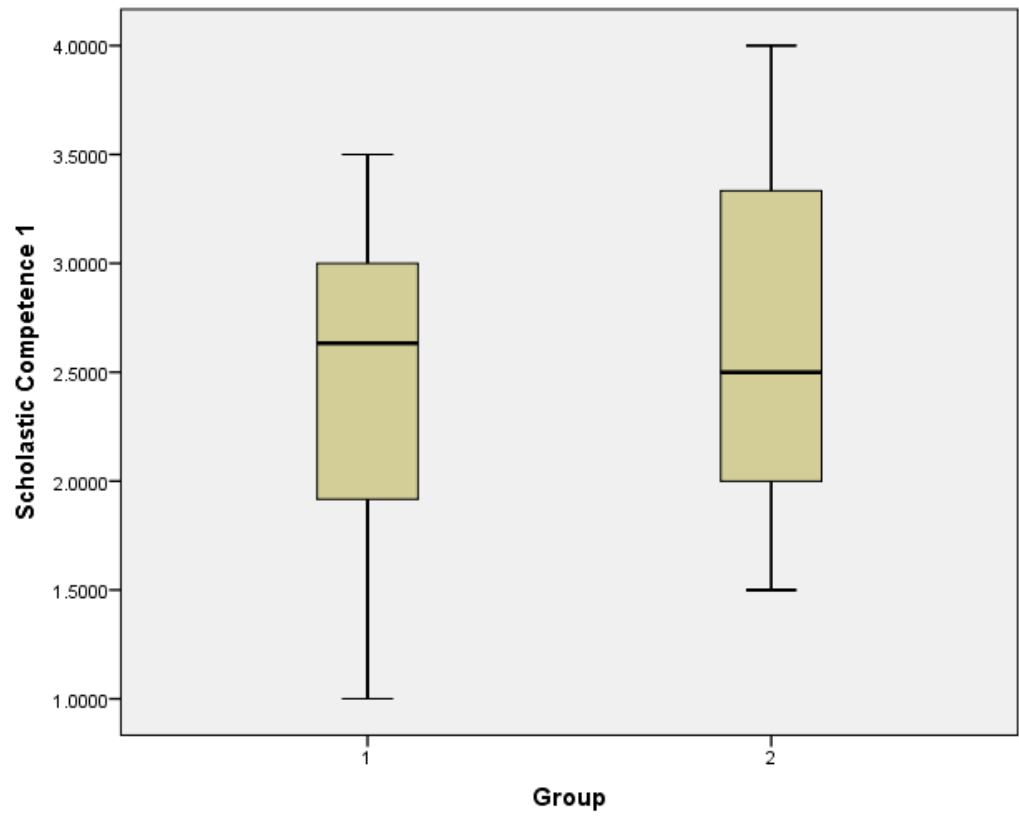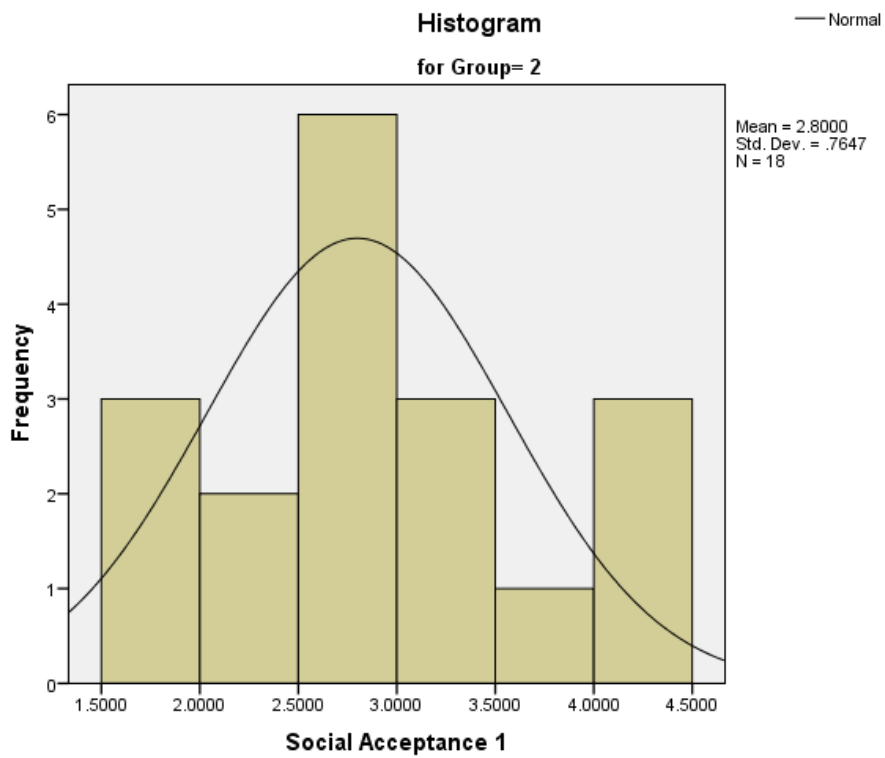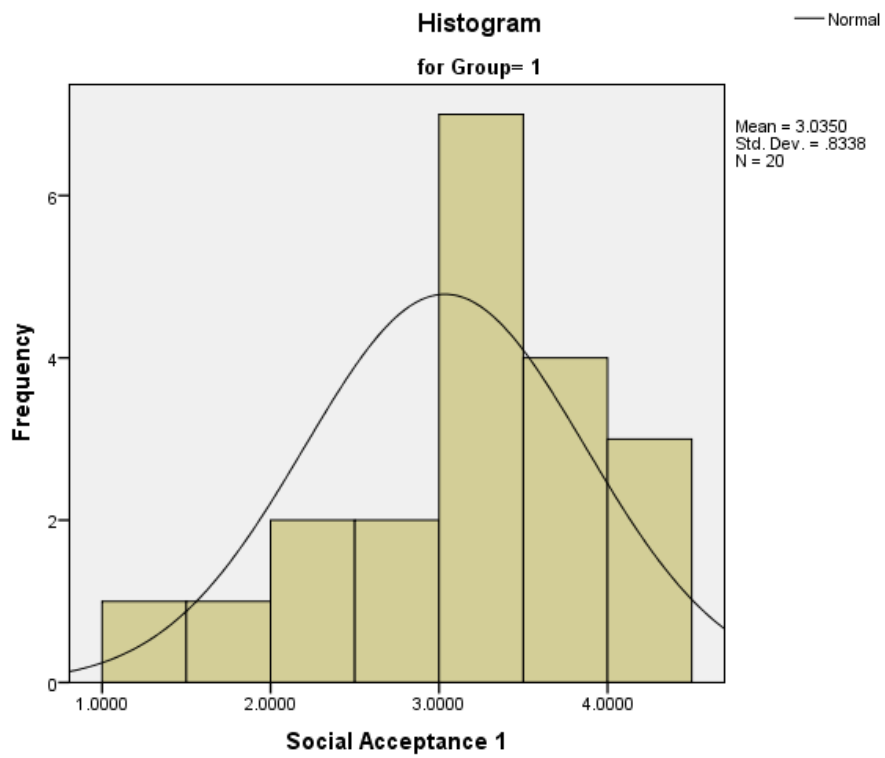
LOC1
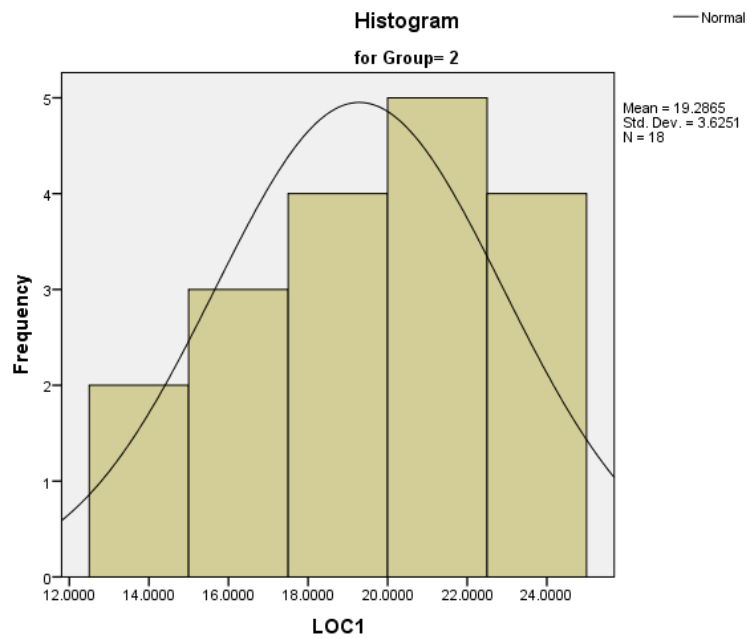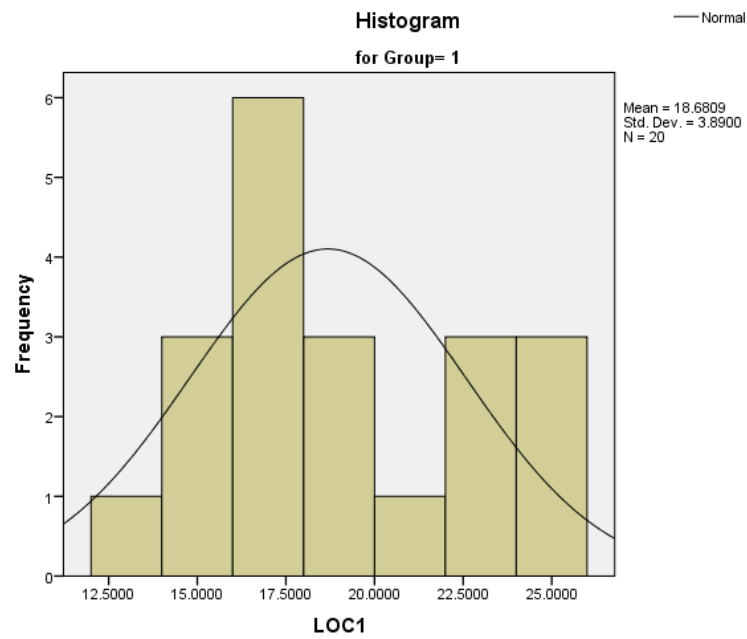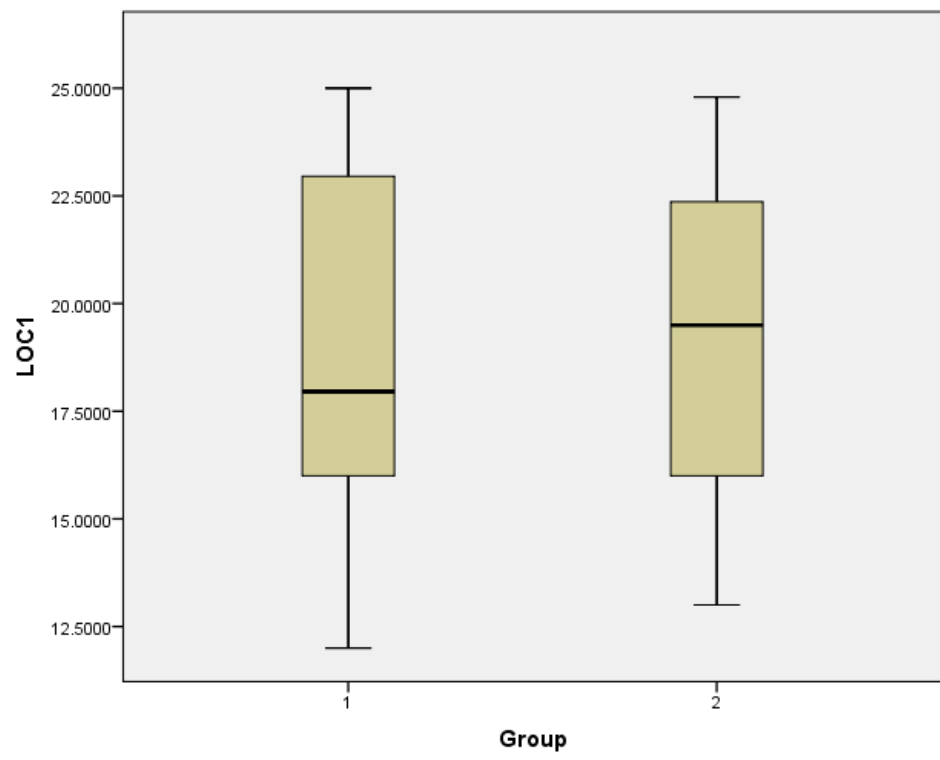
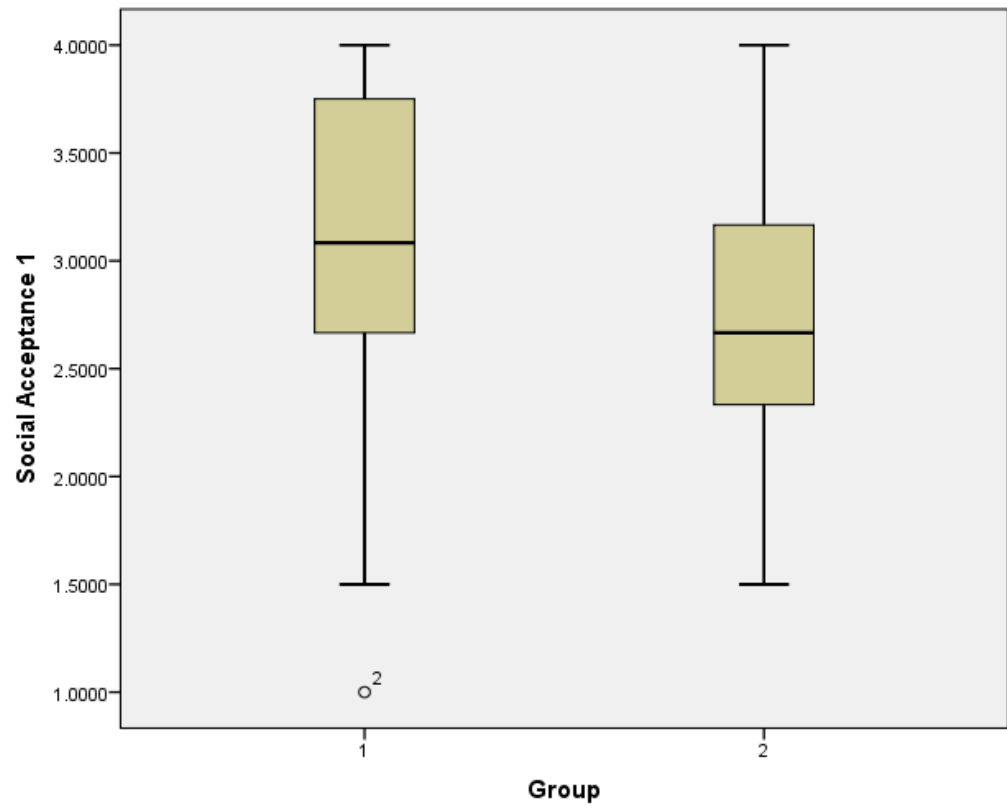# 2. Self-Perceptions Investigation: Assumption Testing - Normal Distribution
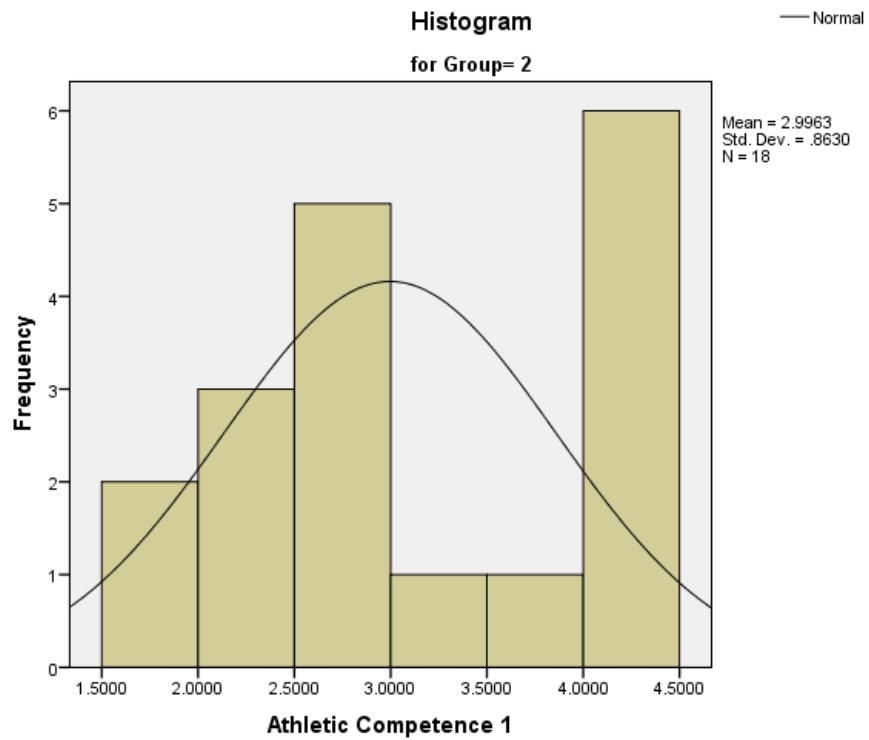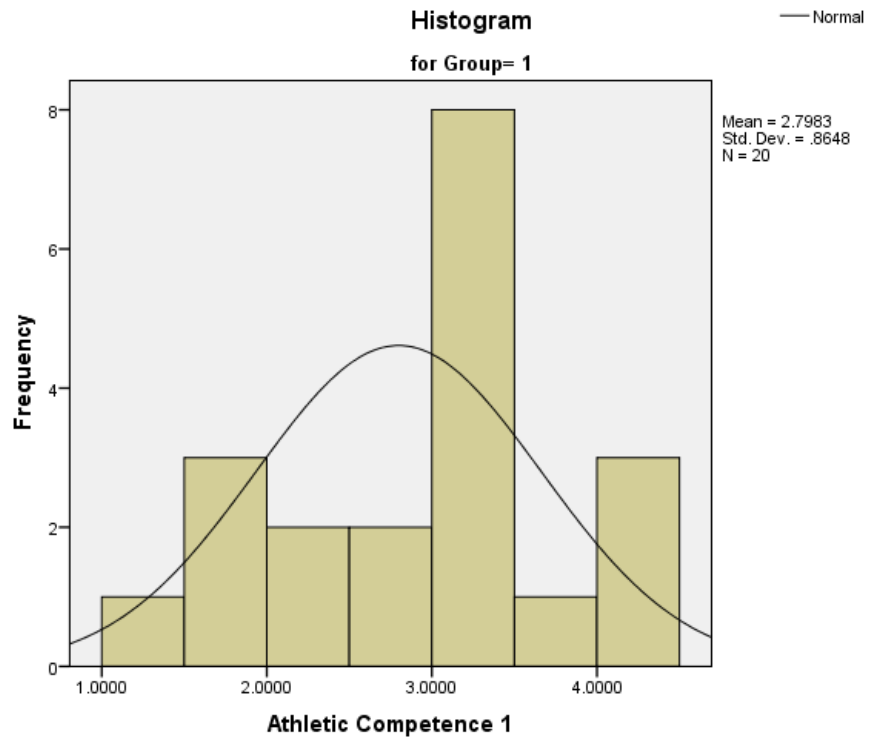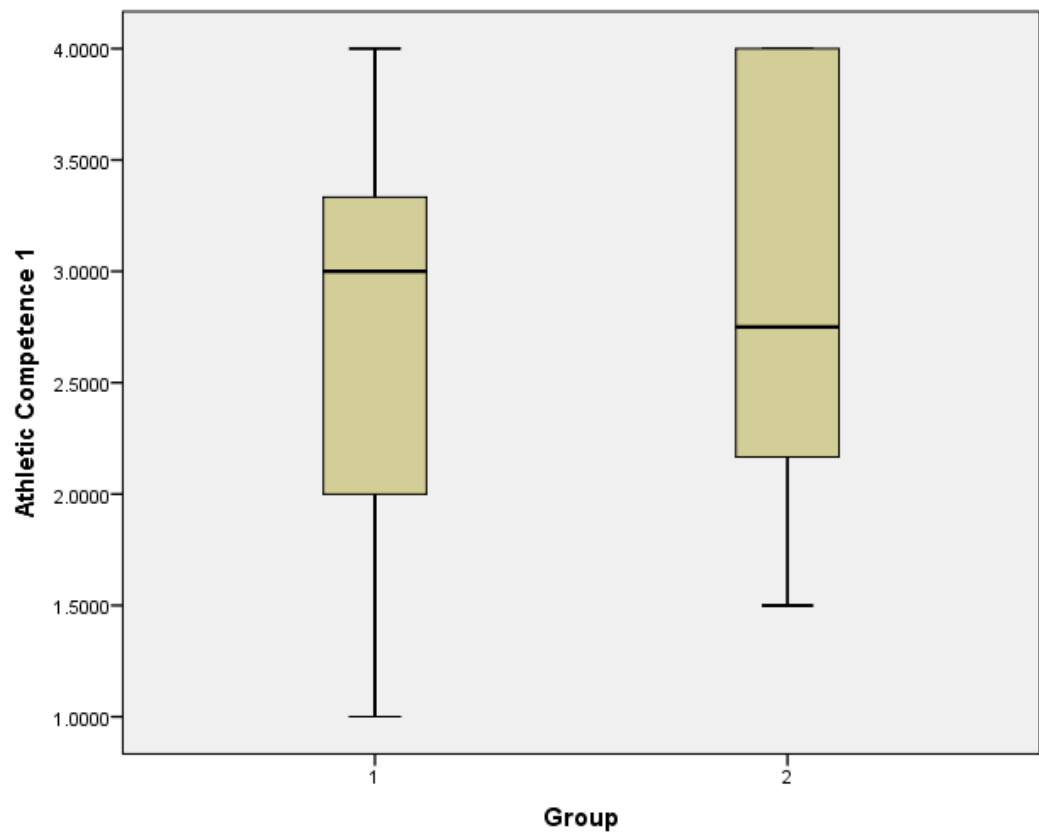
Scholastic Competence 1

Histogram
for Group= 1

Mean = 2.4450
Std. Dev. = .7051
N = 20

Scholastic Competence 1

Histogram
for Group= 2

Mean = 2.6852
Std. Dev. = .8203
N = 18

Scholastic Competence 1

Social Acceptance 1

Histogram
for Group= 1

Mean = 3.0350
Std. Dev. = .8338
N = 20

Histogram
for Group= 2

Mean = 2.8000
Std. Dev. = .7647
N = 18

Athletic Competence 1

Physical Appearance 1

Histogram
for Group= 1

Mean = 2.7633
Std. Dev. = .8691
N = 20

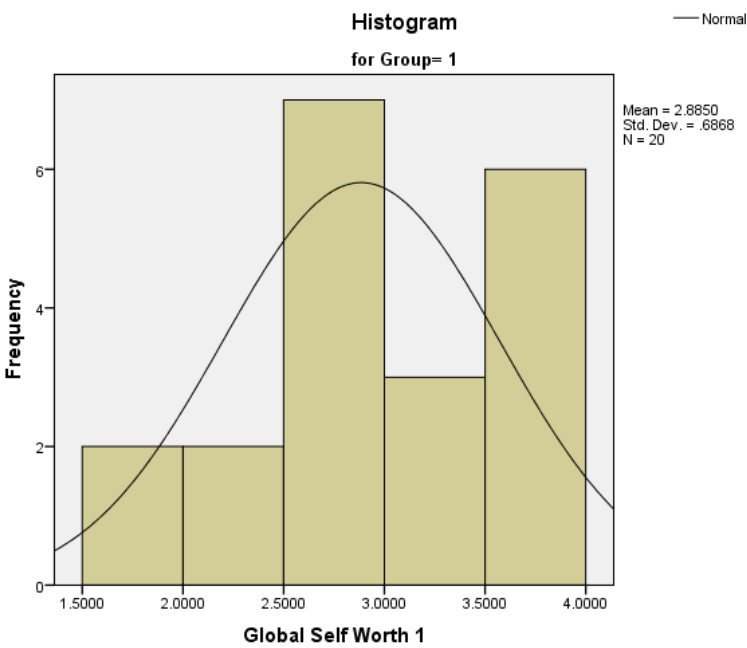## Histogram
for Group= 2

Mean = 3.0148
Std. Dev. = .8424
N = 18
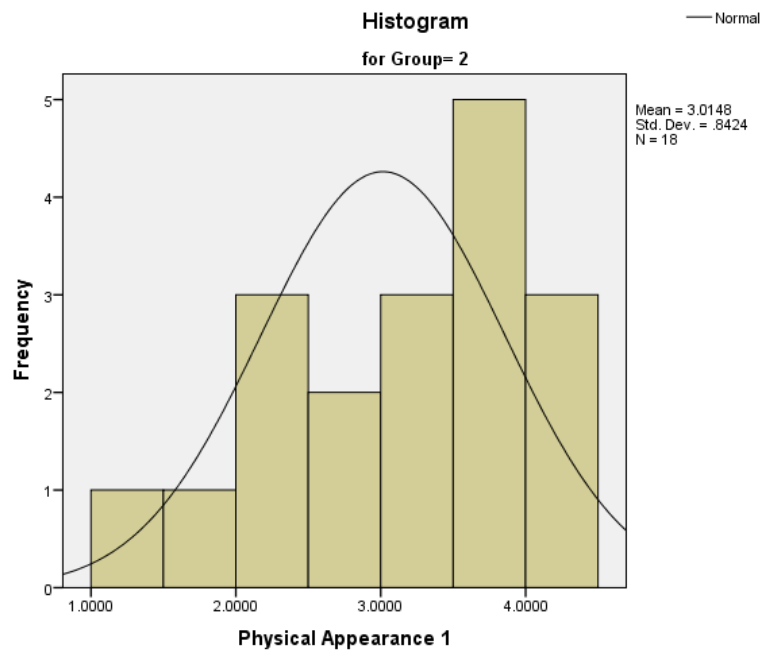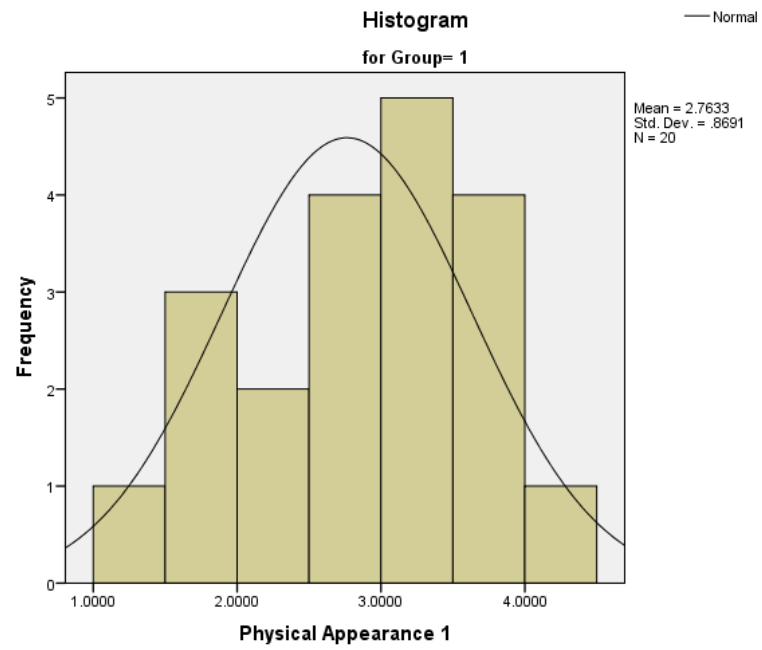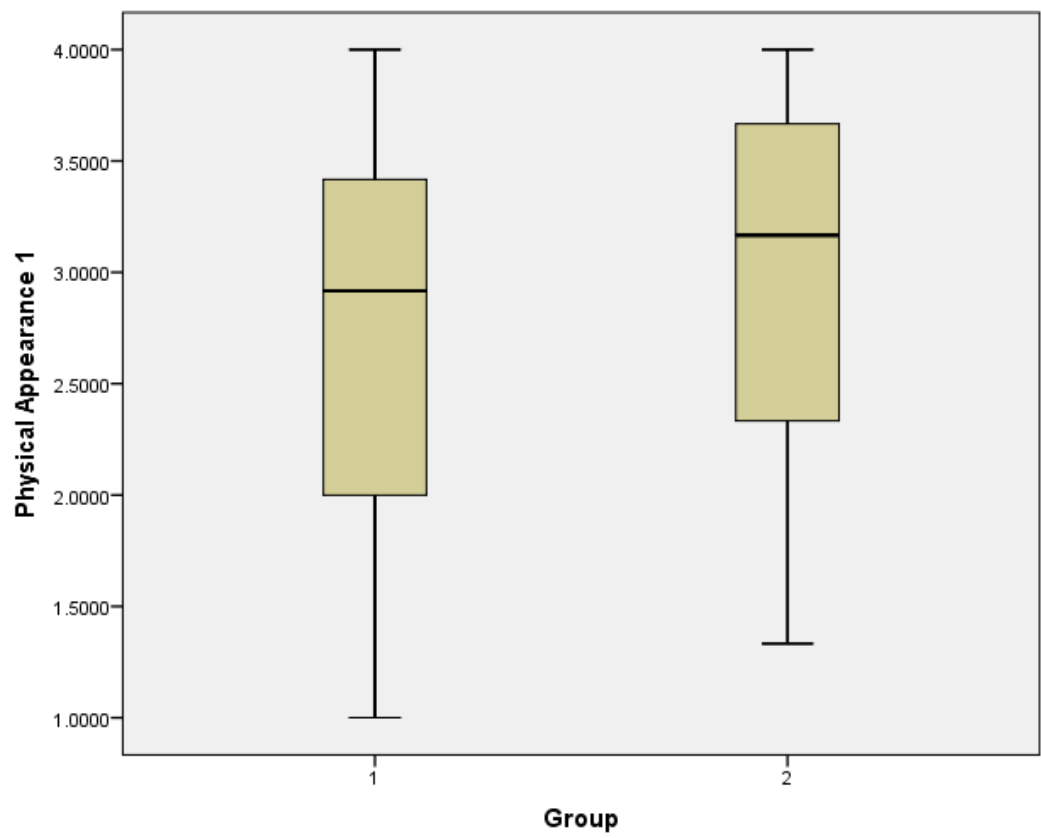
Behavioural Conduct 1

Global Self-Worth 1

Histogram

for Group= 1

— Normal

Mean = 2.8850
Std. Dev. = .6868
N = 20

Histogram

for Group= 2

— Normal

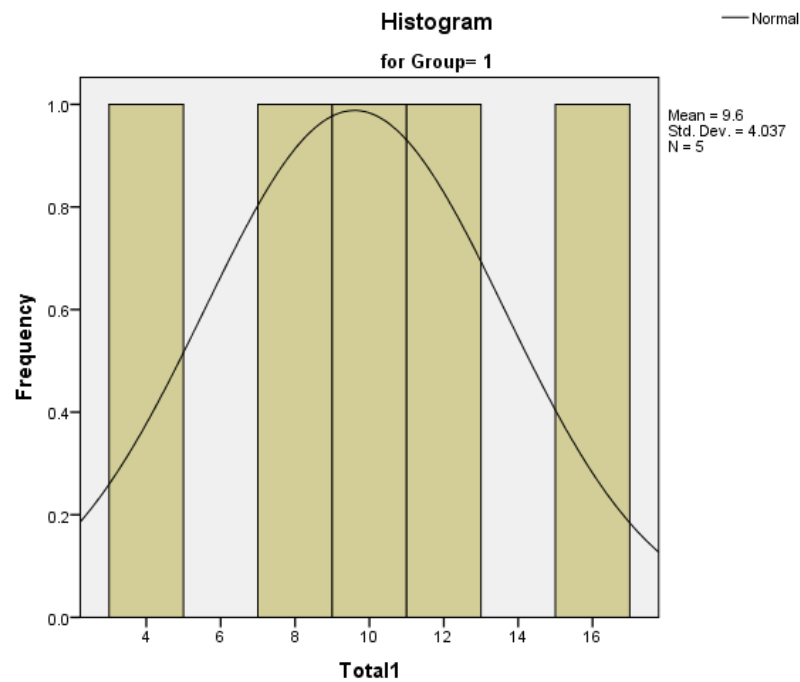Mean = 3.1111
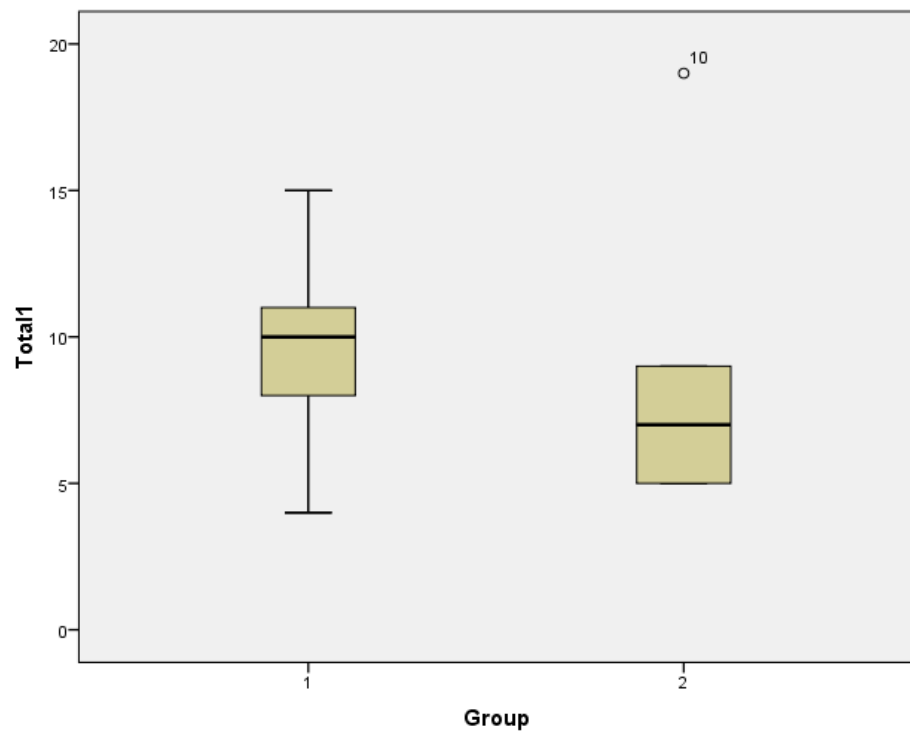Std. Dev. = .8479
N = 18
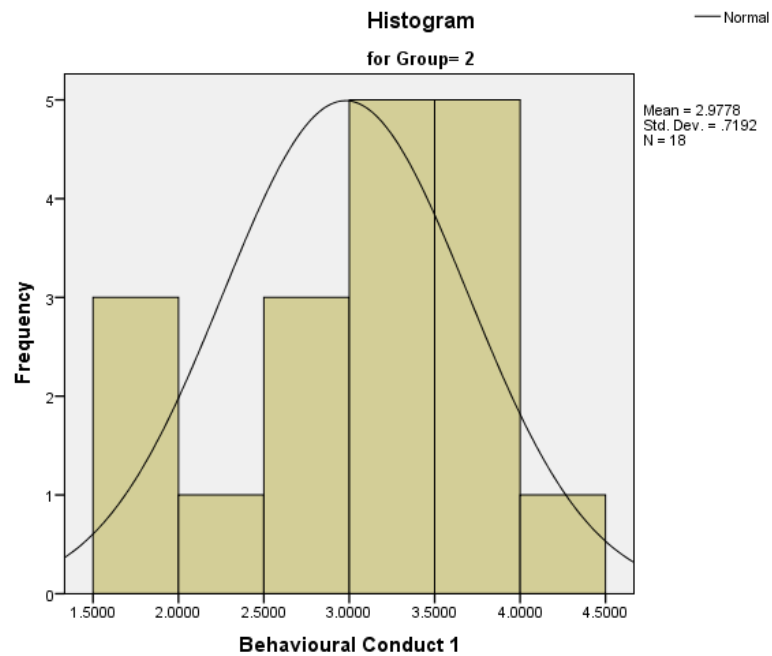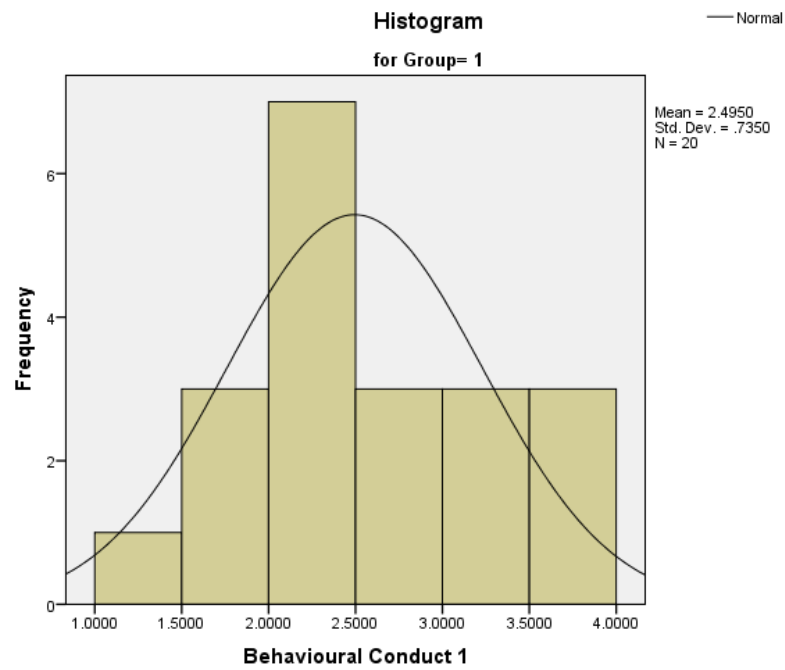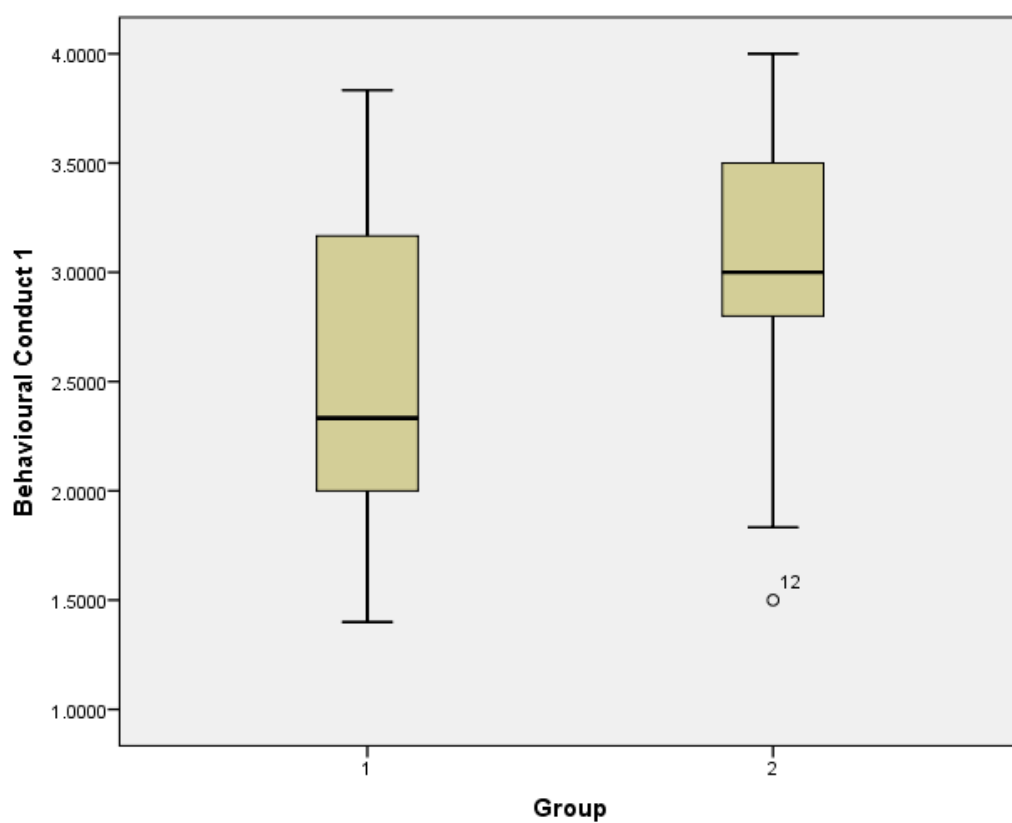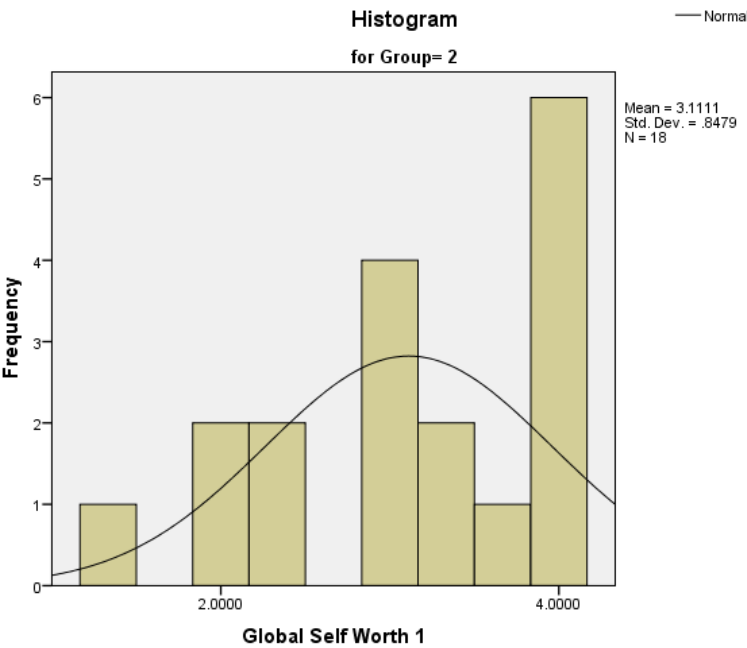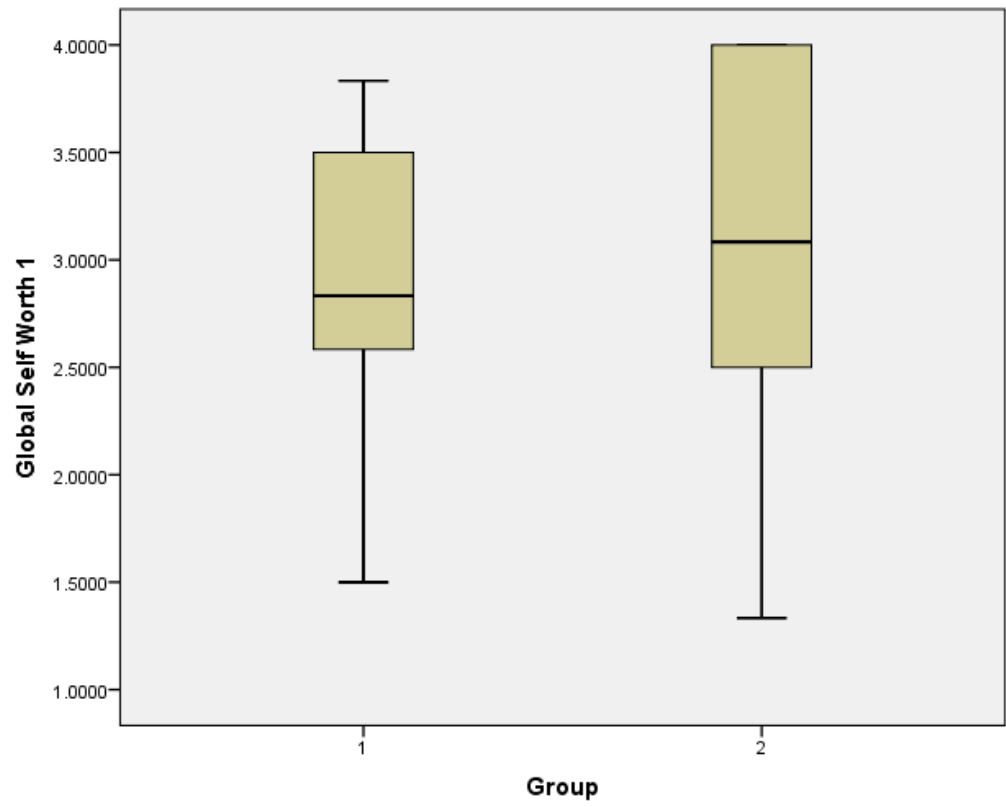
3. Emotional and Behavioural Difficulties Investigation: Assumption Testing - Normal Distribution

a. Randomised Control Trial

Total EBD 1
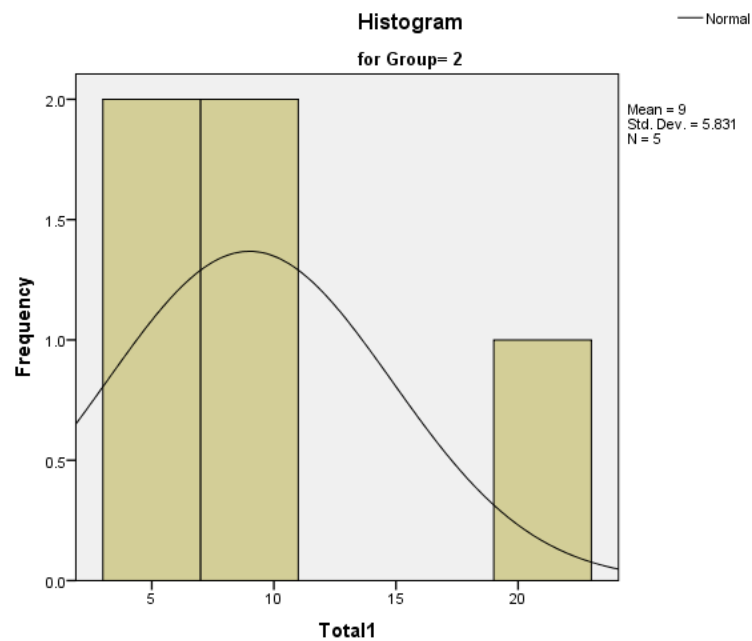
b. One Group Pre-test/Post-test

Total EBD 1