The efficacy of school-based interventions in socio-emotional health and well-being of children in middle childhood: an evaluation.

THE EFFICACY OF A SCHOOL-BASED INTERVENTION ON SOCIO-EMOTIONAL HEALTH AND WELL-BEING OF CHILDREN IN MIDDLE CHILDHOOD: AN EVALUATION

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A thesis submitted in partial fulfilment of the
requirements of Thames Valley University
for the degree of Doctor of Philosophy

May 2009

Acknowledgements:

I would like to convey my sincere thanks to my wonderful supervisors; Dr Kathryn Mitchell, Pauline Fox and Professor Tony Cassidy for all the advice and support they have given me throughout. I would also like to thank my colleagues in Psychology at Thames Valley University for their support, in particular Dr Catherine Lido and Dr Lisa Doodson. Sincere thanks also to Bronach Hughes and Jen Scott at Pyramid/ContinYou for their encouragement and access to national Pyramid statistics and information and Pen Hart and her team at Salford Pyramid Project for their co-operation on Studies Two and Three. Last, but by no means least, a very sincere thank you to all the teachers and children who took part in this research, it could not have been done without them.

Finally, I would like to dedicate the work in this thesis to my family, my husband Andrew, son Jan and daughter Lily whose faith in me kept me going and to my parents Peter and Susan Rhodes who have been my lifelong inspiration.

Abstract:

The development of socio-emotional competence in middle childhood is an essential acquisition that will enable a child to negotiate interaction with their peers and others (Robins & Rutter, 1990). A substantial body of research has arisen concerned with the identification and prevention of risk factors that might impede certain children's ability to thrive socially and emotionally (Doge & Coie, 1987, Parker & Asher, 1993). This expansion in prevention and evidence-based practice has led to changes in national policy. As a consequence of the revised Children's Act (2004) the promotion of emotional health and wellbeing in schools, through both the curriculum and school-based intervention, has become a recognised priority. The studies in this thesis describe a pragmatic evaluation of a Year 3 intervention, (Pyramid), which is designed to be delivered in school and targeted at children who are quiet, behaviourally inhibited and at risk of social isolation (Pyramid, 2007). Children's socio-emotional health status was measured using the teacher-rated version of the Strengths and Difficulties Questionnaire (Goodman, 1997) both pre- and post-intervention and at a twelve-month follow-up. The views of the children who attended were elicited through a series of focus groups. Pyramid attendees showed greater levels of improvement than Comparison group classmates at both post-intervention time-points. Evidence of preservation of gains for Pyramid attendees was also shown at the twelve-month follow-up. Emergent themes from the focus groups supported these results with Pyramid attendee children reporting self-recognised improvements post-intervention and with no personal costs experienced as a result of the intervention. These results augment both the existing evidence base for Pyramid (Davies, 1999, Fitzherbert, 1985, Skinner, 1996) and add to the evidence base regarding the efficacy of school-based preventative interventions. This thesis proposes a novel conceptual model for the monitoring of socio-emotional health and wellbeing in primary schools and highlights the importance of the need to discern how these interventions can influence future policy and practice.

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Chapter One

Review of the research literature and prior research:

1.0. Introduction

Within the area of child development research a substantial and sustained interest exists as to why some children acquire robust levels of socio-emotional competence whilst others fail to develop this essential life skill (Dodge & Coie, 1987; Coie, Dodge & Kupersmidt, 1990; Eisenberg, Fabes, Guthrie, Murphy, Maszk, Holmgren & Suh, 1995). This interest has led to a burgeoning increase in the research literature concerning the types of risk factors that might impede certain children's ability to flourish in their socio-emotional interaction with both their peers and adults (Eisenberg, Fabes, Guthrie, Murphy, Maszk, Holmgren & Suh; 1995, Eisenberg, Fabes, Murphy, Karbon, Smith & Maszk, 1996; Izard, 2002).

The Pyramid Year 3 intervention, that is the focus of the studies in this thesis, is a primary preventative school-based intervention that aims to support and improve the socio-emotional competency of primary school children. It uses a selective approach to identify children who will most benefit from attending. Principally it targets those children that are quiet, withdrawn, find it difficult to interact with peers and adults other than their family, have a tendency toward internalising emotional disorders such as anxiety and depression, and are deemed at risk of possible social isolation (Fitzherbert, 1985; Headlam-Wells, 2000; Makin, 1997). It aims to increase socio-emotional competency by promoting friendship building skills, improving social skills and encouraging confidence in the children that attend. Research has shown that the formation of strong friendships can ameliorate other stressful situations experienced by children in their other life domains and may even act as a buffer, preventing children from being targets for peer victimisation (Hodges, Boivin, Bukowski & Vitaro, 1999). Therefore the opportunity to develop strong socio-emotional competence is a life skill

that every child should be as entitled to develop in the same way that they have the opportunity to develop skills in literacy and numeracy.

1.1. Primary preventative intervention

Preventative school-based interventions such as Pyramid aim to identify children who might be at risk of poor outcomes both socially and academically and intervene early to reduce the incidence of disorder (Sutton, Utting & Farrington, 2004). The primary goal of preventative intervention in mental health has been defined as the preclusion or moderation of major dysfunction in the target population (Coie, Watt, West, Hawkins, Asarnow, Markman, Ramey, Shure & Long, 1993). To achieve this goal, prevention research is focussed upon the identification of 'risk factors' shown to predict the likelihood of onset of disorder and 'protective factors' that improve an individual's resilience to development of disorder (Coie et al, 1993).

The concept of 'prevention' originates principally from the work of Caplan (1964) who sought to shift the emphasis of psychiatric practice from the medical model of treatment of existing disorders to identification and implementation of interventions aimed to pre-empt disorder occurring (Coie et al, 1993).

In 1996, a report for the American Institute of Medicine described a 'spectrum' of intervention for mental health disorders. The spectrum consisted of three broad categories, prevention, treatment and maintenance. The prevention category was further sub-divided into universal (treatment for all of the concerned population), selective (for those deemed at risk) and indicated (for those displaying early symptoms or tendencies) (Munoz, Mrazek & Heggarty, 1996). Furthermore, Durlak and Wells (1997) describe two levels of primary preventative intervention dependent upon whether the intervention is categorised as person-centred (individual) i.e. the intervention is aimed at changing the behaviour of the targeted population directly, or environment-centred (ecological/systems led) wherein the intervention aims to change the behaviour of the target population indirectly by altering their environment (Durlak & Wells, 1997).

Person-centred preventative interventions are run with the aim of supporting those deemed vulnerable in respect of their emotional health or 'psychological wellness'. The concept of psychological wellness was brought to the fore by the work of Cowen (1991). Cowen identified the need 'to build future research and programme development around the concept of psychological wellness as an alternative to past emphases on the diagnosis and repair of established disorders' (Cowen, 1991, p.404). Towards this goal, behavioural-based interventions such as Pyramid (e.g. 'Friends for Life', Dadds, Spence, Holland, Barrett & Laurens, 1997; 'Incredible Years Dinosaur Social Skills' programme, Webster-Stratton, Reid & Hammond, 2001; 'Wisconsin Early Intervention' programme, King & Kirschenbaum, 1990) work with either a universal or a targeted population with the aim of reducing identified behavioural risk factors and building competencies that enhance resilience and socio-emotional health and well-being.

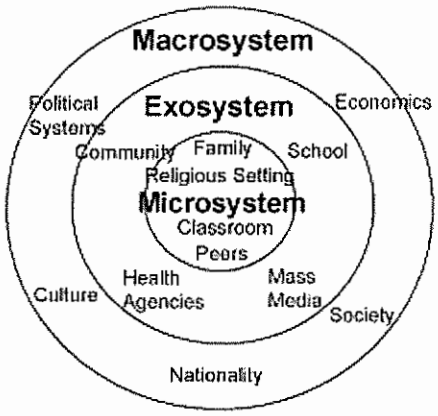
1.2. Relation of behaviour to the environment:

Lewin (1951) originally asserted that behaviour is a function of the person and their interaction with the environment (B=f(P, E). Furthermore, Tizard, (1976) suggests that too much emphasis might be centred on the P (person) factor of this equation and that more emphasis should be directed upon E (environment). From these assertions it could be reasonably assumed that elements of particular environments might engender certain behaviours particularly in the case of children and that furthermore these might lead to deficiencies in the acquisition of essential life skills such as socio-emotional competence (Webster- Stratton, Reid & Hammond, 2001; Place, Reynolds, Cousins & O'Neill, 2002).

1.3. Role of an ecological developmental theory in preventative intervention:

To consider further this interaction between individuals and their environment Bronfenbrenner (1979) offers a theory of human development that places the person in context of their environment dependent upon a series of nested ecologies or 'systems', (Bronfenbrenner, 1979, 1995). Figure 1.1 below shows a representation of Bronfenbrenner's model with examples of each type of system, micro-, exo- and macro-:

Figure 1.1: Bronfenbrenner's Ecological model showing examples of types of system for each level (Bronfenbrenner, 1979)



Bronfenbrenner's theory proposes that we develop in the context of our interactions within this series of nested systems. Initially, a child will develop within the micro-system of their family and pre-school peers. Once children start school they add to the range of 'micro-systems' within which they function. The links that exist between this range of micro-systems are described as meso-systems and would incorporate the child's interactions with family both immediate and extended, and within the school environment classmates, fellow pupils and teaching staff (Bronfenbrenner, 1979, 2005).
Bronfenbrenner (1979, 2005) posits that these environmental systems may act as agents for change and development in children and development will be enhanced if the relationship between micro-systems is strong e.g. a good relationship between home and school. Bronfenbrenner (1979-2005) rated dyads such as mother-child/ parent-child being the most influential within the family micro-system. He also recognised that the strength and quality of these dyads could influence relationships outside the micro-system to the good or to the detriment depending on the quality of the dyadic relationship and these influences are classified as 'second order effects' (Bronfenbrenner, 1979, pp. 68, 77-81). The strength of these dyadic relationships could also offer a protective factor in the incidence of family breakdown through divorce, wherein if both parties within the dyad kept an amicable relationship with the parent who was leaving the family home, the

experience of divorce would have a less detrimental impact (Bronfenbrenner, 1979, 2005).

Similarly the network links between the home and school micro-systems are important. These two systems will provide the mainstay of the child's development whilst he/she is of school age (Bronfenbrenner, 2005). More importantly, it has been shown that children of parents who engage in their education and maintain a healthy level of contact with the school are likely to have better scholastic outcomes (Hannon, 1995; Plewis, Mooney & Creeser, 1990; Sutton, Utting & Farringdon, 2004; Tizard, Schofield & Hewison, 1982). Bronfenbrenner's assertions concerning parent/child dyadic relationships might also translate to the child/teacher relationship, the strength and nature of which might influence how children relate to or are perceived by their peers (Bronfenbrenner, 1979; Bronfenbrenner, 2005; Eisenberg et al, 1995).

Models such as Bronfenbrenner's can facilitate researchers both in the development of interventions and also in identifying potential target populations. Furthermore, it is important that researchers clarify which system or indeed systems of the model their intervention is focussed upon and whether the intervention aims to change the behaviour or attitudes of individuals in that system (i.e. it is person-centred) or the nature of the system itself (i.e. it is environmentally focussed) (Cowen, 1977; Durlak & Wells, 1997).

1.4. Implications of preventative intervention for child emotional health and well-being:

Subsequent to the expansion of prevention and evidence-based practice within public health over the last two decades, the drive to include all areas of social policy including education has gathered pace (Fredrickson 2002). This can be seen in the recent increase in research interest both nationally (Ghate & Hazel, 2002; Hutchings, 1996; Scott, Spender, Doolan, Jacobs & Aspland 2001) and internationally (Sanders, Markie-Dadds, Tully & Bor, 2000; Webster Stratton & Herbert, 1994) that has occurred in relation to the impact of environmental risk factors such as deprived family circumstances, individual

characteristics such as temperament and self-regulation and the implications of these on the development of future dysfunction (Arnold & Doctoroff, 2003). This has resulted in the creation of a range of evidence-based interventions and changes to government policy in both the United States (Arnold & Doctoroff, 2003) and here in the United Kingdom, (www.everychildmatters.gov.uk, accessed September, 2008) in an attempt to encourage all parents including those described as 'hard to reach' to engage in their children's development and education.

1.5. Deprivation research and the Newcastle 1000 studies:

The notion that social deprivation might result in children experiencing physically and emotionally impoverished outcomes (Arnold & Doctoroff, 2003; Ghate & Hazel, 2002; Hutchings, 1996; Scott, Spender, Doolan, Jacobs & Aspland 2001b) is not a new one (Miller, Court, Knox & Brandon, 1974; Rutter & Madge, 1976). A large, early post-war, longitudinal study into the effects of deprivation, the Newcastle 1000 Family study, (Spence, Walton, Miller and Court, 1954) identified risk and protective factors that indicated certain types of family at risk of severe dysfunction (Kolvin, 1981). Furthermore, it suggested that these factors may have a maladaptive effect not only on the development of one generation but that they may set in motion a cycle of deprivation wherein successive generations also experience impoverished life chances (Kolvin, 1981; Kolvin, Miller, Scott, Gatzanis & Fleeting, 1990). The Newcastle studies resulted from the analysis of follow-up data collected from a large post-war cohort of children born in the city of Newcastle upon Tyne in 1947 (Spence et al, 1954). The original data were gathered in order to monitor levels of poverty, infant mortality, illness and malnutrition amongst the poorest families in the city. It was originally intended to follow children during their first year of life. However, the survey data was collected for a further fourteen years and followed the cohort up until, what was at that time, the official school leaving age of fifteen (Miller, Court, Knox & Brandon, 1974; Spence et al, 1954). In 1952, Miller and his colleagues reassessed the data and used it to define levels of deprivation that would be used with this and subsequent cohorts to investigate possible trans-generational transmission of deprivation. The criteria outlined included family and marital disruption (i.e. loss of either parent through death, marital instability or chronic

incapacitating illness), emotional and physical child neglect, dependence upon Social Security benefits and/or incidence of debt, lack of adequate housing, including overcrowding (Miller et al, 1974). These criteria are supported by the findings of later research notably The Family Adversity Index as defined by Rutter & Quinton (1977) and more recent research into identification of the risk and protective factors that might affect child emotional health and well-being outcomes (Durlak & Wells, 1997; Sutton, Utting & Farringdon, 2004).

1.5.1. Long-term follow-up of the Newcastle 1000 studies (Kolvin, 1981):

In 1979, thirty two years after the first collection of data, Kolvin, (1981) set out to investigate the long-term effects of deprivation on this sample and whether a cycle of trans-generational deprivation could be shown to exist (Kolvin, Miller, Scott, Gatzanis & Fleeting, 1990). Kolvin and his colleagues (Kolvin et al, 1990) randomly selected 185 deprived, 62 non-deprived and 78 multiply deprived families (families with three or more of the criteria of deprivation as previously defined) from the original base population and this resulted in the inclusion of 179 children of school age within the sample. The sample was divided into four groups across two different age-ranges; junior school level (age 7) and senior school level (age 11). Children were identified as either 'at risk' (junior school) or 'maladjusted' (senior school) and then randomly allocated (using school classes as units of randomisation) to one of three interventions. Junior school children were allocated to either parent counselling-teacher consultations, nurture group work or to a therapeutic playgroup. Senior school children were allocated to parent counselling-teacher consultations, group therapy or behavioural adjustment work. Kolvin et al (1990) found that for the children who scored highly in anxious/neurotic tendencies at baseline the outcome at both midline and follow-up for the children assigned to the 'play group' condition was shown to be improved at a statistically significant level in contrast to both 'at-risk' control children and children who scored highly in externalising/anti-social tendencies at baseline, in all three of the measures used. Kolvin concluded from this that at final follow-up the best level of improvement was shown by the children in the shortest running intervention, the 'playgroup' condition, with evidence that improvement

continued to increase over time even after the intervention had finished. Furthermore, he proposed:

'*our results suggest that it is type rather than amount* (length) *of treatment that is a critical factor in intervention* and that *those* (including the play group condition) *that have given the most promising results have done so in the shortest possible time, at the least expense'* (Kolvin, 1981, p.300).

1.5.2. Implications of Kolvin's research for preventative practice

The interventions that resulted from this study (Kolvin, 1981, Kolvin, Miller, Scott, Gatzanis & Fleeting, 1990) could be viewed as the precursor of the type of preventative intervention (e.g. 'Friends for life', Dadds, Spence, Holland, Barrett & Laurens, 1997, Barrett, Shortt & Fox, 2001; Stallard, Simpson, Anderson, Hibbert & Osborn 2007; 'Incredible Years Dinosaur Social Skills programme, Webster-Stratton, Reid & Hammond, 2001; Hutchings, Lane, Owen & Gwyn; 2004; 'Wisconsin Early Intervention programme, King & Kirschenbaum, 1990) that the current government seeks to embed within the national education system through the core extended school offer (DfES 2004) and that have been recommended in recent National Institute of Health and Clinical Excellence (NICE) guidelines (NICE 2008) on the promotion of socio-emotional competency and well-being in primary schools.

1.6. Factors that might affect development of socio-emotional competency:

Socio-emotional competency has been described as 'effectiveness in interaction' (Rose-Krasnor, 1997, p112). This suggests a degree of organisation and control whereby children might self-regulate their behaviour in order to effectively initiate and maintain peer interactions, taking both their personal needs and those of their social group into consideration (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major & Queenan, 2003). Furthermore, successful negotiation of such peer interaction also indicates the use of several cognitive, social and emotional abilities. Dodge, Pettit, McClaskey & Brown, (1986) propose that children use a social information-processing model in order to read and successfully reciprocate in social situations. They describe five steps: firstly, attending to and deciphering given social cues; secondly, interpretation of these cues;

thirdly, choice of response; fourthly, evaluating how well-received and effective their choice of response is likely to prove, and finally they respond (Dodge et al, 1986). However, deficits at any one of these five steps might cause misinterpretation to occur and attempts at social interaction to fail. Dodge and his colleagues (1986), found differences between processing strategies used and deficiencies in response during their observations of aggressive and non-aggressive children taking part in a group entry task. Non-aggressive children approached the group and asked if they could join and soon became engaged both in terms of physical and verbal activity. However, aggressive children tended to linger and stare at the other children taking part, seemingly lacking the skills to intervene in a socially appropriate way (Dodge et al, 1986). These differences in social interpretation and response imply that children who continue to misread the social cues they are offered may be at later risk of rejection by their peer group. It has been acknowledged in the research literature that peers represent an important influence in the successful development of social skills for both children who display externalising behavioural difficulties (aggressive) and children who internalise (social withdrawal) (Moroz & Jones, 2002).

1.6.1. Emotional regulation and socio-emotional competence:

Emotional regulation has also been indicated in determining later levels of socio-emotional competency and peer acceptance (Eisenberg et al, 1995, 1996; 1997; Fabes, Hanish, Martin & Eisenberg, 2002; Rothbart, Ahadi & Hershey, 1994). Eisenberg et al. (1997) found that children's social functioning in middle childhood could be predicted from measures of emotionality and regulation taken two and four years prior indicating that temperament has an important effect on social competence. Additionally, pro-social peer nominations for both boys and girls were rated higher if the children showed strong emotional regulatory control (Eisenberg et al, 1996). Eisenberg and her colleagues (1997) postulate, that people who can successfully regulate their emotional response either in social or non-social contexts are more likely to react positively both in stressful situations and in social interaction. Denham et al. (2003) also found that 3 to 4 year olds who had mastered good emotional regulatory control and who demonstrated emotional positivism were later shown to be viewed as socially competent at kindergarten.

Conversely, children who were more prone to negative affect and less able to regulate their emotions successfully were at risk of failure in their social interaction (Denham et al, 2003). Clark Watson & Mineka (1994) suggest that dispositional negative emotionality is related to neuroticism and as such presents a risk for future development of internalising behavioural problems. This proposition is provided further support from research by Eisenberg et al. (1997) who report a negative association between the degree of negative emotionality and levels of perceived social competence. In addition, Fabes et al. (2002) found that teacher-rated measures of dispositional negative emotional intensity (DNEI) revealed that over time children whose DNEI ratings were high were increasingly observed engaged in solitary play (Fabes, Hanish, Martin & Eisenberg, 2002). In summary, these studies indicate that children whose dispositional tendency is toward negative emotionality are more likely to struggle socially, be less able to engage with their peers and possibly face peer rejection and social isolation (Eisenberg et al 1996, 1997; Fabes et al, 2002; Rothbart et al, 1994).

1.6.2 Importance of peer reputation and acceptance during middle childhood:

Around the age of 8 years it has been suggested that children acquire the cognitive abilities required to be able to evaluate their own behaviour contextually (Harter, 1999). It is also around this time that the peer group begins to become increasingly important to a child's self-evaluation and the ability to sustain relationships with peers and cope with the academic challenges of school becomes the two main focuses during middle childhood (Masten & Curtis, 2000; Schwartz, Gorman, Duong & Nakamoto, 2008). Harris (1995) suggests that once children are spending most of their day with their classmates in school then the main focus of their socialisation switches from home and family (parents and siblings) to peer group (Harris, 1995). Furthermore, by middle childhood it has been recognised that children start to depend upon the social support provided by their peer group and high levels of support and friendship have been shown to moderate other life stressors such as peer victimisation (Hodges, Boivin, Vitaro & Bukowski, 1999) or a harsh home environment (Schwartz, Dodge, Pettit & Bates, 2000). Therefore the status of a child's peer relations and how they are perceived by their peers has long been viewed as an important factor in how children will adjust and perform

within the school environment (Ladd, Herald-Brown & Reiser, 2008; Parker & Asher, 1993). Children who are rejected by their peers are more likely to be treated more negatively than accepted children, and peer acceptance has been shown to reliably predict levels of academic readiness and classroom participation (Coie, 1990; Ladd, Kochenderfer & Coleman, 1997). Furthermore, low levels of peer acceptance have been linked to development of depressive symptomology (Schwartz, Gorman, Duong & Nakamoto, 2008) which in turn is associated with poor academic achievement and a tendency toward internalised emotional disorders (Schwartz, Gorman, Nakamoto & Toblin, 2005).

1.6.3. Children who are more at risk of social isolation:

Children that are quiet and withdrawn are particularly at risk of becoming socially isolated and developing internalised distress (Caspi, Elder & Bem, 1988) such as loneliness (Parker & Asher, 1993), and self-consciousness (Bowker & Rubin, 2009), whether their social withdrawal is due to behavioural inhibition (introversion) (see Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde & McCall, 1987) or the result of unpopularity or depression (Fordham & Stevenson-Hinde, 1999). Research has shown that this type of child often has poor communication skills and is viewed as less approachable, less socially competent and is more likely to receive negative peer and teacher ratings (Collins, 1996; Hymel, Rubin, Rowden & LeMare, 1990). Fordham & Stevenson-Hinde (1999) reported a negative relationship between perceptions of social acceptance and levels of loneliness and social dissatisfaction in 9 year old children who had been rated as shy using a measure of behavioural inhibition (Marshall & Stevenson-Hinde, 1998). Furthermore they found that in shy, withdrawn children, level of shyness was negatively related to self-esteem and positively related to trait anxiety, indicating that these children were more at risk of developing low self-esteem and internalised anxiety disorders (Fordham & Stevenson-Hinde, 1999).

1.6.4. The need for socio-emotional interventions:

In summary, it can be construed from the research previously discussed, that for some children the acquisition of robust socio-emotional competency skills is more difficult than for others. Typically, the majority of children in middle childhood will make a smooth transition between the socialising influences of their parents and siblings (Harris, 1995) to those of an accepting peer and friendship group and will adapt with relative ease to the academic and social challenges of the school environment (Ladd et al, 2008, Parker & Asher, 1993). However, those who have poor emotional regulatory control (Eisenberg et al, 1997) higher levels of emotional negativity (Fabes et al, 2002) and low peer status (Hymel et al, 1990) are at risk of failing to develop the necessary levels of socio-emotional competency to similarly thrive in school life. Particularly vulnerable are those children perceived by others to exhibit signs of social withdrawal and who find it hard to participate either because they are behaviourally inhibited or excluded by their peers. Such children are also at risk of future development of depression and other internalised disorder (Caspi, Elder & Bem, 1988) that may well persist into early adulthood and beyond (Buchanan, 2000). The early onset of mental health difficulties does not bode well in respect of children being able to achieve their educational and social potential. Therefore there is a clear necessity for society to provide intervention as early as possible in order to curtail the chances of persistent disorder (Buchanan, 2000). Consideration of the type of factors that might put certain children 'at risk' of a failure to thrive in terms of their socio-emotional well-being has led to an adoption of preventative practice whereby interventions are aimed at the prevention of disorder through the enhancement of wellness and the development of life skills and competencies that will enable vulnerable children to successfully navigate their way to adulthood (Coie, Watt, West, Hawkins, Asarnow, Markman, Ramey, Shure & Long, 1993; Cowen, 1994; Durlak & Wells 1997; Sutton, Utting & Farrington, 2004).

1.7. The current national agenda:

The research literature indicates that child mental health problems are increasing, with a recent national survey revealing that at least 10% of school age children and adolescents

are experiencing psychiatric disorder (Meltzer, Gatward, Goodman & Ford, 2000; Goodman, Ford, Meltzer 2002). In response the current government has turned the focus of its efforts onto the reduction of social exclusion and increase of child social mobility particularly through education (Bailie, Sylva & Evans, 2000).

The 'Every Child Matters' (Treasury Department, 2003) agenda has brought evidence-based practice and preventative measures firmly to the fore of educational policy-making at local authority and national level (Treasury Department, 2003). The green paper 'Every Child Matters' (Treasury Department, 2003) was issued by the government in response to the Laming inquiry into the death of Victoria Climbié. The paper was commissioned to address the failings and limitations in the existing social service and educational systems and to put forward recommendations to establish a fluent, integrated framework thus supporting families, providing early intervention and maintaining regional and national accountability (Treasury Department, 2003).

'Every Child Matters' focuses on five main criteria that it maintains are every child's right: being healthy, staying safe, enjoying and achieving, making a positive contribution and eventual economic well-being (Treasury Department, 2003). In order to achieve these criteria a new service framework integrating education, health and social services for children has been established to create local 'Children's Trusts' from which all the aforementioned services operate. The government charged local authorities to create networks/clusters of extended schools offering a core programme of childcare, social and family learning support, parenting programmes and wider access to arts and sports facilities. Not all schools will become extended schools but will be placed within a local cluster, with one or two schools providing the extended service core offer to the remaining schools within that cluster. Recent evaluation reports that over 5,000 schools offer the full range of extended services and fifty percent of schools are in the process of setting up provision (DCSF, 2007). Furthermore, it is envisaged that the changes made to the national framework of children's services will encourage a fluency in provision and a swift and easy access route to referral when extra help is needed to the appropriate

targeted or specialist service via local panels of multi-agency professionals (DCSF, 2007). The implications of this will be discussed further in Chapter Two.

1.7.1. Promotion of social and emotional well-being in primary schools:

A report from the Office for Standards in Education (Ofsted, 2005) on behalf of the Department for Education and Skills found that less than fifty percent of schools visited were aware that national standards existed in respect of the provision for the promotion of social and emotional well-being in schools (Ofsted, 2005). Where provision existed, it tended to focus upon strategies for managing student behaviour rather than the importance of encouraging positive self-concept, successful conflict resolution or engendering an ethos of mutual respect between pupils and staff (Ofsted, 2005). Barriers to the successful implementation of clear policies on the promotion of child socio-emotional health included lack of staff awareness of its importance in school and lack of suitable training provision. The report recommended that all school staff should be made aware of the guidance in order to ensure that the promotion of good emotional health and well-being for pupils became a priority (Ofsted, 2005). Subsequent to these findings, improvements to provision for the promotion of good emotional health and well-being in schools have been pushed to the forefront of the educational agenda (Ofsted, 2008; NICE, 2008). New initiatives such as the Targeting Mental Health in Schools Pathfinders (TaMHS) scheme have been introduced whereby local authorities are funded by the DCSF to trial and evaluate school-based interventions with the aim of ensuring that the opportunity for good practice in school provision is implemented on both a local and a national level (DCSF 2008).

Additionally, Ofsted has been commissioned by the DCSF to consult with schools, local authorities and other stakeholders in identifying effective school-based indicators of a school's contribution to the well-being of its pupils (Ofsted, 2008). These indicators would contribute to the establishment of a 'Well-being Profile' both locally and nationally thus supplementing and standardising the statistical base currently collated in schools so that figures can be extrapolated at a local authority and/or national level. Many of these initiatives have arisen as a result of the guidance published by the National

Institute for Health and Clinical Excellence (NICE) concerning the promotion of children's social and emotional well-being (NICE, 2008).

1.7.2. National Institute for Health and Clinical Excellence guidance concerning the emotional health and well-being of children in primary schools:

Three external reviews of evidence were commissioned by NICE in order to identify the target population and the current state of the field in terms of universal and targeted approaches to school-based intervention and promotion of emotional health and well-being in children of primary school age. These reviews revealed gaps in the evidence for both types of approach in terms of the availability of valid measures of emotional health and well-being over time and a lack of studies that evaluated the cost effectiveness of interventions (NICE, 2008). Furthermore, many of the intervention programmes and evidence base available originated in the United States and NICE recommended that more British based evaluative studies are needed of both the American programmes (in order to demonstrate their generalisability) and of programmes originating in the United Kingdom (Shucksmith, Summerbell, Jones & Whittaker, 2007). The NICE guidance recommended that all professionals working within primary education should adopt a 'whole school approach' to the promotion of social and emotional well-being. Furthermore, that schools and local authorities should engage with Child and Adolescent Mental Health services in order to ensure early recognition of difficulty and swift onward referral to the appropriate intervention (NICE, 2008). This would be delivered through the provision of training to both school staff and health practitioners in order to identify the early indicators of emotional distress.

The Pyramid Year 3 intervention model evaluated in the present research is aimed at supporting the socio-emotional competency of children who may display a tendency towards social withdrawal, internalised emotional difficulties and who struggle in their relationships with peers and adults. Therefore this chapter will concentrate upon the second of the two NICE reviews which considers the current evidence base for targeted and indicated interventions (NICE, 2008) with particular reference to those research studies that addressed the needs of children with internalising (emotional) disorders.

1.7.2.1. Overview of the NICE guidance concerning targeted and indicated school-based approaches to emotional health and well-being:

Thirty-two primary research studies were reviewed by researchers from the University of Teesside. The studies were categorised by type of behaviour with separate categories for internalising (emotional disorders) and externalising behaviours (conduct and behavioural disorders) (Shucksmith, Summerbell, Jones & Whittaker, 2007). Inclusion criteria were set to delineate eligibility of interventions for the review. These included timing and location of delivery of the programme e.g. on school premises, whether within or outside normal school hours and whether in a classroom or other room on school premises. Further criteria were outlined concerning who the programmes were delivered by. These included the training of school personnel and/or the import of trained professionals from outside agencies to deliver programmes. All studies were required to be primary research using a randomised controlled design. Comparator groups were required to be of 'no intervention received' or 'waiting list control' or 'matched groups' receiving another intervention. All participants were required to be children of primary school age (4-11yrs old). The generalisability of the studies was also gauged on an individual study basis by examining the intervention, sample population involved and how well these and the structure of the intervention translated to UK policy and practice (Schucksmith et al, 2007).

The review identified ten studies focussed upon internalising behaviours and emotional disorders, five of which provided early intervention for anxiety disorders and five of which were concerned with the prevention of depressive symptoms. None of the identified studies originated in the United Kingdom (n=8 from the United States and n=2 from Australia). Some of the interventions that these studies evaluated (Promoting Alternative Thinking Strategies, Kusche & Greenberg, 1994; Queensland Early Intervention and Prevention of Anxiety project, Dadds, Spence, Holland, Barrett & Laurens 1997, 1999; Wisconsin Early Intervention programme, King & Kirschenbaum, 1990) are described and discussed in section 1.9.

1.8. School-based preventative interventions that support socio-emotional development:

In response to the recognition of the importance of early intervention to the successful development of socio-emotional health and well-being (Durlak, & Wells 1997) an abundance of school-based interventions aimed to support children's emotional health and well-being has arisen. Many of these interventions adopt a behaviourist approach some using cognitive skill-building strategies (e.g. Friends for Life, Barratt & Turner, 2001), others use modelling of appropriate behaviour and role play (e.g. Incredible Years, Webster-Stratton et al., 2001; Pyramid Year 3 intervention, Pyramid, 2007). The following section describes those school-based interventions that have been shown to provide support to primary school aged children in their socio-emotional development and school adjustment with particular reference to those that are focussed on the prevention of the development of internalising emotional disorders. However, it should be noted that many interventions, particularly those delivered universally, have been shown to have a positive impact upon both children who externalise and internalise (e.g. PATHS, Greenberg & Kusche, 1997, 1998). This is important and necessary as it is recognised that there exists a high incidence of co-morbidity within the domain of externalising and internalising dimensions of emotional disorder (Greenberg, Domitrovich & Bumbarger, 2001).

1.8.1. Suitability of basing preventative interventions within schools:

Given the significant part of their day that children spend at school it is a reasonable expectation that schools should be involved in the assessment and support of the socio-emotional development and well-being of their pupils (Salmon & Kirby, 2007). As previously discussed, both the National Institute for Health and Clinical Excellence (NICE, 2008) and Ofsted (DCSF, 2008) have made the recommendation that teachers and other school staff should be trained to identify the onset of emotional health difficulties (NICE, 2008) and school-based indicators of socio-emotional wellbeing should be developed to monitor progress (DCSF, 2008). This development is a progression of the

concept of extended schools proposed as part of the Every Child Matters (DCFS, 2007) agenda discussed earlier in this chapter *(section 1.8)*.

1.8.2. Circle of Friends:

Frederickson, Warren and Turner (2005) described a selective school-based intervention that aims to promote the inclusion of children who might be experiencing emotional, social and/or behavioural difficulties within school with the aim of preventing future peer rejection or risk of exclusion. A focus child is selected by class teachers or educational psychologists to be the subject of the 'Circle of Friends'. Whole class discussion groups are set up to discuss the focus child's strengths and also to identify their difficulties in their absence and subsequently eight children volunteer to be the direct support group for the focus child. The focus child rejoins the group and targets are set and strategies outlined to ease the focus child's path to inclusion by their peers. Review meetings are held weekly over a period of 6-10 weeks during which time strategies such as role play scenarios are used to facilitate the rehearsal of desired behaviours.

Twenty primary aged pupils were selected by their school's educational psychologist to participate in the study with ten randomly allocated to be the focus of a 'Circle of Friends' (CoF) and ten assigned to a waiting-list control group. Socio-metric rating scales (Asher & Dodge, 1986) were used pre- and post-intervention to determine peer ratings of the focus children by their class mates. Global self-worth and self perception profiles were also completed by all the children along with a teacher-rated scale of actual child behaviour (Harter, 1985). Frederickson and her colleagues found that the largest improvement in social acceptance and reduction of peer rejection of the focus children occurred as a result of the whole class meeting. However, no improvement was found in social inclusion from the support group children. No significant changes either positive or negative were reported in peer-ratings of the focus child's behaviour subsequent to the CoF, leading to the conclusion that CoF is more likely to impact on levels of tolerance within the peer group rather than changes in the behaviour of the focus child (Frederickson et al, 2005). Overall, peer acceptance and rejection scores were measured over four time periods and in the case of each child levels of peer-rejection dropped at the

first two time periods but then rose at both time periods 3 and 4 with the reverse happening for peer-acceptance scores thus indicating that, whilst the CoF appeared to have the desired effect at the time of the intervention, these improvements did not appear to be enduring.

1.8.3. The Webster-Stratton Incredible Years Classroom Dinosaur School programme:

The Webster-Stratton Classroom Dinosaur school programme was designed to teach social and problem-solving skills with the intention of reducing early onset conduct problems (Webster-Stratton, Reid & Hammond, 2001). However, it has been piloted as a classroom programme by Hutchings and her colleagues in Gwynedd Education Authority in Wales (Hutchings, Lane, Owen & Gwyn, 2004). The Webster-Stratton Classroom programmes are part of a suite of multi-component preventative interventions that work with parents, children and teachers to promote children's socio-emotional competencies in both the home and school environments (Webster-Stratton et al, 2001). All the components of the programmes are manualised and ongoing support and training is given to facilitators and teachers in order to maximise implementation fidelity (Hutchings et al, 2005). The Webster-Stratton programmes are behaviourally based with children's pro-social behaviours reinforced through praise and rewards. Challenging behaviours are addressed using strategies such as proximal praise (praising the pro-social behaviour of another child in the immediate vicinity) or 'time-out' (Hutchings et al, 2004).

In the Gwynedd study (Hutchings et al, 2004), classroom teachers received a three day training programme and the programme was then implemented universally in the reception class in October and ran twice weekly through to June of the same academic year (approximately three school terms). Impact of the programme was rated through parent-ratings of the children's socio-emotional health status using the Strengths and Difficulties Questionnaire (Goodman, 1997), the Conners Rating Scales (Conners, 1985) and the Bangor Dinosaur School Questionnaire (Hutchings, 2001) pre- and post-intervention and through qualitative feedback from both teachers and parents. Statistically significant improvements were found for most of the children post-intervention in all three measures and parental and staff interviews demonstrated the programme to be well

thought of with the majority of feedback positive in content. However, the sample size for this particular study was very small (n=11) and there was no comparison group. Therefore, it would be hard to generalise the success of the programme based on these results. Nonetheless, the Webster-Stratton suite of Incredible Years programmes has a large well-established evidence-base in the United States where it is recognised as a leading programme for emotional and behavioural support for use with both clinical and community populations (Sutton et al, 2004).

1.8.4. 'Friends for life'

'Friends for life' (Barrett & Turner, 2001; Stallard, Simpson, Anderson, Hibbert & Osborn, 2007) is a manualised, cognitive behavioural intervention that can be delivered either universally or as a targeted programme within schools. It aims to reduce the incidence of anxiety in children by teaching them practical skills to identify anxious feelings and then learn to relax and to replace their anxious thoughts with more helpful ones. Stallard et al. (2007) ran the programme for four Year 5 primary school classes (n= 107 children) universally, using trained school nurses to deliver it in partnership with class teachers and other school staff during the school day. Children were assessed on three separate occasions to assess pre-intervention, post-intervention and short-term follow-up levels of anxiety using the Spence Children's Anxiety Scale (Spence, 1997) and the Culture-free Self-esteem Questionnaire Form B (Battle, 1992). Anxiety was shown to be stable at both pre- and post-intervention but statistically significant improvements were shown at short-term follow-up (three months post-intervention) indicating an enhancement effect whereby children continued to improve after the intervention had ended. Furthermore, children whose pre-intervention anxiety and self-esteem scores put them in the highest risk group also showed significant improvement indicating that children already showing signs of disorder can be helped through universal classroom-based intervention (Stallard et al, 2007). This UK study adds to the large, international evidence base for this intervention including three studies (Dadds, Spence, Holland, Barrett & Laurens, 1997; Dadds, Holland, Barrett, Laurens & Spence, 1999; Bernstein, Layne, Egan & Tennison, 2005) that were highly rated in the recent review carried out on behalf of NICE (Shucksmith et al, 2007).

1.8.5. Primary Mental Health Project (Cowen, Hightower, Pedro-Carroll, Work, Wyman & Haffey, 1996)

The Primary Mental Health Project (PHMP) was designed as an early detection and prevention programme that aims to identify and address emotional and behavioural problems either internalised (withdrawal) or externalised (aggression). Elementary school pupils between kindergarten and 4th grade are screened and referred to an individualised programme incorporating either one-to-one or group sessions with the school counsellor and/or trained volunteer para-professionals (undergraduate students or school teaching support assistants). These para-professionals are trained and closely supervised. They meet with the referred children for weekly 45 minute play therapy sessions during the course of an entire school year. PHMP has been extensively evaluated over a period of twenty years but few evaluations had a comparator group although many of the schools involved report consistent programme effects over the course of several cohorts particularly with children who have more internalised symptoms (Cowen, Gesten & Wilson, 1979).

1.8.6. Promoting Alternative Thinking Strategies (PATHS):

PATHS is a universally delivered, comprehensive programme designed to promote emotional and social competencies in elementary school children as part of the school curriculum (Kusche & Greenberg, 1994). It is designed to be delivered throughout elementary school, three times per week for a minimum of 20-30 minutes per session. Teachers are provided with lesson plans and resources with which to teach their pupils social and emotional competence, positive peer relations and interpersonal problem solving strategies. PATHS has been shown to successfully reduce risk factors and enhance protective factors and children have shown significant decreases in depressive symptoms (self-report) and general internalising symptoms (teacher-report) (Greenberg, Kusche & Mihalic, 1998). Furthermore, a study of the PATHS curriculum model by

Kam, Greenberg & Kusche (2004) was rated in the second highest category of quality rating by the recent review for NICE (Shucksmith et al, 2007).

In the UK the Social Emotional Aspects of Learning (SEAL) programme is currently being introduced to the primary school curriculum to serve a similar purpose of providing a universal whole school approach to emotional health and well-being (DCSF, 2007).

1.8.7. Penn Prevention Programme (Jaycox, Reivich, Gillham & Seligman, 1994)

The Penn Prevention Programme, in common with 'Friends' (Barrett & Turner, 2001) is aimed at altering cognitive distortions and enhancing coping skills in children and youths considered at risk of developing depressive symptomology. In the initial trial of the programme based upon 73 participants, clinically significant reductions in depressive symptomology and anxiety were shown immediately post-intervention and at a six month follow-up .The greatest improvements were shown in those who were most at risk. In addition, parents of the intervention group reported significant improvements in their children's behaviour at home compared to the comparator group (Jaycox, Reivich, Gillham & Seligman, 1994). This particular study of the Penn Prevention Programme received the highest rating of quality in the recent NICE guidance concerning the promotion of emotional health and well-being in primary schools (NICE, 2008; Shucksmith et al, 2007)

1.8.8. Wisconsin Early Intervention Programme (King & Kirschenbaum, 1990):

The Wisconsin Early Intervention programme (WEI) describes a socio-emotional development intervention delivered to children in a rural elementary school. Class teachers were randomly assigned to two referral methods either using a mood rating rating scale (Cowen, Pederson, Babigian, Izzo & Trost, 1973) or face-to-face conference with the WEI Co-ordinator where children were discussed using similar ratings of social competency as the mood rating scale. Using these methods 53% of children (n= 135) were referred for treatment and these children were randomly assigned to three groups; i. 'Full Service' incorporating social skills groups and teacher consultation, ii. 'Partial Service', incorporating teacher consultation only or, iii. 'No Service'. Pre- and post-

intervention measures of social skills revealed that all the children improved their competencies whichever group they had been assigned to (including the 'No Service' group who had received no intervention). Although these results might indicate that the interventions had no effect over and above what might be expected through normal developmental maturation, they could also suggest that the positive effects of the intervention infiltrated the school culture, particularly the presence of respected local community members who had been recruited as para-professionals to assist with delivery of the programme. The results of this study highlight the fact that community-led programmes such as these, whilst sacrificing some experimental rigour, do provide an opportunity to make realistic appraisals of the types of factors that are critical to ensuring ecological validity in such projects (Cowen, 1978).

1.9. Conclusion:

It is clear from the research reviewed thus far that, to reduce levels of socio-emotional difficulty and to promote psychological wellness, interventions need to start early before onset of the development of major symptomology (Durlak & Wells, 1997). Additionally, interventions need to be based upon the reduction of identified risk factors and enhancement of identified protective factors to maximise impact (Coie et al, 1993; Rutter, 1985). Effort is also needed to ensure that access to relevant treatment is readily available to those who need it most (Greenberg, Domitrovich & Bumbarger, 2001). Ecological models of development such as that of Bronfenbrenner can be used as a framework to understand how the environment can be used to influence behaviour (Bronfenbrenner, 1979, 1995). Policies and practice that take place in the 'exo-system' and which appear to have no direct effect upon a child's circumstances can filter down as interventions that take place at micro-system level thus integrating developmental and public health models in a preventative approach (Greenberg, Domitrovich & Bumbarger, 2001). Furthermore, the number of programmes that are aimed at children who display externalised and challenging behaviours appears to outweigh those aimed at helping children who find it hard to articulate and assert their needs, either through lack of socio-emotional competencies or due to behavioural inhibition (Fordham & Stevenson-Hinde, 1999). However it should be recognised that the existence of co-morbidity between

internalising and externalising conditions can make intervention delivery more vulnerable to confounding treatment effects (Shucksmith et al, 2007). Nonetheless, it is essential that both policy and practice are integrated to ensure early, appropriate intervention is available to those in need using well-evidenced programmes (NICE, 2008)

Therefore the principal aim of the studies in this thesis is to address how a preventative school-based intervention, i.e. Pyramid, impacts upon the socio-emotional well-being of the children that are selected to attend. Additionally, it considers how preventative interventions such as Pyramid can be placed within an ecological model of service delivery to best effect. The mixed methods design used is focussed upon investigating both the proximal goal of short-term improvement measured immediately post-intervention and the more distal goal shown by preservation of any gains made at a twelve-month follow-up which might indicate the presence of intrinsic preventative qualities. This will be addressed by the use of a teacher-rated measure of socio-emotional health status (The Strengths and Difficulties Questionnaire, Goodman, 1997). Importantly the views of how the children who attended Pyramid experienced the intervention will be elicited through the thematic analysis of focus groups. Additionally, the selection component of the Pyramid intervention will be tested to discern whether any value-added is shown by greater improvement in the post-intervention socio-emotional competencies of the children selected to attend using this method. The results of these studies will culminate in the development and proposal of a conceptual, integrated model for the future promotion of socio-emotional health and well-being in primary schools.

Chapter Two

The Pyramid Year 3 intervention model

This chapter outlines the origins and theoretical bases of the Pyramid Year 3 Intervention Model and its relationship to the current national Children's Services provision.

2.1. The Pyramid Year 3 Intervention, its history and origins:

The Pyramid Year 3 intervention model originated through the work of Fitzherbert in the mid 1970s (Fitzherbert, 1985; Makin, 1996). Fitzherbert (1985) observed at first hand the frustration of primary school teachers who detected early warning signs of future academic and social failure in pupils but who had no suitable strategies with which to intervene (Fitzherbert, 1985; Makin, 1996). Pyramid was created to provide selective preventive interventions with the intention of improving levels of self-esteem and socio-emotional skills in children who presented as withdrawn, socially isolated and at risk of emotional and psychological vulnerability (Fitzherbert, 1985). The establishment of the Pyramid intervention model was greatly influenced by the research of Schiffer and Kolvin (Makin, 1996). Schiffer (1975) focused his research on the latency stage of middle childhood (Freud, 1938, Erikson, 1968) wherein from observing therapeutic play and activity groups he identified that children start to develop an instinctive social hunger for acceptance by their own age group (Schiffer, 1975). Schiffer found that once this need is satisfied children quickly integrated within their new social milieu and as a result became more receptive to learning (Schiffer, 1975). Schiffer also observed that adults who facilitated this process would be able to influence changes in the social behaviour of the children during the period of the intervention by creating an atmosphere of acceptance and helpfulness that gave children the freedom to explore their emotionality both as individuals and with the other members of their group (Schiffer, 1975). In this way, he hypothesised that the group and act of belonging to the group became the main therapeutic agent and, furthermore, the dynamics of the group then facilitated any change

in its members (Schiffer, 1975). Fitzherbert considered Schiffer's theory to be highly relevant to the type of primary school-based intervention that she sought to make available to support the emotional health and psychological well-being of children whose needs were often overlooked because they were unable to assert their needs effectively (Makin, 1996).

A great influence in the conceptual process of designing the Pyramid model (Makin, 1996) were the results of the 'Newcastle 1000' studies (Kolvin, 1981). These studies, *(previously discussed in Chapter One, section 1.5.1)* originally set out to investigate the long-term effects of deprivation. To do this they studied a population originally identified by Spence and his colleagues immediately after the second-world war (Spence, Walton, Miller & Court 1954). A significant component of the Newcastle research programme was the comparative effects of three school-based interventions that were notably diverse in their approach and delivery (Kolvin, 1981). The three interventions varied in intensity, adult to child ratio and duration. One intervention provided participants with five terms in a nurture group setting, the second intervention provided three terms of both parent and teacher counselling and the third intervention required group attendance at a weekly therapeutic playgroup for just ten weeks (Kolvin 1981). Kolvin found that all three forms of intervention elicited better outcomes than those seen in the no intervention control groups but, more importantly, the intervention shown to provide the most long-term improvements was also the shortest and most economical to deliver i.e. the ten-week therapeutic playgroup sessions (Kolvin, 1981).

The results of Kolvin's research (Kolvin, 1981) were of significant influence in the creation of the three-part preventative intervention that would become the basis of the Pyramid model (Makin, 1996). Initially, Clubs were established in three primary schools in the London Borough of Hounslow as action research. In a long-term follow-up evaluation of the children who took part in this preliminary project (1978-1982), Fitzherbert (1985) reported that at secondary school, 80% of the children who had received the intervention were thriving in mainstream education. In contrast, 75% of the matched control group were in pupil support units or no longer attended school on a

regular basis (Fitzherbert, 1985). Currently, the Pyramid intervention model is disseminated through 44 projects nationally in partnership with local authorities and other voluntary agencies providing short-term school-based interventions for Year 3 and Year 6 primary school children. In some projects a parental support intervention 'Pyramid for Parents' has also been introduced which can be used separately or as a multi-component programme with the Pyramid school-based interventions (Pyramid, 2007).

2.2. The Pyramid Year 3 Intervention:

The Year 3 intervention that is the focus of this research is a therapeutic after-school Club that runs for a set period of ten weeks in selected primary schools. These Clubs are established and staffed by Club Leaders recruited on a voluntary basis from the local community. All Leaders are required to attend a training programme accredited by Pyramid in order to learn the principles of the Pyramid ethos and undergo enhanced Criminal Records Bureau checks to ensure their suitability to work with children. The establishment of the Clubs as a three-stage process is illustrated in Figure 2.1:

Figure 2.1: Three-stage Pyramid intervention model

SDQ: Strengths and Difficulties Questionnaire (Goodman, 1997)

2.2.1. Club Leader training programme:

Volunteer Leaders are recruited from the local community; an increasing number of these are second and third year undergraduate (psychology and education) students. The Pyramid model Year 3 intervention Club Leader training programme is manualised (Pyramid, 2007) and is delivered over a minimum of twenty hours. It has been accredited by the Council for Awards in Children's Care and Education (CACHE) and is updated

regularly to ensure it encompasses current changes in policy and best practice (Pyramid, 2007). The Year 3 programme consists of five modules; these are outlined in Figure 2.2 below and described in further detail in Appendix One.

Figure 2.2: Five Modules of the Year 3 Pyramid Training Manual

Section One	Introduction to Pyramid and other agencies
Section Two	Children who may need support in their social and emotional development
Section Three	Strategies for supporting children and managing behaviour
Section Four	Health, safety and child protection
Section Five	Working in groups and the role of experiential learning

2.2.2. The Intervention:

2.2.2.1 Stage One: Whole class screening to identify need
Class teachers screen the whole year group to assess need using a checklist specified by Pyramid nationally. Currently the recommended instrument is the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997) (*See Chapter Three, section 3.4 for more detailed description of the SDQ).* Any child whose SDQ scores suggest there is a cause for concern in areas such as peer-related problems, emotional issues or who is deemed by school staff and/or any other involved agency to suffer high levels of stress or low levels of self-esteem is put forward for further discussion at Stage Two.

2.2.2.2. Stage Two: Multi-agency meeting

Together with Stage One (screening process), this component of the Pyramid Model could be defined as a universal intervention (Munoz, Mrazek & Heggarty, 1996) as it addresses the emotional health and well-being of the entire year 3 cohort. The children identified through the level of their SDQ scores as being at higher risk of socio-emotional

difficulties and requiring further support at Stage One are then discussed at a meeting attended by the class teachers, head teacher or assigned link teacher, local Pyramid Co-ordinator and any other professionals or agencies involved with the children concerned. For each child discussed, an appropriate further course of action is planned. Ten to a maximum of twelve children who are deemed to best fit the Pyramid remit are then offered a place to attend ten weekly after-school Pyramid Clubs. The remaining children are referred to alternative agencies as and if appropriate.

2.2.2.3. Stage Three: The Pyramid Clubs

A course of ten weekly sessions comprising principally therapeutic activities then takes place. Pyramid Clubs are run by trained volunteer Leaders who plan each session incorporating circle time, team building activities and opportunities for the children to rehearse their social skills in a safe, relaxed and supportive atmosphere.

Figure 2.3 describes the main elements of a Year 3 Pyramid after-school Club. The first of the ten-week sessions incorporates the naming of the Club and the setting of four or five simple rules by the children, guided by the Club Leaders with the aim of encouraging the children's ownership of the Club. Throughout the course of the Clubs the Leaders endeavour to ensure an established routine of activities to create a secure environment for the attendees. At the end of the ten-week period SDQ questionnaires are completed again and a follow-up meeting is held. This meeting enables teachers, Pyramid Club Leaders and any other agency professionals involved to discuss the progress of both the attendees and their classmates and make onward referrals for further intervention if necessary. Reports are prepared by the local Pyramid Co-ordinator and disseminated to the school and any other agencies involved (Pyramid, 2007).

Figure 2.3: Main elements of the Pyramid intervention for Year 3 primary school pupils

Naming and ownership of Club:	In the first week the children name their Club and create a set of rules under the guidance of the Club Leaders to encourage a sense of belonging to an accepting peer group.
After the first week each Club follows a similar format and lasts 90 minutes after school on one day a week:	
Circle time:	Optional at first but hopefully leading to participation of all the children as they learn to respond to their group.
Therapeutic art activity:	A twenty minute activity designed to encourage creativity and expression of feelings. Sometimes this will include preparation and cooking of the shared snack.
Physical activity:	Non-competitive team building games and role–play.
Shared snack:	An opportunity for the children and Leaders to share food and drink - sometimes that they have made. Many children do not sit and share a meal around a table with others and it is an important opportunity to learn about sharing and other social skills and values.
Closing circle time	An opportunity to discuss the week's session and talk about plans for the following one. Children are gently reminded at each session how many sessions are left so they are always aware that the Club will have a limited time span.

2.3. Theoretical bases of the Pyramid intervention model:

2.3.1. Relevance of prevention and preventative intervention to emotional health and well-being in primary schools:

Early preventative intervention is important in order to establish an evidence base of interventions that are shown to be effective so that this evidence base can then be used to inform future policy (Arnold & Doctoroff, 2003). Durlak & Wells (1997) describe a two-dimensional model in order to categorise primary preventative interventions for children and adolescents. Firstly, they define the level of intervention as being either person-centred or environment-centred; that is programmes either offered to identify individuals within a population directly or indirectly through changes made to the identified population's environment (Durlak & Wells, 1997). Secondly they define the selection methods used to identify the target population; universal (treatment for all concerned population), high risk/selective (those deemed at risk but not yet displaying symptoms or tendencies) and finally transition/indicated (those facing a major transition or stressful event such as changing school or parental divorce) who may be displaying early symptoms or tendencies (Durlak & Wells, 1997).

The benefits of using all three selective approaches in school-based programmes have been highlighted in the literature e.g. (King & Kirschenbaum 1990; Stolberg & Mahler 1994; Dadds, Spence, Holland, Barrett & Laurens, 1997; Barrett & Turner, 2001,). However, Prilleltensky & Nelson (2000) report that in evaluations for universal and selective programmes effect sizes are larger at follow-up than post-intervention but that the reverse has been found to be true for indicated programmes. This suggests that, the earlier preventatively oriented interventions take place, the more enduring the effect (Prilleltensky & Nelson, 2000).

2.3.2. Relevance of Pyramid intervention to the support of emotional health and well-being of the children selected to take part:

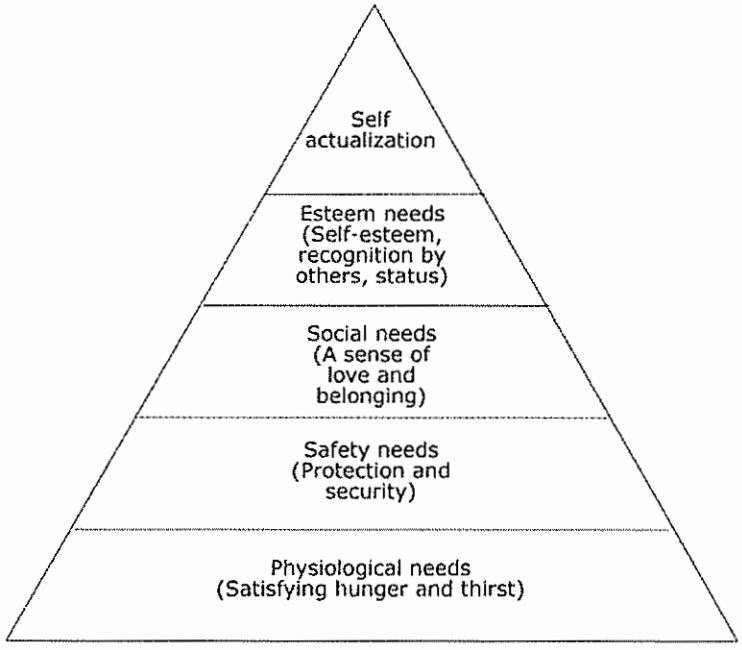
The interventions currently offered by the 'original' Pyramid model can be described as selective primary interventions (Munoz et al, 1996), and the selection process can also be viewed as offering a universal component as the emotional health and well-being status of the entire Year 3 cohort is considered. The Pyramid Year 3 intervention investigated in the current research targets children who are quiet, more likely to internalise and withdraw, and who find it difficult to interact with peers and adults (Pyramid, 2007). In both the literature and in national provision and policy, externalising behaviour disorders appear to receive more attention (Arnold & Doctoroff, 2003; Sutton et al, 2004). This may be because they are more visible and have been shown to have higher incidence in the United Kingdom; 6 % with Conduct disorder, 1.5% with Attention Deficit Hyperactivity Disorder (ADHD) compared to 4 percent with emotional disorders including anxiety and depression (Green, McGinnity, Meltzer, Ford & Goodman, 2005). However, there is an increasing body of research addressing the implications of the incidence of internalising disorders in early childhood upon later academic outcomes (Cole, 1990; Kovacs & Devlin, 1998; Rapport, Denney, Chung & Hustace, 2001; Steele, Armistead & Forehand, 2000). Ialongo and colleagues (2001) showed that self-reported levels of depression in children at the start of their elementary school career predicted their level of academic achievement at age 14 and the prognosis for children who demonstrate social withdrawal has been shown to be particularly poor (Ialongo, Edelsohn & Kellam, 2001; Ollendick, Weist, Borden & Greene, 1992). Additional support is provided for the lack of evidence-based interventions in the United Kingdom for internalising behavioural disorder in recent guidance from the National Institute of Health and clinical Evidence (NICE, 2008) which identified gaps in both the current provision and research base for this type of intervention (NICE, 2008).

2.3.3. Maslow's hierarchy of basic needs:

Fitzherbert (1985) based the ethos of the Pyramid intervention model (Pyramid, 2007) upon four key principles namely; 'Love and Security', 'New Experiences', 'Praise and Recognition and responsibility' and these were influenced primarily by the work of Maslow (1970) and Pringle (1986).

Maslow (1970) described a holistic-dynamic theory, a hierarchy of basic needs, as a basis on which to establish a theory of human motivation. The hierarchy is traditionally arranged as a pyramid and is shown in Figure 2.4

Figure 2.4: Maslow's hierarchy of needs (Maslow, 1970)



The lower three levels of need are 'deficiency needs' i.e. the most basic and are fundamentally what the body needs to achieve homeostasis successfully (food, water and the means to sustain a regular body temperature), also safety from harm, (a basic

requirement of survival) and fulfillment of social needs to foster a sense of belonging (Maslow, 1970). Once these fundamental needs are satisfied, Maslow asserted that humans become further motivated to fulfill esteem needs, aspiring toward recognition and status by their peers. Only once all the deficiency needs have been met, are people then able to aspire towards the highest level, that of the state of self-actualisation (Maslow, 1970).

The Pyramid intervention draws parallels between the hierarchy of needs identified by Maslow (Maslow, 1970) and the type of basic requirements that children who may be selected to attend Pyramid Clubs might be lacking in their daily lives (Pyramid, 2007). Within the intervention training programme it is emphasised that Clubs should be run with the intention of satisfying the most basic of needs, i.e. physiological and security needs (food, safety and warmth) with the aim that the children taking part will then be able to move onto fulfilling the social needs of feeling loved, a sense of belonging (to the Club and to each other) and these in turn will lead to improvements in levels of self-image and self-efficacy (that, if they try, they are able to achieve) and peer status (how they are viewed by and are able to interact with others) (Pyramid, 2007). These improvements are measured by and map on to the relevant sub-scales of the Strengths and Difficulties Questionnaire (Goodman, 1997). Although this may seem a rather simplistic approach, it has been shown in the literature (Sutton, Utting & Farrington, 2004, Webster-Stratton and Herbert, 1994) that programmes run with 'hard to engage' disadvantaged families that include a nurturing element such as the provision of meals, day care and transport to and from venues report higher attendance and lower attrition rates (Sutton, Utting & Farrington, 2004, Webster-Stratton and Herbert, 1994).

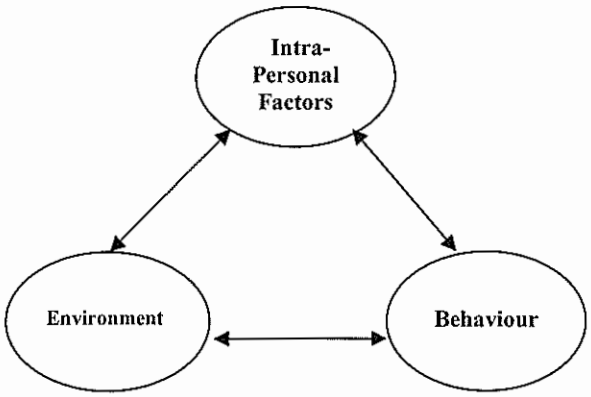
Maslow (1970) suggests that, whilst we are preoccupied with the need to fulfill our most basic requirements, we will be unable to focus upon anything other than survival. However, he emphasizes that it is no longer enough for humanity to merely achieve a 'Darwinian survival value' (Maslow, 1970 p61) but also to grow toward the achievement of our full potential.

Erikson (1968) describes children in middle childhood (age 6-11 years) as facing an inner conflict between industry and inferiority. At this stage of their development their ability to work and co-operate with others outside of their home surroundings is emergent and the ascendancy in importance of the peer group begins (Erikson, 1968). Furthermore, Erikson (1968) suggests that the child is faced with the dilemma of mastering the ability to integrate and achieve or face feelings of inferiority if unable to progress through this stage successfully (Erikson, 1968) In a typically developing child with strong family support this may be easily achievable, however, for those children whose family circumstances or personal disposition make it difficult to assert their needs external support might be necessary. Pyramid (2007) proposes that this type of support can be provided in the form of a secure and accepting group (the Club) where attendees can feel at ease to rehearse their social and friendship skills and learn abilities to help them cope with any socio-emotional difficulties that they have (Pyramid 2007).

2.3.4. Social Learning Theory:

The theoretical construct that can be shown to be the most relevant to the third stage of the Pyramid intervention model (the Clubs) is Social Learning Theory (Bandura, 1977). In his theory of Social Learning, Bandura (1977) posits that the majority of human behaviour is learned observationally and through this observation of others we learn how one is expected to perform in given situations using the 'coded information' gleaned from our observations to use as a guide for later action (Bandura, 1977 p22). Bandura (1986) describes a triadic model of reciprocal causation and this is shown in Fig 2.5:

Figure 2.5: Bandura's model of Triadic Reciprocal Causation, (Bandura, 1986)



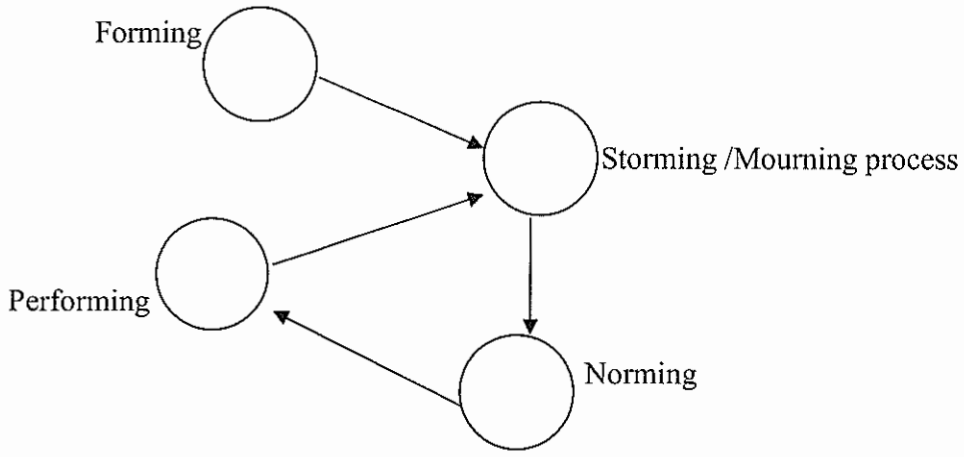
This model suggests that the interaction of three factors namely, intrapersonal characteristics, behaviour and the environmental context can either stimulate or discourage certain behavioural outcomes (Bandura, 1986). Over time the relationship between these factors shifts. For example, if there is a change in a child's self-efficacy beliefs then it can be assumed that changes are likely to follow in the child's behaviour within the given environmental context (Bandura, 1986). Furthermore, if reinforcement is to be used it should be seen as an antecedent rather than as a desired outcome, Bandura (1977) proposed that observational learning is better facilitated if the learners know in advance that replication of a certain behaviour will lead to reinforcement rather than waiting for them to imitate the behaviour and then offering reinforcement (Bandura, 1977). Social Learning Theory also suggests that individuals are more likely to adopt a modelled behaviour if the model is either similar to and/or admired by the observer (Bandura, 1977). In the case of the Pyramid Year 3 intervention, this suggestion emphasises the value of trusted adults such as Club Leaders actively modelling the type of behaviour desired in their own interactions both with each other and the Club attendees themselves (Pyramid, 2007) and using strategies such as proximate praise wherein praise is given to a child who is modelling the desired behaviour with the aim of encouraging similar behaviour in children who are not, rather than remonstrations, to deal with inappropriate or disruptive behaviour. Therefore, through the use of role-play with adults and other children modelling appropriate behaviour within the weekly Pyramid Club

sessions, an environmental context can be provided wherein the Pyramid attendees can begin to regulate their own behaviour in situations which they might have previously dealt with unsuccessfully, e.g. managing inter-peer conflict, coping with disappointment and being able to assert their needs in a way which is both effective and socially acceptable to their peers and adults. This demonstrates how the environment of the Pyramid Club utilises the Triadic Reciprocal Model (Bandura, 1986) to facilitate positive changes in the attendee's behaviour and in their responses to situations to which they may formerly have failed to cope.

2.3.5. The life cycle of groups:

Tuckman & Jensen (1977) proposed that newly formed groups might pass through several 'stages' during their development and these stages are shown in Figure 2.6:

Figure. 2.6. Stages of a group's development:



(Based on Tuckman & Jensen, 1977)

The order of the stages shown in Figure 2.6 may differ slightly and could be repeated but the basic stages are defined thus;

i. Forming: The group forms, there may be some anxiety and inhibition amongst its members. Different behaviours may be tested whilst members find out what is appropriate. Some rules may be generated.

ii. Storming: Relationships develop, sub-groups may form and competition may surface between them. There may be resistance to rules that have been set.

iii. Norming: The group becomes more cohesive and the rules set become norms.

iv. Performing: The group performs co-operatively working on tasks together and providing members with mutual support.

v. Mourning: Possible fifth stage where a return to 'Storming' behaviour may be found as members pass through a 'grieving process' as they are aware the group will soon come to an end (Tuckman & Jensen, 1977).

In terms of the life cycle of a Pyramid Club, Fitzherbert adapted Tuckman and Jensen's model (1977) to explain and interpret various changes in the behaviour to be expected from Pyramid attendees as the Club progresses through the ten weekly sessions. To facilitate this process a supplementary resource (Pyramid, 2008) is provided which outlines suitable activities, circle time topics and games that correspond to each stage of the model proposed by Tuckman & Jensen (1977). For example, during the 'storming stage' (identified as potentially weeks 2-4 of the Pyramid Club run) the focus is upon team-building games that encourage feelings of group cohesiveness with circle time focussing on the formation and keeping of Club rules and Club Leaders modelling positive behaviour and language. Similarly, Club Leaders are advised how to deal with monopolising behaviour and the formation of sub-groups amongst the children that might threaten to become exclusive of other Club members. It is also emphasised within the Club leader training programme, how important and influential the group dynamics of the Club leader group is and how this can have both positive and negative effects on the cohesiveness and functioning of the Pyramid attendees as a group (Pyramid, 2007). Club Leaders are encouraged not only to actively seek supervision from the local Pyramid Co-ordinator after each Club has taken place if necessary but also to take part in collaborative supervision (Silva & Dana, 2001) within their Club group. In this way problems can be addressed openly in front of other Club Leaders and this will enable the group to deal

with inter-personal issues as a whole rather than to divide into sub-groups and also provides the benefit of social support.

2.3.6. Group socialisation theory:

Group processes also contribute to the Pyramid intervention model. It has been shown that over time members of a group become more similar to each other, a process described as assimilation. Turner (1987) ascribed this process to being a result of self-categorisation theory (Turner, 1987) in which individuals categorise themselves not only as individuals but also as members of a group dependent upon how salient the particular social category is to themselves. Categorisation is context specific, and when members identify with a particular group they are more likely to adopt the 'norms' of that group in other words they become assimilated within the group (Turner, 1987). Children who attend Pyramid are encouraged to feel 'ownership' of the Club and also to adopt the rules and accepted behaviours modelled by the adult Club-Leaders and the other children. Furthermore, the Pyramid Club provides a ready made peer group for the children where they are able to rehearse socio-emotional competencies in the knowledge that the other Club members (adults and children) will be supportive of their efforts. Harris (1995) has proposed that in middle childhood peers are possibly more influential in a child's socialisation process than are parents. She puts forward a theory of group socialisation which asserts that the processes of socialisation are context specific and therefore outside of the home a child's socialisation takes place within the peer group. Group socialisation theory has caused a degree of controversy as it suggests primarily that parents have little influence in the development of their child's psychological characteristics (Vandell, 2000). Nevertheless, group socialisation theory does highlight the emergence in importance of the peer group during middle childhood and, as discussed in the previous chapter, (*section 1.1.2.)* how poor peer relationships and lack of peer acceptance have the potential to blight future social and academic achievements and even predict later development of depression (Schwartz, Gorman & Nakamoto, 2008). Therefore it is necessary to ensure that, for those who need support, suitable interventions are made

available as early as possible in order to curtail future development of disorder (DCSF, 2008).

2.4. Pyramid intervention model ethos:

As previously stated, the Pyramid intervention model is based upon four principles; 'Love and Security', 'New Experiences', 'Praise and Recognition' and 'Responsibility'. These principles were originally identified by Pringle (1986) as the fundamental needs of children if they are to develop to their full potential. In common with the Maslow (1970), Pringle concurred that the basic physiological needs must be met in order to ensure survival. However, she also argued that a discontented baby may refuse food even if it is hungry, suggesting that the needs of love and security may be paramount (Pringle, 1986). This, she suggested, is a product of living in a modern Western society where we are frequently able to meet our physical wants, although as a result, children are now more likely to be lacking in respect of their socio-emotional needs and these may be divided into the four categories outlined above (Pringle, 1986).

The Pyramid model suggests that by providing a place (the Club) where children can be offered opportunities to experience feelings of love and security, new experiences, praise and recognition and acquire responsibility, attendees will show increased confidence and improvements in their socio-emotional abilities (Pyramid, 2007). Strategies are offered to facilitate the right environment for this to happen. Firstly, it is stressed that the children should be encouraged to foster feelings of 'ownership' towards the Club. This is done by encouraging them to choose the name of the Club and four or five positive 'rules' to ensure that all are treated fairly and stand to gain as much from the Club experience as possible (Pyramid, 2007). Furthermore, ownership of the Club, making and keeping the rules, ensuring everyone has an equal chance to speak and be listened to in this way may give rise to new levels of responsibility and maturity. Similarly, children need continuity and stability, and the routine of the Club, if kept at a constant, can provide children, who may have very chaotic home-lives, the chance to feel safe and sure of this part of their lives (Pringle, 1986, Makin, 1996) thus affirming their needs of security.

Experiencing and mastering new situations and building relationships with new people are necessary for the healthy development of the mind (Pringle, 1986). Many children who are selected to take part in a Pyramid Club may live in circumstances where their opportunity to experience something new is greatly impoverished (Makin, 1996) simple things such as cooking or arts and craft activities may be beyond their reach. Children in middle childhood, at Erikson's stage of industry versus inferiority (Erikson, 1968), have reached a stage in their development where with the right encouragement feelings of self-efficacy and independence will be fostered (Pringle, 1986). To ensure this, activities need to be kept accessible to all to build success into the experience of all the children who attend the Club (Pyramid, 2007). Club Leaders who themselves have a positive self-concept are more likely to communicate this to the children they interact with, making sure that they supply praise and recognition to affirm the children's needs in this area (Pyramid, 2007). Pringle (1986) recognizes that in school situations much of the praise and recognition afforded is achievement based rather than based on effort, and the type of children who benefit most from attending Pyramid Clubs may get little opportunity of the former and be in far greater need of the latter than their higher-achieving more assertive classmates (Pringle, 1986; Pyramid, 2007). To facilitate feelings of success, Leaders are trained to use positive language with attendees to ensure that even when mistakes are made or accidents happen, children can be encouraged to make a different choice or to persist in what they are trying to achieve (Pyramid, 2007).

Whilst the majority of children attending Pyramid Clubs tend not to display outwardly challenging behaviour, the Club Leaders need to be clear on how to provide a supportive, fair environment with clear boundaries of what is and what is not considered appropriate behaviour (Pyramid, 2007). In order to achieve this Club Leaders are encouraged to give attendees clear guidance as to what they want them to do and also to encourage children to be clear when asserting their own needs. The creation of a few Club rules couched in positive language, constantly on display, can be useful to demonstrate to the children how they are expected to behave and also to promote feelings of ownership in the smooth running of the Club for Leaders and attendees alike (Pyramid, 2007). Additionally, the adult Leaders 'model' the desired type of behaviour either in their own interactions with

each other or with the attendees. This can be also be accomplished through strategies such as proximate praise wherein the desirable behaviour of a neighbouring child is praised with the intention of encouraging a child who is not displaying appropriate behaviour to imitate the rewarded behaviour (Pyramid, 2007).

2.5. Relevance of the Pyramid model to the current national agenda for children's services:

In the previous chapter (*Section 1.6*) the current national agenda was discussed in relation to the green paper 'Every Child Matters' introduced in the wake of the Laming enquiry (Treasury Department, 2003). Subsequent to the revised Children's Act of 2004 the Government has outlined a programme of change for children's services nationally 'Change for Children' (www.everychildmatters.gov.uk , March, 2009). Key to the delivery of this programme is the National Service Framework (NSF) initiatives for children, young people and maternity services; the Common Assessment Framework (CAF) and the National Health Schools Standard (NHSS). It is possible to map the Pyramid intervention model to each of these initiatives as follows (Hughes, 2008):

2.5.1. National Service Framework:

The framework consists of eleven identified standards, the Pyramid model can be shown to map to the following:

i) **Standard One: Promoting health and well-being, identifying needs and intervening early:** The Pyramid model meets this standard through its use of the Strengths and Difficulties Questionnaire to universally screen the entire Year 3 cohort (Stage One). Furthermore, the multi-agency meeting (Stage Two) exemplifies the use of multi-agency working in order to intervene early and provide a swift referral route to suitable support whether the children discussed attend Pyramid or not. This early intervention ensures that children who may be struggling in this year group are brought to the attention of teachers and other agency professionals that can help them.

ii) **Standard Three: Child, young person and family-centred services**: Pyramid interventions are targeted at a group of children who are often over-looked. The Clubs take place in an accessible and familiar environment (schools) and are free to attend. Children are invited to take part in the Clubs and attendance is voluntary.

iii) **Standard Five: Safeguarding and promoting the welfare of children and young people:** Pyramid schemes nationally work closely with local authorities, other charities and schools to ensure they adhere to and comply with national guidelines and legislation. All volunteers hold current enhanced Criminal Records Bureau disclosures and are trained in child protection, health and safety.

iv) **Standard Nine: The mental health and psychological well-being of children and young people:** As an early intervention, Pyramid provides support for children who may be already displaying signs of future mental health difficulties (e.g. anxiety, depression, and elective mutism). Currently there appears to be far less provision for children who present with internalizing disorders than those who present with more challenging behaviours (Arnold & Doctoroff, 2003).

2.5.2. The Common Assessment Framework (CAF):

The purpose of the CAF is to identify children with additional needs. It is intended to reduce the former bureaucratic procedure of individual assessments by separate agencies involved with a child and their family. The system is intended to facilitate multi-agency working, swift onward referral and lessen the chance of children with complex needs becoming 'lost' in the system. The CAF has three components;

i) **Pre-assessment checklist:** This consists of questions based around the five themes of 'Every Child Matters'. Practitioners are asked whether they consider the child to be healthy, safe from harm, enjoying and achieving, having a positive impact within their domain and free from poverty. If the answer to any of these is 'no' then the practitioner needs to consider whether the child would benefit from the completion of a Common Assessment Form (CAF).

ii) **A process for undertaking a Common assessment:** This process may be triggered by a particular event (e.g. starting school) or because of a concern raised by an agency involved with the child and their family. Once completed the information that a CAF exists for the child can be shared with other professionals via the database 'Contactpoint' thus negating the need for separate agencies, teachers and health professionals involved with the child to all complete separate assessments. A common assessment may only take place with the family's permission.

iii) **A Standard Form:** Completion of this form enables practitioners to record and if required share with other involved professionals what the assessment has generated in terms of best practice to help the child and their family under the current circumstances (Children's Workforce Development Council, 2008).

iv) **Multi-agency panels (MAP):** It is suggested that multi-agency panel meetings are then held on a regular basis to discuss the needs of the children and families for whom CAFs have been raised so that swift onward referral can be made to suitable support. This assessment of need and then multi-agency discussion is similar in many respects to the first two stages of the Pyramid model and is key to how the Pyramid Year 3 intervention could be incorporated into a model of intervention provision within children's services settings, (Children's Workforce Development Council, 2008; Hughes, 2008, Pyramid, 2007).

2.5.3. National Healthy Schools Standard (NHSS):

The NHSS offers support for local health and education partnerships in order to accredit their schemes and help them work successfully with schools to maximize participation in the scheme. The healthy school ethos is a 'whole school approach' based around ten key themes: local priority (e.g. reduction of teenage pregnancy rate), school priorities (individual to each school), Personal, Social and Health Education (PSHE), citizenship,

drug education, emotional health and wellbeing, healthy eating and physical activity (www.wiredforhealth.gov.uk accessed March 2009), Pyramid Clubs contribute to the latter three themes. The selection component of the Pyramid model provides an opportunity to check the emotional health and well-being status of the Year 3 cohort, thus highlighting the problems of children who may be vulnerable whether selected for a Pyramid Club or not. In common with the MAP, the multi-agency meeting (Stage Two) provides a forum for teachers and other professionals to discuss the best means of support for any child whose Strengths and Difficulties score may indicate that they need extra help. Pyramid Clubs adhere to the Healthy School standards for food and encourage children to enjoy preparing healthy snacks as well as eating them. They also encourage children to enjoy playing games that are non-competitive, accessible, achievable and inclusive (Hughes, 2008).

2.6 How interventions such as the Pyramid model are currently incorporated into a children's services provision:

As previously stated, within modern Western society the majority of our physical wants are more than often met, nonetheless, children are increasingly more likely to be lacking in respect of their socio-emotional needs (Layard & Dunn, 2009). Support for the notion that excessive individualism might result in children facing more pressures (from the media, from school, from parental expectation) and as a result have more fears and experience more problems in their emotional health and well-being has been demonstrated by the recent enquiry commissioned by the Children's Society *'A Good Childhood'* (Layard & Dunn, 2009). This report suggests that the emotional health and wellbeing of children as they develop is affected by all the areas of their lives (home, school, peer group) and recommends that ensuring children are able to reach their potential both socially and emotionally as well as academically should be a priority not just for parents, but for schools and all involved adults. Furthermore, that the development of measures that could be used to provide a standard assessment of emotional development at certain key stages during a child's school career (ages 5, 11 and 14) is necessary and might in time replace the current baseline assessment at school entry age (5 years) (Layard and Dunn, 2009). In this way regular emotional health and

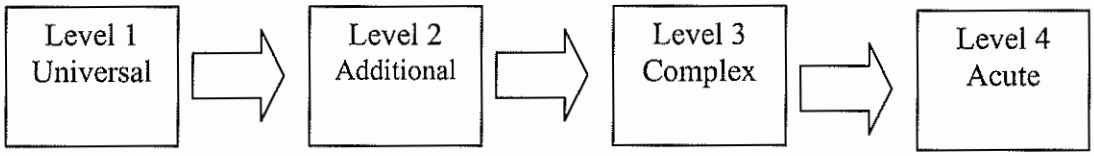
well-being status checks would be carried out thus ensuring that children who start to struggle are not left for too long without the appropriate extra support.

The current review of the Child and Adolescent Mental Health service adds weight to Layard and Dunn's proposals (DSCF, 2008). The review focuses upon Standard 9 of the Children's National Service Framework (DfES, 2004) (*see section 2.5.1. iv.)* in order to establish progress made in delivery of identified good practice since its inception in 2004 (DSCF, 2008). Whilst much progress is evident, with children's services in many areas providing the fully integrated multi-disciplinary provision envisioned, this review (DCSF, 2008) also identified that parents, children and young people still feel there remains a lack of information about and accessibility to services that can support and promote mental health and psychological well-being before a crisis point is reached (www.dcsf.gov.uk , accessed March, 2009).

At local level the review found that most focus is placed upon delivering services and as a result little progress has been made in the collation of evidence concerning outcomes for children and young people who are referred to and use the services provided; findings that resonate with those reported in current NICE guidance concerning the promotion of the emotional health and well-being of children in primary schools (NICE, 2008).

Figure 2.7 describes four levels of emotional and behavioural need and how they might be met and supported within a children services setting. This model is based upon a system proposed by the Healthy Schools (HS) and Emotional Health and Wellbeing (EHWB) panel at the London Borough of Ealing (www.ealing.gov.uk, accessed March, 2009):

Figure 2.7: Levels of emotional and behavioural need:



Children and young people who **make good overall progress.** They receive appropriate Universal services and any extra small needs are dealt by referral to a time limited enhanced intervention. **Example:** School nurse, whole-school ethos SEAL[1]	Children and young people considered **at risk** of poor outcomes that would benefit from extra help from services to achieve their potential. This may apply to between 20-30% of children during their childhood. **Example:** BEST.[2] Year 3 Pyramid Clubs	Children and young people whose **needs** are **complex and enduring.** More than one service is normally involved with a lead professional in a statutory role. **Example**: CAMHS[3] Tier 3 provision	Children and young people who temporarily or permanently may be looked after or in youth custody or prison. This also includes chronically or severely ill children receiving in-patient care. **Example**: CAMHS[3] Tier 4 provision

[1] *SEAL: Social and Emotional Aspects of Learning*
[2] *BEST: Behaviour and Education Support Team*
[3] *CAMHS. Child and Adolescent Mental Health Service*

Currently, children may be referred for further intervention through several pathways and the model shown in Figure 2.7 might be used to signpost teaching and health care professionals to the type of interventions that are available on a local level. Whilst using such a model might prove effective, there is still some uncertainty concerning accountability wherein parents may not be clear as to whose responsibility it is to ensure their child's needs are met swiftly and appropriately (DCSF, 2008) and, in order to do

this, a new integrated model using all the elements of the National Service Framework needs to be developed.

2.7 Research questions:

Chapters One and Two reviewed the existing provision in terms of socio-emotional health and well-being through the research literature and analysis of the current national agenda in order to establish the importance and necessity of preventative intervention based in schools. Through this process it has been ascertained that in providing support for children's mental health and psychological well-being, an opportunity can be given to children to develop to their full potential whatever disadvantages they might face whether due to their intra-personal characteristics, family or external circumstances (Durlak & Wells, 1997; Layard & Dunn, 2009; NICE, 2008; www.everychildmatters.gov.uk, accessed March, 2009).

It has been established that preventative interventions can be categorised according to the level of support they provide and to the type of population they target (Munoz et al, 1996). Many of the school-based interventions reviewed in the first Chapter of this thesis can be described as person-centred and have been successfully delivered either universally or targeted at a particular group of children ('Friends for Life', Dadds et al, 1997, Barrett & Turner, 2001; 'Incredible Years Dinosaur Social Skills' programme, Webster-Stratton et al, 2001; Penn Prevention Programme, Jaycox et al, 1994). The Pyramid Year 3 intervention model similarly delivers both universal (Stages One and Two) and targeted (Stage 3) components and can be described as person-centred. Its universal component seeks to identify children at risk within a year group and then, through delivery of the targeted component, improve the socio-emotional competence and well-being of the children that attend. Furthermore, Pyramid targets those children who are quiet, shy and behaviourally more likely to internalise and who may find interaction with their peers and adults difficult (Pyramid, 2007). A population for whom it has been identified both in the research literature (Arnold & Doctoroff, 2003) and in

recent national guidance (NICE, 2008) that there is a scarcity of well-evaluated interventions and provision.

Therefore the principal objective of this programme of research is to evaluate the effectiveness of the Pyramid Year 3 intervention in improving the socio-emotional competence of the children selected to attend by documenting the immediate impact (post-intervention) of attending a Pyramid Club on attendees and also whether there is preservation of any gains shown at a longer-term follow-up (twelve-months post-intervention) using the teacher-rated version of Goodman's Strengths and Difficulties Questionnaire, (SDQ) (Goodman, 1997). Importantly, in addition to the quantitative analysis, the self-reported experience of the Pyramid attendees will be elicited through the thematic analysis of focus groups.

Furthermore, the selection component of the Pyramid model Stages One (whole year group screening) and Two (multi-agency meeting) will be investigated. Prior research into Pyramid has not addressed components of the intervention model itself, instead focussing upon the pre-post impact of the intervention at short-term (Davies, 1999; Headlam-Wells, 2000; Skinner, 1996) and longer-term (Cooper, 2000; Fitzherbert, 1985). It has been suggested that children may benefit purely from being chosen to participate in interventions through the opportunity provided to broaden their repertoire of social skills and experience (Save the Children Fund, 2003). Pyramid proposes that the way children are chosen to participate also contributes to these benefits and have integrated the multi-agency discussion into the selection procedure to identify Pyramid attendees (Pyramid, 2007). Investigation of the selection component of the model will ascertain whether there is any value-added provided by the multi-agency meeting on the Pyramid attendee outcome SDQ scores as opposed to those of children selected upon the basis of using a standardised measure (e.g. The Strengths and Difficulties Questionnaire, SDQ, Goodman, 1997) alone.

A mixed methods design will be used to address these research questions. This is necessary to ensure triangulation of the data (Patton, 1990). Thus, by combining the generation of statistical effect sizes of the intervention based on the teacher-rated

behavioural measure (SDQ) with the flexibility provided by thematic analysis in order to explore the richness and complexity of the type of personal experiential data provided through the focus groups, a more valid interpretation of the results can be achieved.

The culmination of the present research will result in the development and proposal of an integrated model, based upon that of the three-stage Pyramid intervention for the future promotion of socio-emotional health and well-being in primary schools.

Chapter Three

Study One

This chapter describes the initial investigation of this research programme into the efficacy of the Pyramid Year 3 intervention in four primary schools in the West London borough of Ealing during the academic year 2005-2006.

3.1. Introduction:

The development of social skills and emotional competence in middle childhood is an essential milestone that will enable a child to continue to negotiate interaction with their peers throughout their life span (Robins & Rutter, 1990). Furthermore, children whose interactive skills are limited are less likely to be rated favourably by their teachers and viewed as likeable by their peers (Eisenberg, Fabes, Murphy, et al., 1995). It is these children that can be viewed as more vulnerable to developing low levels of emotional health and wellbeing, at risk of becoming disaffected with school and as more likely to develop a poor self-concept by the time they reach adolescence (Barkley, Fischer, Edelbrock & Smallish, 1990; Maddern, Franey, McLaughlin & Cox, 2004; and Meltzer, Gatward & Goodman, 2000).

The importance of the school's role in the promotion of emotional health and wellbeing has risen to the forefront of the national agenda (Department for Children, Schools and Families Consultation, 2008). The publication of the green paper 'Every Child Matters' and the ensuing changes to the Children's Act in 2004 it instigated, www.everychildmatters.gov.uk accessed September, 2008) promoted an integrated multi-agency approach, that led to many local education authorities using charitable and voluntary agencies to provide preventive school-based programmes to supplement the existing pastoral provision to support these vulnerable children for example; Circle of Friends, (Fredrickson, Warren & Turner, 2005); Incredible Years Dinosaur Social Skills

and Problem Solving Curriculum, (Webster-Stratton, Reid & Hammond, 2001) and Pyramid Clubs (Pyramid, 2007).

The Pyramid Year 3 intervention evaluated in this first study is a therapeutic after-school Club that runs for a set period of ten weeks in selected primary schools aimed at children who are quiet, more likely to internalise and withdraw (Pyramid, 2007). To date, all evaluations of Pyramid interventions have occurred within project and remain unpublished in peer-reviewed journals (Cooper, 2001; Davies, 1999; Headlam-Wells, 2000 and Skinner, 1996) with the exception of the research undertaken in this thesis (Ohl, Mitchell, Cassidy & Fox, 2008). However, two of these studies have been carried out that utilised teacher-rated observational data, and these report findings that are particularly pertinent to the studies in this thesis (Davies, 1999; Skinner, 1996). The first of these studies by Skinner (1996) investigated the effect of the intervention on levels of depressive symptoms and social withdrawal in primary school children. Two methodologies were used: a pre- and post-intervention teacher-rated child behaviour questionnaire compiled using 42 items from the 'Internal' scale of the Child Behaviour Checklist (Achenbach & Edelbrook, 1991) and a guided interview based upon items from the Perceived popularity and Happiness sub-scales of the Piers-Harris Self-concept Scale (Piers, 1986) devised to rate how the children viewed themselves in terms of popularity both before and after the ten week run of Clubs. Post-intervention, Skinner (1996) reported a significant decrease in depressive symptoms and a significant increase in perceived popularity. However, this study gave little information about the control group and also reported a considerable amount of missing baseline data (around 50% of the sample) so it is difficult to evaluate these findings.

Davies (1999) chose to investigate possible effects upon levels of academic achievement in Pyramid Club attendees and whether these were commensurate with any improvement in emotional and pro-social behaviour. Academic achievement pre and post-intervention was measured using a range of writing tasks. Social-emotional competence, as in this current programme of research, was measured using the Strengths and Difficulties Questionnaire (Goodman 1997) for both Pyramid attendees and a control group matched on age and gender. Post-intervention, Davies (1999) reported improvement in the emotional and peer problems sub-scales at a statistically significant level ($p<.01$) for

Pyramid attendees. In contrast, the Comparison group post-intervention scores showed a slight change for the worse that was not found to be statistically significant, ($p > .05$). Against expectation, Pyramid attendees showed no increase in Pro-social scores. Over the three writing tasks undertaken by both groups of children the Pyramid attendees showed evidence of more difficulty in undertaking the tasks but post-intervention their overall improvement was greater than that of the matched control group; however no effect sizes are reported for these improvements so it is difficult to assess their magnitude.

Notwithstanding that these findings (Davies, 1999 and Skinner, 1996) support some beneficial effect of Pyramid Club attendance on performance and social-emotional competence that might not be attributed to typical developmental progress alone, both these studies warrant replication as they have methodological limitations that need to be addressed for example a lack of detail on the control group (Skinner, 1996) and a small sample size (Davies, 1999). Therefore, a principle aim of this first study was to investigate how effective the Pyramid Year 3 intervention is in increasing social competence and reducing peer-related and emotional problems in the Pyramid attendee children. However, in contrast to Skinner (1996) classmates who did not attend the intervention Clubs were also screened using the SDQ and served as a non-problem comparison group, and thus account for any changes in mental and emotional health status that could be attributed to typical developmental progress within a mainstream primary school setting. Hence, it was predicted, that whilst the Pyramid attendee children's baseline Strengths and Difficulties scores and would be significantly higher than those of the comparison children, their post-intervention follow-up scores would have reduced to be approximately in line with those of their Comparison group classmates. The Pyramid Year 3 intervention aims to increase children's socio-emotional competencies and confidence. It was therefore further predicted, that the post-intervention follow-up scores of the Pyramid attendee group would show improvement in the Emotional, Peer and Pro-social sub-scales of the SDQ.

3.2. Design:

A mixed model with 2 Intervention timepoints (pre-post) x 2 Group (intervention group versus non problem comparison group) between subject factors with repeated measures

on the timepoint (within subject) factor, was used to investigate and evaluate the impact of the Pyramid Year 3 intervention on the socio-emotional health of Year 3 primary school children. Socio-emotional health status was measured using the Strengths and Difficulties Questionnaire, (Goodman, 1997), at two timepoints; pre- intervention, (baseline/Time 1) and post-intervention (short-term follow-up /Time 2). Data were collected during the academic year 2005-2006 at four primary schools in the London Borough of Ealing.

3.3. Method:

3.3.1. The Pyramid Year 3 intervention:

Pyramid is a therapeutic school-based intervention that is implemented as an after-school Club over ten weekly sessions. It is a selective intervention that seeks to improve the socio-emotional competence of the children that attend. It is aimed at children who are quiet, shy, behaviourally more likely to internalise and those who appear to find peer and adult interaction difficult (Pyramid 2007). A brief overview will be provided here as the intervention model is previously described in greater detail in Chapter Two (*Section 2.2.2)*

The Pyramid Year 3 intervention comprises of a three-stage model as follows:

Stage One: Screening of the whole year group to assess socio-emotional health status.

Stage Two: A multi-agency meeting held to discuss those children whose scores give cause for concern and followed by allocation of those considered most suitable (to a maximum of 12 per Club) to a 10 week after-school Pyramid Club as well as further referral of other children to appropriate agencies where necessary.

Stage Three: After-school Pyramid Clubs are delivered for the selected children.

A post Pyramid Club intervention multi-agency meeting takes place at the end of the ten-week run of Clubs in order that the teachers, Pyramid Leaders and other interested professionals can discuss the entire cohort's progress and if any children remain a cause for concern recommend further appropriate action.

3.3.2. Intervention dosage, participation rates and attrition:

Intervention dosage, participation rates and attrition are three of the five integral components identified by Mihalic and colleagues through which the implementation fidelity of a programme can be monitored, (Mihalic, Irwin, Elliott, Fagan & Hansen, 2000). Within the literature there is a consensus that the optimum 'dosage' of an intervention is the 'longer the better' (e.g. Berlin, O'Neal & Brooks-Gunn, 1998; Reynolds, 1994). Charlebois, Brendgen, Vitaro, Normandeau and Boudreau (2004) found that the degree of progress made by boys on a school-based behavioural intervention programme was positively related to the regularity of their attendance (Charlebois et al, 2004). Therefore, the participation rate of attendees can be considered an important factor in the evaluation of a programme not only as this implies that participants with irregular attendance are receiving less intervention 'dosage' but also that low participation rates may pose an attrition threat to the study (Berlin, O'Neal & Brooks-Gunn, 1998, Mrazek & Brown, 2002). To prevent the occurrence of such a threat to the integrity of the current evaluation, it was decided to set an optimum participation rate for all children assigned as attendees to the Pyramid intervention group. This rate was set at 70% attendance (i.e. 7 out of the 10 sessions) as it was reasoned that this represents the minimum number of sessions needed to ensure that the children have formed a cohesive and functional group from which they might benefit from having membership (Pyramid, 2007). The data of any Pyramid attendees that did not maximise their attendance at this rate were subsequently excluded from the final data analysis. It could then be assumed that any further attrition would be attributable to either natural wastage e.g. Pyramid attendees and/or Comparison group children moving to another school, chronic illness or ethical reasons such as withdrawal of parental consent for participation. The decision was made to exclude all such cases from the final data analysis.

3.3.3. The sample population

The Education Authority of the London Borough of Ealing ran all six of the participant schools originally selected to take part in Study One. Participant schools ranged in size: three schools were two-form entry, one school was one and a half form entry and two schools were one-form entry. However, two schools delayed the start of their Clubs until the summer term leaving four schools in total in the study (one two-form, one, one and a half form and two one-form entry).

The London Borough of Ealing is situated to the west of the centre of London. It is an ethnically diverse borough, and the third most diverse in London after Tower Hamlets and Hackney (www.ealing.gov.uk, accessed July 2008). Forty-one percent of its population belong to black and ethnic minority communities, the largest group being from the Indian Sub-continent comprising 16%. Within the borough there is considerable social and economic inequality, with 16% of its wards being within the 20% most deprived in the country and 5% being within the top 10% most deprived (Ealing Council, 2002) only a further 10% is within the least deprived. Overall housing statistics for the borough are roughly equivalent to the national averages (shown in brackets) based on the 2001 census figures with owner-occupied housing at 63% (68.7%) and rented housing at 37% (31.3%) of the population (www.ealing.gov.uk accessed July 2008). The four areas in which the participant schools in Study One were selected encompass five of the fifty most deprived wards in London (www.ealing.gov.uk accessed July 2008) and they are described as follows:

3.3.3.1. Acton:

Acton contains the estate with the largest concentration of refugees on any estate in London (Ealing Council, 2002). In terms of educational underachievement 13.3% of those underachieving at secondary level within the borough attend Acton High School. This is the highest percentage for any school within the borough (Ealing Council, 2002). Acton is also home to the borough's official Traveller site; the Acton primary school that took part in this study is the principal catchment school for the site. The Traveller community is a 'closed' one. the children are bussed from the site to school and not

encouraged to mix with children outside of their own community and, despite some Traveller children (n=4) being identified as having need for selection into the Pyramid intervention, their parents did not give permission for them to take part.

3.3.3.2. Northolt:

Situated in the north-west of the borough, Northolt is comprised of several large social housing estates, one of which is the most deprived in the borough. It is also an area where there is a high concentration of newly arrived families, (12.6% of the total). This means that free school meal eligibility averages at approximately 50% and of all the children living within the borough Northolt has the highest percentage underachieving at Key Stage Two.

3.3.3.3. Perivale:

Perivale is a small ward that borders onto the London borough of Brent to the east and Greenford to the west of its boundaries. Perivale has a higher than borough average percentage of owner-occupied houses (77%), although, five areas of Perivale qualify for the top 20% most deprived in the country in terms of indices of deprivation (www.ealing.gov.uk, Index of Multiple Deprivation, 2004). Most residents have low-level qualifications (43% with less than five GCSE passes at Grade 'C' or above) and 30% have no qualifications at all. Both of these figures are disproportionately higher than the Borough average (www.ealing.gov.uk).

3.3.3.4. Southall:

Southall includes four of the five most deprived wards in Ealing. It also receives 42.2% of all newly arrived (i.e. asylum seeker and refugee) children in Ealing. Southall has the highest level of children living in temporary accommodation (28.2%), compared to Northolt (12.48%) and Acton (8.59%). It also has high levels of children with Special Education Needs (27.8%), and 29.9% of children who are underachieving at Key Stage Two live in Southall (2002, Ealing Council).

3.3.4 Participating schools and participant children:

All the participating schools were situated within areas of the borough with significant need; one school was situated in Southall, one in Northolt and two in central Ealing both on social housing estates (*more detailed descriptions of the socio-economic and ethnic demographics of these communities are given in section 3.3.3*). The mean free school meals take up was 38% with a range of 55.8%-24.3% and this is a further indicator of low household income within the catchment area and 20% higher than the current UK national average (18%) for primary schools (London Borough of Ealing, 2008).

The participant children were all in Year 3 of primary school attending six Ealing primary schools, (three schools were two-form entry, one school was one and a half form entry and two schools were one-form entry). As previously stated, two schools delayed the start of their Clubs until the summer term leaving four schools in the study. Of the remaining sample, parental permission was obtained using opt-out consent (*see section 3.5.4*) for 105 children (43 participants and 62 comparison children) to take part: 51 girls and 54 boys with an age range of 7-8 years.

3.3.4.1. Pyramid participant ethnicity in Study One compared to Pyramid participant ethnic profile nationally:

Pyramid is a national scheme with a presence in 44 education authorities, both urban and rural (Pettitt & Kwast 2004). The demographic profile of the children in the current research represents a multi-ethnic urban population, however, the ethnic breakdown of Pyramid schemes nationally is less diverse and the comparison is shown in Table 3.1:

Table 3.1: Ethnicity of sample for Study One compared to Pyramid participants nationally by percentage:

Ethnicity	Study One Participants % (n)	Pyramid Participants Nationally %
White British	12 % (11)	72%
Black British	12% (11)	4%
Indian Asian	22% (21)	4%
Pakistani Asian	29% (27)	6%
Somali	6% (6)	5%
Eastern European	5 % (5)	0%
Mixed Black/White	3% (3)	1%
Mixed Asian/White	2% (2)	0%
Other	9% (8)	8%
Total	100% (94)	100%

Although the ethnic breakdown of the sample for Study One is roughly representative of the areas of the borough in which the schools are situated, it should be noted that the black and ethnic minority (BME) population of the sample is over represented (69%) compared to a borough population percentage for BME of 41%. This is owing to the one two-form entry school included in this study where BME pupils (principally of Asian origin) comprise the majority of the school population. The ethnic diversity of the sample in this study should be considered a key strength as it offers the opportunity to evaluate the intervention across four major ethnic groups within the UK.

3.3.4.2: Special Educational Needs (SEN) status of the sample for Study One compared to Pyramid participants SEN status nationally:

The current national provision for children with Special Educational Needs is classified using three categories (,www.directgov.uk/specialeducationalneeds accessed August, 2008).

i. **School Action:** Individual Education Plans (IEP) are prepared which should include additional help being given, who provides it and how often, help that can be given at home, targets set for the child and how and when progress monitored.

ii. **School Action Plus:** As School Action with the addition of supplementary support from specialist agencies such as speech therapy or the behaviour management team.

iii. **Statement:** If progress under School Action Plus is not deemed satisfactory, then an Educational Psychologist will formally assess the needs of the child so that the child can be referred to further specialist support using a six-part statement of Special Educational Needs.

Statistics for Pyramid nationally (Pettit & Kwast, 2004) report that approximately 32% of the Year 3 children screened for Pyramid (Stage One) go on to be discussed at a multi-agency meeting (Stage Two) and 67% of the children discussed are selected to take part in a Pyramid Club with a further 15% referred to alternative services (Pettit & Kwast, 2004). Furthermore, they report that one third (31%) of children that participated in Pyramid Clubs had Special Educational Needs that required School Action or above. However, no specific breakdown is given by category (Pettit & Kwast, 2004). Within the sample for Study One, fifty-eight children (56.8%) were discussed at the Stage Two meeting, with forty-three (41%) children being allocated places at a Pyramid Club. Ten children were already identified as a cause for concern by the school, two were referred to social services and four were not suitable for Pyramid because their scores in hyperactivity were particularly high. However, at that stage no further intervention was discussed. Fifteen (35%) Pyramid attendees were categorised as having Special Educational Needs support, three (7%) of these as School Action, ten (24%) as School Action Plus, and two (4%) children had statements of SEN. Therefore, the overall percentage of children in the sample for Study One registered as having SEN status can be considered as comparable to those within the figures for the Pyramid national sample (Pettitt & Kwast, 2004).

Within the Pyramid national statistics there are no SEN figures given for classmates who took part in the screening process at Stage Two, however the treatment of SEN children within the Comparison group for Study One is discussed in *Procedure (section 3.5).*

3.3.4.3. Gender split of Pyramid participants in Study One compared to gender split of Pyramid participants nationally:

The gender split of children participating in Study One is roughly equivalent and at 49% (n=51) girls and 51% (n=54) boys comparable to the gender split for children taking part in Pyramid Clubs nationally where it was reported that there were 'slightly more boys' but no actual number or percentage was given (Pettit & Kwast, 2004).

3.3.5. Comparison group:

A non-equivalent groups design was used, as the Pyramid Year 3 intervention is a selective one. Therefore, a randomised method of allocating children to either treatment or control group was not suitable. Similarly the use of a 'waiting list' control group, wherein children who are waiting for intervention serve as controls to those who are already receiving intervention (Webster-Stratton, Reid & Hammond, 2001), was also considered unsuitable from an ethical perspective, as there were places available in each school to include all the children assessed as having need to attend but only a finite amount of funding to grant one Club per school per academic year. This issue has been highlighted in the literature, particularly from the perspective of the evaluation of existing services (Denham, Hatfield, Smethurst, Tan & Tribe, 2006). As this project involved the evaluation of an existing service as opposed to an independently funded research project, the decision was made to offer places to all that needed them and to use a 'non-problem' Comparison group of classmates. Any subsequent pre-intervention screening variances discerned would then be addressed by controlling for them statistically by subjecting the data to analysis of covariance in addition to the mixed model ANOVA.

3.4. Measure: The Strengths and Difficulties Questionnaire T4-16 (SDQ) (Goodman 1997)

The reasons for selecting the Strengths and Difficulties Questionnaire as the measure for this series of studies were principally pragmatic. Firstly, a significant advantage of the SDQ over other informant-rated questionnaires is that it focuses upon strengths (Goodman, Meltzer & Bailey, 1998; Mathai, Anderson & Bourne, 2002) as well as

potential difficulties and symptoms (Achenbach, 1991; Rutter, 1967). This makes it suitable for screening a community sample, wherein the initial assumption concerning that sample should be that the majority of the children should be problem-free (Goodman, Ford, Simmons, Gatward & Meltzer, 2000). Furthermore, the principle aim should be to use the screening as a means of identifying children who are struggling emotionally and or behaviourally (Goodman et al, 2000) to pre-empt future development of disorder. Secondly, it is shorter than other equivalent measures (25 items as compared to the Child Behaviour Checklist (CBCL) (Achenbach, 1991) 113 items), which suggests it is quicker and easier to complete, an advantage in a teacher-rated school-based intervention where teachers have many demands upon their time. Finally, it is a well-validated measure that has been made available, cost free, within the public domain in over 60 languages and is currently widely used in both clinical and community settings, in order to audit the every-day practice of interventions and evaluate outcome (www.sdqinfo.com, accessed July, 2008). This is a consideration that increased its suitability for use in Pyramid projects funded in the majority by the voluntary sector. Furthermore, during the time frame of the current programme of research, the Strengths and Difficulties Questionnaire was adopted by Pyramid for use nationally as the recommended screening measure in Stage One of the intervention model (Pyramid, 2007).

3.4.1. Completion and Scoring of the SDQ:

The Strengths and Difficulties (SDQ) informant–rated version consists of a 25-item behavioural screening questionnaire that can be completed by parents, carers or teachers of children aged 4-11 in approximately five minutes (*see Appendix 2 for sample SDQ sheet*). Informants are asked to score twenty-five psychological attributes some phrased as positives for example "*Generally liked by other children*" and others as negatives for example "*Restless, overactive, cannot stay still for long*". The items are scored using a Likert-type scale where 0 = 'Not True', 1= 'Somewhat True' and 2 = 'Certainly True' there are five items that are phrased positively and these are reverse scored. The SDQ can also be used to identify 'psychiatric caseness' by generating a Total Difficulty (TD) score of the 'Difficulty' sub-scales (Emotion, Conduct, Hyperactivity and Peer) and grading

these TD scores into categorical bands rather than using them as continuous variables. The bands for the teacher informant-rated version used in these studies are (out of a possible score of 40) as follows: Normal (0-11), Borderline (12-15) and Abnormal (16-40) and for a community sample using this version it can be expected that approximately 10% of the sample will score within the 'Abnormal' band, 10% in the 'Borderline' and 80% in the 'Normal' band (www.sdqinfo.com, accessed August 2008).

3.4.2. Sub-scales of the SDQ:

The twenty-five items are divided between five sub-scales of five items each. Four of these sub-scales measure potential difficulties in four separate domains; Emotional, Conduct, Hyperactivity and Peer which, as previously stated, when totalled together give an overall Total Difficulty (TD) score. However, the fifth sub-scale measures Pro-social behaviour and this is treated as strength alone. Each scale has a scoring range of 0-10 with 10 indicating high levels of potential difficulties or a high level of Pro-social behaviour (www.sdqinfo.com accessed August, 2008).

3.4.3. SDQ in relation to other child psychiatric screening measures:

The SDQ has been shown to correlate highly with other well-established child psychiatric screening measures such as The Child Behaviour Checklist, (Achenbach, 1991 and the Rutter Child Behaviour Questionnaires, (Rutter, 1967). The informant-rated version of the SDQ, used in the current studies, has been shown to function, in terms of reliability, validity and sensitivity, as well as the long-established Rutter Questionnaires (Rutter, 1967), whilst also having the advantage of including the positive Pro-social behaviour rating and some positively phrased items with the aim of increasing respondent acceptability (Goodman, 1997). The SDQ and CBCL (Achenbach, 1991) differ on several counts some of which potentially could affect their psychometric properties (Goodman and Scott, 1999). Firstly, as previously stated, the SDQ is briefer with less than a quarter of the number of items of the CBCL. Secondly, the selection of items in the SDQ was based not only on factor analysis alone but also by targeting the nosological

criteria that form the basis of the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, (DSM IV; American Psychiatric Association, 1994) and the International Classification of Diseases 10th Edition (World Health Organisation, 1993) classifications of child mental health disorder. Conversely, some categories of the CBCL show no link to current diagnostic criteria at all (Goodman & Scott, 1999). Furthermore, the introduction of theory into the design of the SDQ does not appear to detract from its factor structure in any way (Goodman & Scott, 1999). In summary, both scales correlate highly with the older more established informant-rated Rutter Child Behaviour Questionnaires (Rutter, 1967, Elander & Rutter, 1996) and have been shown not only to correlate highly with each other but also to be able to discriminate successfully between children from a community and clinical sample. Moreover, the two measures appear to demonstrate comparable validity and reliability and the SDQ has the added features of brevity, inclusion of some positive items and theory-based items that map onto both DSM IV and the IC10 criteria (Goodman & Scott, 1999; Warnick, Bracken and Kasl, 2008).

3.4.4. SDQ UK Norms

The United Kingdom normative data (norms) for the informant-rated SDQ, used in this study, is based upon a sample of 10,438 British children who took part in a survey on child mental health commissioned by the Office for National Statistics in 1999 (Meltzer, Gatward & Goodman, 2000). Table 3.2 shows the British norms, (means and standard deviations) for the teacher informant-rated version of the SDQ for the age range 5-10 years, which are pertinent to this study:

Table 3.2: British means and standard deviations for UK sample norms of the teacher- informant-rated version of the Strengths and Difficulties Questionnaire for the 5-10 years old age band.

Teacher Rated SDQ	N= 4801 Mean Score	N=4801 Standard Deviation
Total Difficulty score	6.7	5.9
Emotional	1.5	1.9
Conduct	0.9	1.6
Hyperactivity	3.0	2.8
Peer	1.4	1.8
Pro-Social	7.3	2.4

3.4.5. Using the SDQ to screen and select for Pyramid Clubs:

In the current study the children's scores in the 'Difficulties' sub-scales of Emotional, Peer-related difficulties and the 'Strength' sub-scale of Pro-social behaviour were used to compute a new variable, named 'Pyramid Screen', in order to identify the children most suitable for allocation to the intervention group. 'Pyramid Screen' has a scoring range of 0-30 and only those children whose mean score in the new variable exceeded the criterion value of 11 (set in order to be consistent with the top of the 'Normal' scoring band for Total Difficulties) and with a relatively even distribution across the three sub-scales were deemed suitable for allocation to attending a Pyramid Club. It should be stressed that the 'Pyramid Screen' variable is used only for selection purposes and should not be used as a baseline for the outcome measure as essentially its rating scale consists of two 'negative' scores, (Emotional and Peer) and one 'positive' (Pro-social behaviour). This method was adopted in line with the selection procedures recommended in the Pyramid intervention manual (Pyramid 2007).

3.4.6. Teachers as informant-raters:

It was decided that class teachers would be the most suitable and accessible to carry out informant ratings for the children, as they have most experience with them within the

school domain. As the intervention is primarily designed to help children cope within the school environment it was viewed that parents might not be the most suitable to rate their child's socio-emotional functioning within the school domain as they do not witness how their child performs during the daily school routine. Additionally, prior attempts within the Ealing Pyramid project to get parents to complete measures had resulted in a very poor return. Mathai, Anderson & Bourne (2002) found poor inter-rater agreement ranging from poor to moderate when parents and teachers were both used to screen child socio-emotional health using the SDQ prior to referral to Child and Adolescent Mental Health Services. The one exception they found was in the rating of Hyperactivity/inattention which showed reasonable agreement ($r = .610$, $p < .01$), These findings concur with Verrips, Vogels, Koopman, Theunissen, Kamphuis & Verloove-Vanhorick (1999) and Eiser & Morse (2002), who, after reviewing parental and teacher proxy-ratings of child health and quality of life, proposed that the accuracy of informant rating might indeed prove to be domain specific.

Furthermore, Goodman and his colleagues (1998) recommend that the self-report (child-rated) version of the SDQ should only be used with children aged 11-16 years (Goodman, Meltzer and Bailey, 1998) therefore the intended cohort was too young to use the self-report of the measure.

Whilst Goodman et al (2000) recommend using both parental and teacher ratings, as together they provide 'greater sensitivity' (Goodman et al, 2000), the present research argues for the benefits of using the teacher report separately, due to the importance of the environmental contexts discussed above and the need to ensure quality and consistency in the return of data.

3.5. Procedure:

Whilst the Pyramid intervention model itself has three identified key stages, most projects follow the extended procedure outlined in Figure 3.1 below in order to set up Pyramid Clubs in local primary schools. This procedure can be divided into three further phases:

3.5.1. Preparation phase

Firstly, suitable participant schools have to be identified. This is usually done in line with the Funding criteria of the particular project. The criteria for the funding body that supports the Ealing Pyramid project is outlined in more detail in sections *3.5.2* and *3.5.3.*

Secondly, the parents of the Year 3 cohorts in the selected schools are informed of the screening process (*see section 3.5.4.)* and, concurrent with this, volunteer Club Leaders are recruited and trained (*section 3.5.5. refers*).

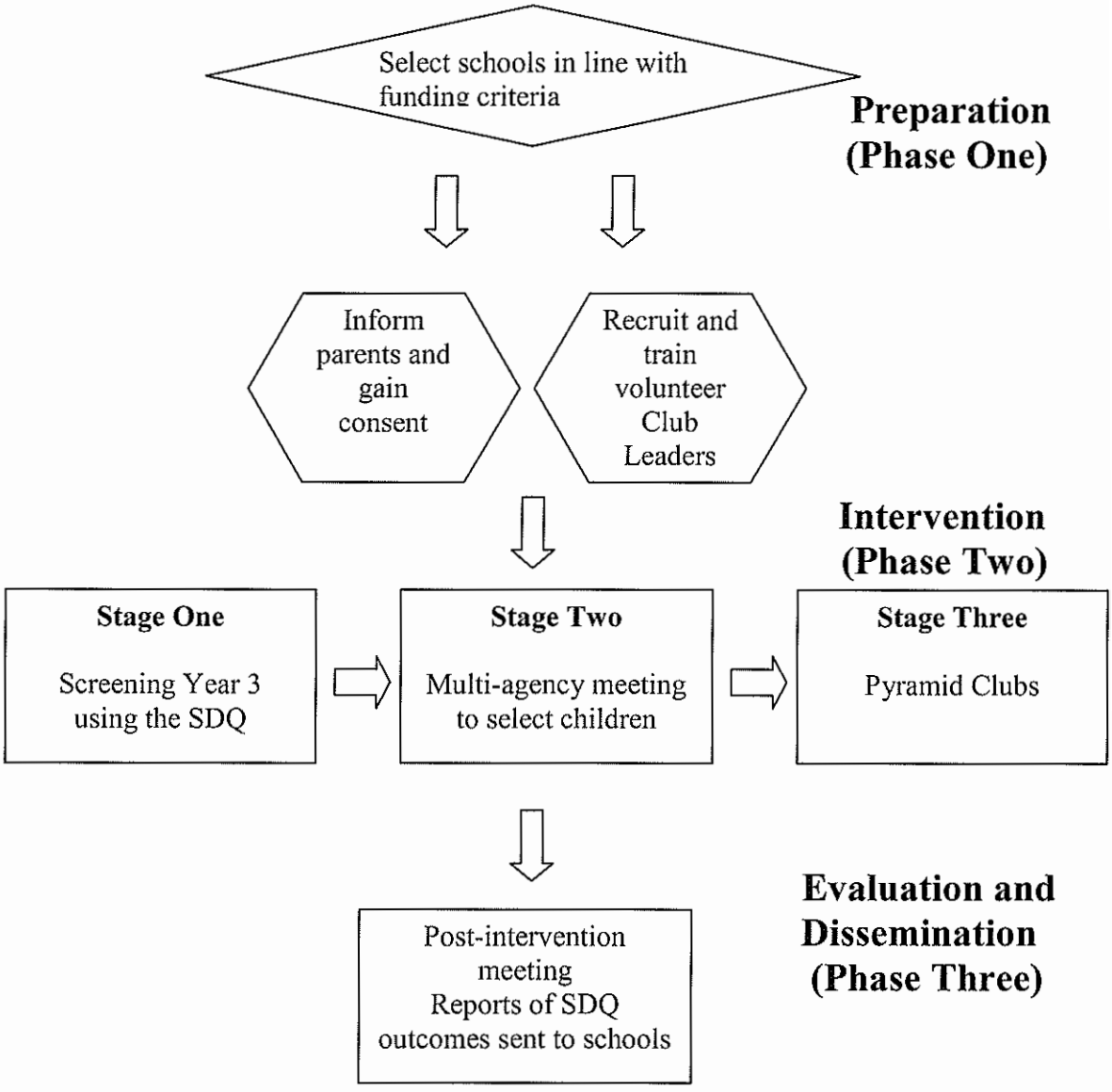
3.5.2. Intervention phase

The Pyramid three-stage intervention then takes place starting with the two-stage selection process (*screening with the SDQ and multi-agency meeting, section 3.5.5.2 refers)* followed by a ten-week run of Pyramid after-school Clubs in which the selected children take part.

3.5.3. Evaluation and dissemination phase

At the end of the ten-week Club run further SDQ forms are completed for the entire Year 3 cohorts. These results are then discussed at a post-Club meeting; reports are prepared by the local Pyramid Co-ordinator and disseminated to the schools.

Figure: 3.1. Procedure for Study One: Setting up Pyramid Clubs in primary schools



3.5.2. Selection of Schools:

Participant schools were selected consistent with the funding conditions of the Ealing Pyramid project (Children's Fund) that stipulated that interventions be offered to children

aged between 5 and 13 years in locally identified areas of greatest deprivation and social need within the local authority district.

3.5.3. The Children's Fund:

The Children's Fund was set up in November 2000 in order to facilitate co-ordinated service planning for vulnerable children in England (www.everychildmatters.gov.uk, August 2008). It operated under three main themes;

i. **Prevention**: Addressing the gap in preventative services for children aged between 5 and 13 years and their families.

ii. **Partnership:** Engendering partnership work involving the Statutory and Voluntary sectors to deliver the Children's Fund plan for early identification and prevention.

iii. **Participation:** Ensuring the views and voices of children and young people are heard.

Government funding was allocated to all local authorities between 2003 and 2008 (ending in April 2008) with each local Children's Fund having its own funding criteria that prospective projects were expected to meet. The Pyramid Project in Ealing was expected to work in the Ealing Children's Fund (ECF) targeted areas of Acton, Northolt and Southall in order to address, wherever possible, the needs of target groups underachieving at Key Stage Two (age 8-11). Specific groups targeted by ECF were white boys on free school meals, black heritage boys and children with below average attendance particularly at schools in the Southall area (Ealing Council, 2004). Therefore, schools were targeted firstly on the criterion of geographical location and secondly on the criterion of percentage of free school meals (FSM). At the beginning of each academic year, primary schools within the ECF target areas were written to and invited to meet with the Pyramid Co-ordinator with a view to starting after-school Pyramid Clubs in the second half of the autumn term. Clubs were allocated to invited schools on a first come first served basis, within the target areas. If schools within the target area declined, then places were allocated outside of the target areas but dependent upon the percentage of free school meals (high percentage taking priority), until the quota of Clubs was completely allocated.

3.5.4. Informing parents and obtaining consent:

Once the participant schools were identified, a letter of consent was obtained from the head teacher (*a copy of this letter can be found in Appendix 3*). Subsequent to the receipt of consent from the head teacher, letters were sent out informing all Year 3 parents about the project and the evaluation process, (*a copy of this information letter can be found in Appendix 4*). Parental consent for the entire Year 3 cohort in each of the selected schools was obtained using a system of opt-out consent (e.g. see Field, Lawson & Banerjee, 2008 and www.reading.gov.uk accessed November, 2008) wherein parents are only expected to return the form if they do not give consent. If forms are not returned then consent is assumed *(a copy of this form can be found in Appendix 5*). Class teachers, the researcher and volunteer Club Leaders were available after school on several occasions to discuss and explain the information sheet to ensure parents understood the procedure, and provision was made for bi-lingual staff to interpret the sheet and opt-out consent form for parents for whom English was not their first language. Consistent with the parental consent procedure recommended in the Pyramid intervention manual (Pyramid, 2007), further written consent was obtained for children who were selected for Pyramid Clubs and these were printed on the school's own headed paper (*an example of the wording can be seen in appendix 6*) and it was an ethical pre-requisite that a signed form was returned for all children who took part in the intervention group.

3.5.5. Recruitment and training of volunteer Club Leaders:

Seventeen volunteers were recruited and trained to run the four Pyramid after-school Clubs in Study One. The majority of the volunteers 15 (88%) were second and third year undergraduate psychology students, who were taking part as fulfilment of the practical component of their experiential learning module at either Thames Valley University, London Metropolitan University, or Westminster University. Two (12%) were second year education students from Roehampton University who had opted to take a practical, non-classroom based placement. Female volunteers (n= 16) outnumbered male volunteers (n=1) but this appears to be a reflection of the make up of the entire student

cohort for the period of data collection academic years 2005-2008 which showed 80% female to 20% male admissions to BSc Psychology courses during the time period (e.g. Thames Valley University Admission Statistics) and not necessarily an indication that the female students were more likely to volunteer for the project than the males.

During the three day training period, Club Leaders were selected to reflect, as closely as possible, the multi-ethnic nature of each participant school's demographic and to ensure that Leaders were both informed and sensitive to cultural and religious differences, particularly in the case of refugee children who were 'new arrivals'. Breakdown of the volunteer cohort by ethnicity for Study One compared to Pyramid figures nationally are shown in Table 3.3 and reveal marked differences in ethnicity between the volunteers for Study One and Pyramid figures for volunteer ethnicity nationally (Pettit & Kwast, 2004). However, similar differences were found in the ethnic breakdown of participants for Study One when compared to Pyramid figures nationally (*Table 3.1 section 3.3.4.1 refers*) and once again this reflects the ethnic diversity found in the population of the London borough where the study took place and as such can be viewed as an advantage over previous research where no ethnic demographic details were given (Skinner, 1996; Davies, 1999).

Table 3.3: Study One volunteers by ethnicity compared to Pyramid volunteers nationally

Ethnicity	Study One 2005/2006 % (n)	Pyramid Nationally %
White British	18% (3)	71%
White Other	33% (6)	4%
Asian Indian	24% (4)	6%
Asian Pakistani	0% (1)	4%
British Black African	0% (0)	3%
British Black Caribbean	18% (3)	4%
Mixed White/African	0% (0)	1%
Mixed White/Caribbean	0% (0)	1%
Chinese	7% (1)	1%
Other/not disclosed	0 % (0)	5%
Total	100% (17)	100%

It was also important to ensure that Club Leaders themselves formed cohesive groups as tensions within the adult group might have a detrimental effect upon the children's group (Kolb, 1996; Pyramid, 2007; Headlam-Wells, 2000). During the training, Club Leaders were encouraged not only to receive guidance and supervision from the Pyramid Co-ordinator, but also encouraged to engage in collaborative supervision by discussing each session together and providing and accepting feedback from their fellow Club Leaders. It was hoped that by doing this, they would be able to quickly resolve any disagreements over practice issues or any personal disputes within the group (Kolb, 1996; Pyramid, 2007; Headlam-Wells, 2000). Once the volunteer Club Leaders were trained, CRB clearance had been confirmed, participant schools identified and consent received, the intervention took place following the standard Pyramid model described in Chapter Two (*Section 2.2.2).*

3.5.6. The intervention:

3.5.6.1. Stage One: Screening of the Year 3 cohort:

Class teachers were asked to complete Strengths and Difficulties Questionnaires (SDQ) T4-16 (Goodman, 1997) for each child in their class, in order to assess the baseline socio-emotional health of the cohort. The teachers and the researcher initially identified children who might be suitable for Pyramid based upon the children's scores on the Peer Difficulties, Emotional Difficulties and Pro-social sub-scales (as previously described in Measures, *section 3.4.5*).

3.5.6.2. Stage Two: Selection of children using a multi-agency meeting

The Pyramid model advocates use of the scores of the SDQ (Goodman, 1997), combined with a multi-agency meeting (discussing the scores of the entire Year 3 cohort), in order to identify children with potential socio-emotional need. Therefore, the children identified with scores that presented a cause for concern at Stage One were discussed at a multi-agency meeting attended by some or all of the following; class teachers, head teacher or assigned project link teacher, the Special Educational Needs coordinator, the

local Pyramid Coordinator and any other professionals involved with the children concerned. In Study One fifty-eight children were discussed at the Stage Two meetings. The SDQ scores were reviewed and knowledge shared regarding the children within the cohort who were experiencing emotional and peer-related difficulties. This information was used to identify both children who were suitable to attend a Pyramid Club (those with scores exceeding the criterion of 11 in the 'Pyramid Screen' variable *section 3.4.5 refers)* as well as to identify children whose level of SDQ Total Difficulty scores might indicate a need to be referred for other appropriate support (e.g. referral to the local authority Primary Behaviour team). All the children considered suitable for Pyramid (n=43) were offered places at the Pyramid Club in their school. Of the children who were discussed, ten were known to the teachers as previously referred for alternative intervention, two were referred to social services and the remaining three children were not suitable for Pyramid as their scores in the Hyperactivity and Conduct sub-scales of the SDQ were particularly high. However, at that stage no further intervention was discussed although the children were to be monitored with a view to further intervention at a later date. All children who were referred at the meeting or had an existing referral to another intervention were then excluded from the Study One data as it was considered that the effect of any additional treatment could possibly impact upon their outcome behaviour. The remaining classmates, for whom no opt-out consent forms had been returned (and for whom parental permission was therefore assumed), were subsequently allocated to the Comparison group.

3.5.6.3. Stage Three: The Clubs

A course of ten weekly sessions, principally comprised of therapeutic activities, took place starting in the autumn school term, academic year 2005-2006. The Clubs were run by trained volunteer Leaders (*see section 3.5.4*) who planned each session incorporating circle time, team building activities and opportunities for the children to rehearse their social skills in a safe, relaxed and supportive atmosphere. (*See Chapter Two, Section 2.2.2.3*).

The first of the ten-week sessions incorporated the naming of the Club and the setting of four or five simple rules by the children (guided by the Club Leaders), with the aim of encouraging the children's 'ownership' of the Club. Throughout the subsequent course

of the Clubs, the Leaders endeavoured to ensure an established routine of the activities to create a secure environment for the attendees some of whom who may not otherwise be receiving secure, consistent, support elsewhere.

Intervention implementation fidelity was assured by ongoing supervision of the Clubs and the volunteer Leaders by the researcher through weekly phone calls to an identified Club leader after each Club took place and visits at least twice to each Club during the ten-week period to ensure that Leaders were adhering to the ethos and guidelines laid down in the Pyramid intervention manual (Pyramid, 2007).

At the end of the ten-week intervention period, class teachers again completed SDQ forms for all the children and a multi-agency follow-up meeting was held so that the teachers, Pyramid Club Leaders and any other agency professionals involved could discuss the children's progress and to decide further action for any children still presenting cause for concern.

Reports outlining the result of these meetings and changes in SDQ scores were prepared by the researcher and sent to all participating schools in order to disseminate findings related to the children's progress from baseline to post-intervention.

3.6 Statistical Analysis:

3.6.1. Distribution of the data

To ensure that the data met the assumptions for parametric testing, the distribution of scores was initially examined using histograms. Any visual evidence of abnormal distribution was then confirmed arithmetically by dividing values of skewness and kurtosis by their respective standard errors and thus converting them to z-scores (Field, 2005). It could then be established whether the variables concerned were found to have positive skew, statistically significant at the .05 level and data transformations carried out using a log to the base 10 transformation method as recommended by Field (2005). The transformed data was then used to run inferential statistical tests in order to test for main effects and interactions of independent variables upon the dependent variable. In the

interests of clarity the arithmetic mean scores were presented, as these were more pertinent in terms of the interpretation of the scoring bands of the SDQ (Goodman, 1997).

3.6.2. Analyses of outcome and improvement:

3.6.2.1 Mixed Model Analysis of Variance

A mixed model analysis of variance (ANOVA) was used to test for main effects of and any interactions with the independent variables (timepoint and group) and the dependent variable (mean SDQ scores and its sub-scales). Any significant interactions discerned were then subjected to tests of simple effects to decompose these results further. Effect sizes were calculated for all simple effects significant at the .05 level, and the resulting effect sizes compared to detect whether differences between these were also statistically significant at the .05 level.

3.6.2.2. Analysis of Covariance (ANCOVA):

3.6.2.2.1. Accounting for differences in baseline scores between groups

Analysis of covariance (ANCOVA) was subsequently applied to the data in Study One in order to control for initial baseline differences between the groups ($p<.05$). ANCOVA was selected, as it is a robust statistical model in terms of violations of homogeneity of variance and normality of distribution, it also proves useful for the elimination of confounds (Field, 2005; Jarrold & Brock, 2004; Tabachnick & Fidell, 2007). Given that a community sample using an existing service was investigated with a Comparison group and a randomised controlled method was not plausible (*see Section 3.3.1*), it was necessary to be both stringent and rigorous in the statistical analysis. Using ANCOVA ensured that marked differences in levels of potential difficulties between the Comparison group and Pyramid attendee group at baseline were controlled for (Jarrold & Brock, 2004). Therefore, it was decided that for this particular population, the increased sensitivity of ANCOVA would provide, overall, a more stringent assessment of any comparative improvement detected.

3.6.2.3. Shifts in SDQ scoring bands:

A further analysis of potential improvement in socio-emotional behaviour was conducted by examining shifts in SDQ scoring bands *(see Section 3.4.1)* generated by changes in both Pyramid attendee and Comparison group children's mean Total Difficulty (TD) scores (from baseline to post-intervention measurement). Comparing movement between all the scoring bands enables not only the progress of those children scoring in the 'higher risk' bands of the SDQ to be highlighted (see Stallard et al., 2007) but also general levels of progress across the sample to be tracked.

3.7. Results:

It should be noted that eleven participants (one Pyramid attendee and ten Comparison group children) had incomplete data and were therefore removed from the analysis (*see Section 3.3.2 for treatment of cases of attrition*). Of these eleven children, eight left their schools prior to completion of the post-intervention measure; three had joined their schools after completion of the baseline measure, thus yielding missing data at Time 2 and Time 1 respectively. Therefore, Total Difficulty (TD) scores were available at both baseline and post-intervention follow-up for 94 children, forming a Pyramid Club attendee group of 42 children (44.7% of the sample) and a Comparison group of 52 children (55.3% of the sample).

3.7.1. Exploratory data analyses:

Visual inspection of histograms indicated that the SDQ data for Study One was positively skewed indicating that the majority of the children scored low, therefore ratios of the skewness statistic to its standard error were calculated for all the SDQ sub-scales and these ratios are presented in Table 3.4:

Table 3.4: Ratio of skewness to its standard error for the baseline (Time 1) and post-intervention (Time 2) mean SDQ sub-scale scores for Study One

	TDS	Emotional Difficulties	Conduct Difficulties	Hyperactivity	Peer Difficulties	Pro-social
Time 1	3.64***	4.06***	7.90***	1.29*	3.69***	1.60ns
Time 2	5.19***	3.95***	8.95***	4.98***	4.94***	1.00ns

*** *p<.001*

* *p<.05*

ns = not significant

TDS= Total Difficulty Scores

Overall, the data for the four SDQ sub-scales that comprise the Total Difficulty score; (Emotion, Conduct, Hyperactivity and Peer difficulties) were found to be positively skewed to a degree that was statistically significant at the .05 level or lower. This finding indicated that the majority of the children (around 65%) scored within the 'Normal' band of the SDQ (ranging between 0 and 11) indicating less potential difficulties but, instead of the scores being evenly spread over this range, most of them scored at the higher end of the normal scale (between 7 and 10) and this contributed further to the positive skew. This characteristic of the sample's scores will be further addressed later in this results section during the discussion of the means in comparison to those of the current SDQ normative data for the United Kingdom. In order to ascertain whether the data for both Pyramid attendee and Comparison groups were affected, the Kolmogarov-Smirnov test was run. This revealed that the TD data for the Pyramid attendee group was not significantly skewed at either timepoint (baseline D (42) = .122 p>.05, and post-intervention D (42) = .114, p>.05). However, the TD data for the Comparison group did show statistically significant levels of positive skew at both timepoints (baseline; D (52) = .155, p<. 01 and post-intervention; D (52) = .211, p<. 001). Therefore, it was decided to transform all the data using the log to the base of 10 transformations (+ 1 to account for 0 values in the SDQ scoring range) (Field, 2005) in order to reduce statistically significant levels of positive skew in the Comparison group scores. The means of the four

'Difficulties' sub-scale scores (Emotion, Conduct, Hyperactivity and Peer) were all transformed. However, it should be noted that the Pro-social sub-scale data was not transformed and this was for two reasons. Firstly, the degree of skewness indicated was not statistically significant for either group *(see table 3.4)* and secondly, this sub-scale is always analysed separately as it is considered a 'Strength' and not a 'Difficulty' therefore it does not form part of the overall Total Difficulties score (Goodman, 1997).

3.7.2. Analysis of the SDQ Total Difficulties score:

3.7.2.1. Descriptive statistics:

In the interests of clarity of interpretation, arithmetic means and standard deviations are presented for the baseline and post-intervention follow-up SDQ Total difficulties (TD) scores for both Pyramid attendees and Comparison group children as opposed to the transformed mean scores. These are shown in Table 3.5 below:

Table 3.5: Descriptive statistics for Total Difficulty scores at baseline and post-intervention follow-up for Pyramid attendees and Comparison group children:

	Baseline: **Total Difficulty scores M (SD)**	**Post-intervention follow-up: Total Difficulty scores M (SD)**
Pyramid attendee group (n = 42)	13.93 (4.06)	9.24 (5.00)***
Comparison group (n = 52)	9.52 (2.00)	7.00 (5.00)***

****p < .001*

As predicted, inspection of the descriptive statistics in Table 3.5 reveals a significant difference (t (92) = 6.57, p< .001) in the baseline means and standard deviations for the scores of the two groups, indicating that the Pyramid attendee children showed higher levels of potential difficulty at baseline than their Comparison group classmates. At the post-intervention timepoint, mean TD scores for the Pyramid attendee group appear

closer to those of the Comparison group (9.24 and 7.00 respectively) and the standard deviations for both groups are the same (5.00) suggesting that the Pyramid attendee group mean scores have decreased to a greater degree, over time, than those of the Comparison group such that the degree of variation in the distribution of scores in both groups is now equal.

3.7.2.2. Comparison of the descriptive statistics to the SDQ Normative data for the United Kingdom

The means and standard deviations for the Total Difficulties score and SDQ sub-scales for the sample in Study One are shown with those for the SDQ U.K. normative data in Table 3.6:

Table 3.6: UK Norms (mean and standard deviation) for the SDQ Total Difficulty Score and sub-scales compared to the pre-and post-intervention means and standard deviations for the sample in Study One:

Teacher Rated SDQ	UK Norms SDQ (n= 4801) Mean (SD)	Study One Pyramid attendees (n=41)		Study One Comparison group (n=52)	
		Pre Mean (SD)	Post Mean (SD)	Pre Mean (SD)	Post Mean (SD)
Total Difficulties Score	6.70 (5.90)	13.93 (4.06)	9.24 (5.00)	9.52 (2.00)	7.00 (5.00)
Emotional	1.50 (1.90)	3.97 (2.23)	2.74 (1.90)	0.60 (1.03)	0.88 (1.30)
Conduct	0.90 (1.60)	2.43 (1.40)	0.86 (1.66)	1.77 (0.78)	1.23 2.03)
Hyperactivity	3.00 (0.80)	3.59 (1.55)	3.55 (1.68)	3.98 (1.35)	3.52 (1.61)
Peer	1.40 (1.80)	3.93 (1.42)	2.09 (1.82)	3.17 (1.09)	1.32 (1.49)
Pro-Social	7.30 (2.40)	6.21 (2.18)	6.07 (1.37)	5.79 (2.00)	5.98 (1.51)

Inspection of the means and standard deviations in Table 3.5 reveal that the TD mean scores and the majority of the sub-scale scores (apart from Hyperactivity for both groups and Emotion for the Comparison group) are higher for the sample in Study One than those for the UK normative sample thus indicating a greater level of potential difficulties

at both timepoints (pre- and post-intervention) for both the intervention and comparison groups for this sample. Although this is a community sample, it is expected that some children will have the potential to develop problems at a clinical level (Goodman, 1999) and the Intervention group baseline (Time 1) mean is within the 'Borderline' scoring range of 12-15 for the teacher- informant-rated version of the SDQ used in Study One, which indicates levels of need bordering on potential higher risk of development of future problems. Furthermore, it would be expected for schools in areas of greater deprivation, such as those that took part in Study One, to have higher baseline levels of difficulty in Conduct and Peer-related domains and lower levels of Pro-social behaviour. This is clearly demonstrated in the differences between the SDQ UK normative means and those for this sample and as previously discussed, although the majority of the children in Study One scored within the 'Normal' SDQ scoring band of 0-11 many of these scored at the higher end of this range i.e. 7-10 and this gives further indication of the high level of need in the areas of London that the study took place (*see Section 3.3.3*). In respect of the three sub-scales, (Emotion, Peer and Pro-social), that are used to form the variable 'Pyramid Screen' in order to select the children for the intervention group, clear differences can be seen when comparing the baseline mean scores of the Pyramid group and Comparison group to those of the SDQ UK norms. Means scores in both 'Pyramid Screen' difficulty domains (Emotion and Peer) are higher for the Pyramid children than both the SDQ UK Normative means and the baseline means for the Comparison group and lower in the strength domain (Pro-social). These differences in baseline scoring between the groups, further indicates the use of ANCOVA to target and control for these issues and provide a more stringent assessment of any comparative improvement that might be detected.

3.7.3. Measures of outcome:

3.7.3.1 Total Difficulty scores over time and group:

To investigate the changes in the children's mean Total Difficulties (TD) scores over time the transformed data were analysed using a 2-way mixed model analysis of variance (ANOVA) with intervention group (Pyramid attendee or Comparison) as a between-

subjects variable and repeated measures on the time factor (baseline to post-intervention follow-up).

The mixed model ANOVA revealed a significant main effect for TD Scores over time, F (1, 92) = 32.19, p<. 001, indicating that the post-intervention follow-up TD scores were statistically significantly lower than TD scores at baseline. There was also a significant main effect for intervention group (F (1, 92) =13.3, p<001) indicating that the TD scores of one group had decreased more than the other, but the interaction between intervention group and timepoint did not achieve significance, F (1,92) =2.17, p=. 09.

Tests for simple effects were conducted to examine the main effect of group on TD scores over time. There was a significant decrease over time for the control group (t (51) =5.45, p<. 001), which generated a moderate to strong effect size (r = 0.60). There was also a significant decrease over time for the Pyramid Club attendees (t (41) = 7.38, p< .001), which generated a stronger effect size (r = 0.76). Comparison of these correlation coefficients just approached significance, (z = 1.40, p=. 08) using the log transformed data. However, subsequent tests of simple effects run using the untransformed data revealed a more modest effect size for the Comparison group (r=0.44) whilst the effect size for the Pyramid attendee group was hardly reduced (r=0.71). Comparison of these effect sizes showed a more robust difference between the groups (z= 1.93 p<. 05) which gave a stronger indication that, whilst the mean scores for both groups decreased over the time period, the decrease in the Pyramid Club attendee TD scores was of a far greater magnitude than the decrease in the Comparison group TD scores.

At the start of Study One, it was predicted that the baseline TD scores of the Pyramid attendees would be markedly different to those of the Comparison group children. Inspection of the mean baseline scores (see Table 3.4) confirms this to be the case. Therefore, independent samples t-tests were run for baseline (T1) TD scores and these revealed a significant difference (t (70.65) = 6.33, p< .001) and Levene's Test was also significant, (F (1, 92) = 9.51, p<. 01) indicating that the assumption of homogeneity of variance had been violated. Therefore, an Analysis of Covariance (ANCOVA) was run to control for the initial baseline group differences in TD scores. Tests for homogeneity

of regression slopes were run first to confirm that the data met the assumptions of ANCOVA, with no significant interaction between intervention group and baseline TD scores found ($F(1, 92) = 2.13$, $p>.05$), indicating that the assumption was tenable. After baseline (Time1) differences had been controlled for the main effect of Intervention Group on TD scores at post-intervention (Time2) no longer achieved significance ($F(1, 92) = 1.93$, $p>.05$). Whilst these results indicate that the variance between groups at baseline is significantly different the variance between groups at post-intervention follow-up is not. It should be noted that the more rigorous results of the ANCOVA still concur with both predictions made at the start of the study in that, the children selected as Pyramid attendees scores in potential Total Difficulties would exceed those of their Comparison group classmates at baseline but post-intervention their scores would decrease to approximately the same level.

3.7.4. Characteristics of the sample by ethnicity and gender

3.7.4.1. Ethnicity:

As previously discussed (*Section 3.3.4.1.*) the withdrawal of two of the larger schools in Study One had implications for the representation of ethnicities within the sample. The remaining two-form entry school in Study One has a catchment area within the largest Asian population of the borough and this is reflected in the demographics of the pupils.

Because of this ethnicity of Asian origin was over-represented (51% of the sample) both in terms of Pyramid national statistics (10%) and in terms of the Asian demographic of the borough (16%), however it should be noted that there was a relatively equivalent representation of Asian children in both the Pyramid attendee group (n=17) and Comparison group (n=33) and the difference between the percentages for these two figures was not found to be statistically significant ($t(1)= 4.55$, $p>.05$). In order to investigate the implications of this over-representation it was considered prudent to investigate separately the effect of ethnicity upon TD scores to ensure that ethnic origin was not acting as a co-variant or main moderator in the evaluation of the Pyramid Year 3 intervention.

Eight separate categories of ethnicity were identified using the Study One data and these are shown in Table 3.1 (*Section 3.3.4.1.).* Some of the categories had very small numbers of participants so these categories were collapsed into four larger categories (White Origin, Black Origin, Asian Origin and Mixed/Other Origin) to form a four-level independent variable 'Ethnic Origin' used in the following analysis.

Mixed model analysis of variance tests were run to ascertain whether there was any evidence of ethnicity effects in either group. There was no significant main effect of ethnicity on TD scores ($F(3, 86) = 2.47$, $p > .05$) and no significant 3-way interaction of ethnicity, group and TD scores ($F(1, 3, 86) = 0.79$, $p > .05$) revealed indicating no such moderator effects. Furthermore, the use of ethnicity as a covariant does not change the overall pattern of the findings therefore indicating that the intervention is working across all four ethnic groups. To confirm these results and ensure parity of impact of the intervention on participants of all ethnic categories, a mixed model ANOVA was also run on Pyramid attendee data alone. There was a significant main effect of TD scores over time; ($F(3,38) = 37.66$, $p < .001$) but no significant interaction detected between ethnicity and TD scores ($F(3,38) = 0.98$, $p > .05$) indicating that TD scores for Pyramid attendees of all four ethnic groups showed equivalent levels of decrease at post-intervention follow-up.

3.7.4.2. Gender

Mixed model Analysis of Variance tests were run to ascertain whether there was any evidence of gender effects in either group. There was no significant main effect of gender on TD scores ($F(1, 90) = 1.49$, $p > .05$) and no significant 3-way interaction of gender, group and TD scores ($F(1, 1, 90) = 0.306$, $p > .05$) revealed. To ensure there was parity of impact of the intervention on male and female participants a mixed model ANOVA was also run on Pyramid attendee data alone. There was a significant main effect of TD Scores over time ($F(1,40) = 45.44$, $p < .001$) but no significant interaction detected between gender and TD scores ($F(1,40) = 0.97$, $p > .05$) indicating that TD scores for Pyramid attendees of both genders showed equivalent levels of decrease at post-intervention follow-up.

3.7.5. Characteristics of the sample by Strengths and Difficulties score sub-scales:

To investigate the composition of these results further a series of mixed model ANOVA was run to discern changes in the five sub-scales of the Strengths and Difficulties Questionnaire. The means and standard deviations of the sample's scores are shown in Table 3.7:

Table 3.7: Descriptive statistics: SDQ sub-scale scores for Pyramid attendees and Comparison children at baseline (T1) and post-intervention follow-up (T2)

SDQ Sub Scale	Pyramid attendees (n=41) T1 Mean (SD)	Pyramid attendees (n=41) T2 Mean (SD)	Comparison group (n=52) T1 Mean (SD)	Comparison group (n=52) T2 Mean (SD)
Emotional	3.97 (2.23)	2.74 (1.90)***	0.60 (1.03)	0.88 (1.30)
Conduct	2.43 (1.40)	0.86 (1.66)**	1.77 (0.78)	1.23 2.03)
Hyperactivity	3.59 (1.55)	3.55 (1.68)	3.98 (1.35)	3.52 (1.61)
Peer	3.93 (1.42)	2.09 (1.82)***	3.17 (1.09)	1.32 (1.49)
Pro-Social	6.21 (2.18)	6.07 (1.37)	5.79 (2.00)	5.98 (1.51)

*** $p < .001$

** $p < .01$

* $p < .05$

To ascertain that the assumption of homogeneity of variance had not been violated, as previously had occurred in the data for the TD score, Levene's test was run for each of the five sub-scales. No significant violations of homogeneity were revealed for any of the sub-scales at either baseline (T1) or post-intervention (T2); Emotion (T1) $F(1, 92) = .277$, $p > .05$, Emotion (T2) $F(1, 92) = .739$, $p > .05$, Conduct (T1) $F(1, 92) = .259$, $p > .05$, Conduct (T2) $F(1, 92) = .848$, $p > .05$, Hyperactivity (T1) $F(1, 92) = 1.20$, $p > .05$, Hyperactivity (T2) $F(1, 92) = .700$, $p > .05$, Peer (T1) $F(1, 92) = .054$, $p > .05$, Peer (T2) $F(1, 92) = .628$, $p > .05$ and Pro-social (T1), $F(1, 92) = .580$, $p > .05$, Pro-social (T2) F, $(1, 92) = 1.12$, $p > .05$. As a result of these outcomes, homogeneity of variance was assumed

and the transformed sub-scale means were analysed using mixed model ANOVA alone with confidence.

3.7.5.1. Emotional difficulties:
No significant main effect was observed for Emotional difficulties over time (F, (1, 92) =1.58, p> .05. The mixed-model ANOVA did reveal a significant interaction between intervention group and emotion over time (F, (1, 92) =12.18, p<. 01) indicating that the reduction in scores for one group was greater than that for the other. Tests of simple effects were run to investigate this interaction further. These showed a statistically significant decrease in Emotional difficulties for Pyramid attendees (t (41) = 3.36, p<. 01) revealing a moderately strong effect size (r= 0.50). Changes in scores for the Comparison group showed a slight increase in Emotional difficulties that was not significant at the .05 level (t (51) = -1.60, p>.05. These results indicate that changes in Emotional difficulties scores for the Pyramid attendee group might indeed be attributable to the beneficial effect of having attended the Pyramid Club intervention as they are over and above what would be expected through developmental maturation alone.

3.7.5.2. Conduct Difficulties:
Changes in conduct over time were found to be highly significant (F, (1, 92) = 84.81, p<. 001). A significant interaction was again observed between Conduct and group (F, (1, 92) = 6.32, p<. 05). Follow-up analyses using tests of simple effects showed a decrease in Conduct difficulty scores that was highly significant for the Pyramid attendees (t, (41) = 9.17, p<. 001) and revealed a strong effect size (r=0.82). Changes for the Comparison group were also found to be significant but of a lesser magnitude (t, (51) =4.55, p<. 01) and the effect size yielded was moderate (r=0.54). Comparison of these correlation coefficients proved significant (z= 2.58, p<. 01) suggesting improvement above that expected from typical maturation in the Pyramid attendee group scores.

3.7.5.3. Peer Difficulties:
A highly significant main effect was found in Peer difficulties over time, (F, (1, 92) = 85.02, p<. 001) but there was no interaction with group. Tests of simple effects were run to investigate this main effect and strong effect sizes were generated for both groups,

Pyramid attendee and Comparison of r=0.70 and r = 0.68 respectively, the difference between these two correlation coefficients did not achieve significance (z= -.018, p>.05). This suggests that both groups of children's scores in Peer difficulties showed a similar level of improvement between baseline and follow-up timepoints.

3.7.5.4. Hyperactivity and Pro-Social Scores:

No significant main effect was found over time for either the Hyperactivity or Pro-social sub-scales (F, (1, 92) =3.59, p>.05) and (F, (1, 92) = .015, p>.05) respectively, nor were there interactions observed.

3.7.6. Effect of ethnicity and gender on SDQ sub-scales:

3.7.6.1. Ethnicity:

A further series of mixed model ANOVAs were then run to investigate for any effect of ethnic origin on the individual sub-scales of the SDQ. No significant main effect was found of Ethnicity on three of the SDQ sub-scales; (Emotion, F (3,86) =. 063, p>.05, p>.05, Hyperactivity, F (3,86) = 1.98, p>. 05 and Pro-social, F (3,86)= 2.44, p>. 05) neither was there a significant three-way interaction revealed for ethnicity, intervention group and these three sub-scale scores (Emotion, F (1,3,86) =0.98, p>.05, Hyperactivity, F (1,3,86) =0.58, p>.05 and Pro-social, F (1,3,86) = 0.39, p>.05). However, significant main effects were shown for ethnicity on Conduct and Peer scores; (F (3, 86) = 3.66, p<. 05 and F (3, 86) = 4.02, p<. 05 respectively). Inspection of the means indicated that participants of White origin across both intervention groups showed a greater decrease in mean conduct scores between baseline and post-intervention follow-up a mean decrease of –1.49 compared to those of participants of Black (-0.73), Asian (-1.22) and Mixed/other origin (-1.13) as no significant interaction was revealed between ethnicity and group in relation to conduct scores (F (3, 86) = .17, p>.05) no further analysis was carried out. In respect of Peer scores, participants of Asian origin across both intervention groups showed the greatest decrease in scores over time (-2.24) compared to participants of White (-1.00), Black (-1.13) and Mixed/other (-2.00) origin. Once again

no significant interaction was found between ethnicity and intervention group ($F(3, 86) = 0.41$, $p>.05$) and no further analysis was conducted.

To ensure that there was a parity of intervention impact amongst the different ethnicities, a further series of mixed model ANOVAs was run (*see Section 3.7.3.2.*) using Pyramid attendee data alone. There were no significant main effects of ethnicity or interactions revealed between ethnic group and each of the five sub-scales (Emotion, $F(3, 38) = 0.73$, $p>.05$, Conduct, $F(3, 38) = 0.76$, $p>.05$, Hyperactivity, $F(3, 38) = 1.43$, $p>.05$, Peer, $F(3,38) = 0.86$, $p>.05$ and Pro-social, $F(3,38) = 0.90$, $p>.05$) indicating that there was no significant difference in how the Pyramid Year 3 intervention was experienced across the four ethnic groupings.

3.7.6.2. Gender:

Mixed model ANOVAs were run to ascertain whether there was any effect of gender on the SDQ sub-scale data of both groups (Pyramid attendees and Comparison children). No main effect of gender was shown for the following sub-scales, Emotion ($F(1, 90) = .018$, $p>.05$); Conduct ($F(1, 90)=.344$, $p>.05$) or Peer ($F(1,90) = .28$, $p>.05$) neither were there significant two-way interactions with group and gender for the following; Emotion ($F(1,90) = .57$, $p>.05$), Conduct ($F(1,90) = .37$, $p>.05$). However, there was a significant main effect of gender for Hyperactivity, ($F(1, 90) = 11.05$, $p<.01$) indicating that one gender scored more highly than the other in Hyperactivity scores over time. Inspection of the means showed that males scored more highly than females at both timepoints, however as no significant interaction with group was observed, ($F(1, 90) = 1.54$, $p>.05$) no further analysis was run. A significant main effect of gender was also observed for Pro-social scores ($F(1, 90) = 5.57$, $p<.05$). Once again inspection of the means indicated that at both time scales female participants in both groups scored more highly than males at both timepoints. However, the two-way interaction between gender, and group did not achieve significance ($F(1, 90) = .06$, $p>.05$) and consistent with the treatment of the Hyperactivity scores, no further analysis was run.

3.7.7. Measures of improvement

3.7.7.1. Outcome for those children scoring in the higher bandings of the SDQ at baseline:

The Strengths and Difficulties Questionnaire (Goodman 1997) has three banding levels, which can be used to identify children who maybe at a higher risk of emotional, social and behavioural difficulties. For the teacher report version used in this study the bandings are defined as; 'Normal' score (0-11), 'Borderline' score (12-15) and 'Abnormal' score (16-40 (Goodman, 1997, www.sdqinfo.com).

The impact of the intervention on the Pyramid attendees was assessed on an individual basis by comparing each child's pre-intervention and post-intervention SDQ banding category. It should be noted that analysis of this section was performed on the untransformed arithmetic mean scores of the children as these are more meaningful in terms of interpretation of the SDQ scoring bands and generally reported in the literature (Goodman, 1997). At baseline, 15 of the 42 Pyramid attendees (35.7%) were in the 'Abnormal' band, 12 (28.6%) were in the 'Borderline' band and 15 (35.7%) were in the 'Normal' band. This distribution of scores is higher than the SDQ UK community norms for this age group of 10%, 10% and 80% respectively (*see Table 3.5 section 4.7.2.2).* At Time 2 (post-intervention follow-up), 9 (60%) of the Pyramid attendees had moved from the abnormal to the 'Normal' band, 3 (20%) had moved to the 'Borderline' band and 3 (20%) remained in the 'Abnormal' band although their TDS scores had decreased. At Time 2, of the 12 children in the 'Borderline' band, 4 (33%) remained in the 'Borderline' band and 8 (67%) moved to the 'Normal' band. Of the 15 children in the 'Normal' band at baseline 13 (86.7%) remained in the 'Normal' band and 2 (13.3%) moved to the 'Borderline' band.

Inter-band movement within the Comparison group scores was also tracked. At baseline, the Comparison group, as expected due to the screening process, had a greater proportion of children in the 'Normal' (n=46, 88.5%) and 'Borderline' bands (n=6, 11.5%) than the Pyramid attendee group At Time 2 (post-intervention follow-up), 4 children (7.7%) had

an improved SDQ banding, 44 children (84.6%) remained in the same banding and 4 children (7.7%) had a lower banding category.

Specifically, of the six children in the baseline 'Borderline' band 2 (33%) remained in the 'Borderline' band and 4 (67%) moved to the 'Normal' band. Of the 46 Comparison group children in the baseline 'Normal' range, 42 (91.3%) remained in that band, 1 (2.2%) moved to the 'Borderline' band and 3 (6.5%) moved to the 'Abnormal' band. Table 3.8 below summarises the percentage shifts in SDQ bandings for the entire sample and indicates that, in comparison to the Comparison group, a greater proportion of Pyramid attendees showed improvement and that, importantly, the running of the Pyramid intervention within the Year 3 cohorts did not impact negatively on the SDQ bandings of the children who did not take part.

Table 3.8: Number (%) of children in each Strengths and Difficulties Questionnaire (SDQ) category at baseline (T1) and post-intervention follow-up (T2)

	Pyramid attendee Group (n = 42)		**Comparison group (n = 52)**	
	T1	**T2**	**T1**	**T2**
SDQ category (scoring range)	**No (%)**	**No (%)**	**No (%)**	**No (%)**
Abnormal (16-40)	15 (35.7)	3 (7.1)	0 (0)	3 (5.8)
Borderline (12-15)	12 (28.6)	10 (23.8)	6 (11.6)	3 (5.8)
Normal (0-11)	15 (35.7)	29 (69.1)	46 (88.4)	46 (88.4)

Additionally, comparisons with the SDQ UK community sample norms for bandings (of 10% 'Abnormal', 10% 'Borderline' and 80% 'Normal'), showed an increased prevalence of 'Abnormal' and 'Borderline' scores for the total sample at Time 1 (baseline), i.e. 16% scored in the ''Abnormal' band', 19% in the 'Borderline' range and 65% scored within the ''Normal' band'. The post-intervention shifts in banding at Time 2 (post-intervention) brought the entire sample's SDQ banding in line with the SDQ UK community norms

(6.4%) in the 'Abnormal' band, (13.8%) in the 'Borderline' band and (79.8%) in the 'Normal' band.

T-tests were run to investigate the shift in mean Total Difficulty (TD) score for the 'Abnormal', 'Borderline' and 'Normal groups'. For the 'Abnormal' group, comprised entirely of all Pyramid attendee participants, the decrease in mean TD score from baseline (Time 1) to post-intervention follow-up (Time 2) was found to be significant (t, (14) =3.99, p=. 001). The 'Borderline' Group comprised 12 Pyramid attendee participants and 6 Comparison group children, also showed a decrease in mean TD scores over time (t, (17) = 5.25, p<. 01). Inspection of their individual scores showed that of the Pyramid attendee children 8 moved down to the 'Normal' scoring band four stayed in the 'Borderline' band, whilst of the Comparison children in this group, 4 moved down to the 'Normal' band and 2 remained in the 'Borderline' band. It should be noted, that the 'Normal' band for Total Difficulties score cuts off at 11, therefore it is perfectly feasible for children who score more highly (i.e. above the criterion point of 11) in the Pyramid Screen variable to be selected for the Pyramid intervention whilst still scoring at the upper end of the 'Normal' band for TD. In Study One, the 'Normal' band for Total Difficulties score comprised of 15 Pyramid attendee and 46 Comparison group children and these scores also showed a decrease in mean TD scores over time (t, (60) =3.87, p<. 001). Of the 15 Pyramid attendee children, 13 remained in the 'Normal' band and 2 moved into the 'Borderline' band whilst of the Comparison group 42 remained in the 'Normal' band, 1 moved to 'Borderline' and 3 moved to the 'Abnormal' band.

The changes in the 'Abnormal' and 'Borderline' group scores showed strong effect sizes (r=0.73 and r=0.78 respectively) whilst the 'Normal' group showed a moderate effect size (r=0.44). Comparison of these correlation coefficients proved to be significant for the 'Borderline' and 'Normal' band (z=1.98, p=. 05) and approached significance for the 'Abnormal' and ''Normal' band' (z= 1.44, p=. 07).

3.8. Discussion:

3.8.1. Impact of the Pyramid Year 3 Intervention

This study sought to investigate the efficacy of the Year 3 Pyramid Intervention, furthering prior research carried out by Cooper, (2000); Davies, (1999); Fitzherbert, (1985); Headlam-Wells, (2000) and Skinner, (1996). The significant decreases in the Pyramid attendee's SDQ Total Difficulty (TD) scores (Goodman 1997) between baseline and post-intervention demonstrate that the Pyramid intervention had a beneficial effect on the children who attended eliciting a strong effect size. These findings are consistent with those of Davies (1999) who also reported that children who attended the Clubs showed greater decreases in selected 'Difficulty' sub-scales of the SDQ in contrast to matched controls whose scores showed little change. Furthermore, significant decreases were found in selected SDQ sub-scales and these are discussed in *section 3.8.2.* It is important to note that, improvements were also evident in the Comparison group children; however, their improvement was of a lesser magnitude

As predicted at the outset of the study, the baseline TD scores of the children selected as Pyramid attendees showed higher levels of potential difficulties than their Comparison group peers. Notably, all of the children screened whose pre-intervention TD scores put them within the 'Abnormal' banding of the SDQ were selected for inclusion as Pyramid attendees. Post-intervention, 80% of these children's scores moved to the lower scoring bands indicating a significant decrease in potential difficulties. Additionally, the entire sample moved to within the parameters of the SDQ UK norms for the scoring bands of the teacher-informant rated version of the SDQ used in this study (Goodman, 1997). Furthermore, these results were maintained subsequent to more rigorous analysis using ANCOVA run in order to control for observed differences, (Levene's test proved significant), in baseline scores between the groups. Additional analysis provided no evidence of ethnic or gender effects found across the sample or within the intervention

group thus demonstrating universal properties of the intervention within this sample of children that warrant replication.

3.8.2. Improvements in relation to SDQ sub-scales

Scrutiny of the changes in the individual sub-scale mean scores revealed statistically significant improvements for the Pyramid attendee group in the domains of Emotional and Conduct difficulties and for both groups in Peer difficulties. As predicted at the outset of Study One the Pyramid intervention appeared to be most beneficial in terms of improving problems in emotional regulation with moderate to strong effects being yielded for the Pyramid attendees in comparison to non-significant changes for the Comparison group children. These results concur with prior findings by Davies (1999) who also reported a significant interaction effect between group and emotional difficulties over time with Pyramid attendees presenting with higher levels of emotional problems before the intervention but showing improvements that were statistically significant post-intervention although, in contrast to the current study, the control children's emotional difficulties scores worsened (Davies, 1999).

Contrary to prediction two and in contrast to the results of prior research by Davies, (1999) and Skinner, (1996), whilst both groups in Study One yielded significant decreases in Peer difficulties over time there was no indication that either group out-performed the other in terms of improvement. This could be attributed to typical developmental progression alone; however it could also indicate that possible improvements in the socio-emotional skills of the Pyramid attendees may have had a beneficial effect on the harmony of peer relations across the cohort. A body of research exists (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major & Queenan, 2003; Fabes, Hanish, Martin & Eisenberg,2002; Spinrad, Eisenberg, Harris, Hanish, Fabes, Kupanoff, Ringwald & Holmes, 2004) which suggests that emotional knowledge might give essential information to children in terms of instances of peer interaction such as conflict or seeking inclusion in a social group therefore children whose socio-emotional skills do not meet the expectations of both peers and involved adults may face difficulties in both adult and peer interaction or even rejection (Denham et al, 2003; Fabes et al, 2002

and Spinrad et al, 2004). However, it could be argued that sufficient improvements in emotional knowledge and socio-emotional skills of a group within a cohort of children might have a beneficial effect upon peer interaction and relations across the entire cohort and this might account for the equivalent improvements in peer difficulties in both groups of children in Study One.

Improvements detected in the Conduct difficulties sub-scale for both groups in this study are also of particular interest, as children are not selected for Pyramid Club on the basis of scores in this specific sub-scale. These results may have been a characteristic of this particular sample as the baseline scoring across both groups was far higher in terms of the Total Difficulties score normative means given for the United Kingdom (Goodman, 1997) (*Table 3.5 section 3.7.2.2 refers)* or they could be a further example of a beneficial effect demonstrated across the Year 3 cohort as the result of the rate of improvement in the socio-emotional competencies of the Pyramid attendees.

3.8.3. Impact of the Pyramid Year 3 Intervention in respect of Ethnicity

Within the sample, the proportion of children of Asian ethnic origin might be viewed as a limitation to the generalisability of this study. Whilst it may indeed have been preferable to have more balance in terms of ethnicity, this sample did provide a more ethnically diverse sample and thus an opportunity to rate the suitability of the intervention across the four ethnic groupings identified in Study One. Importantly, despite the higher proportion of one ethnic group compared to the others, no statistically significant interaction between ethnicity, treatment group and changes in SDQ over time were discerned, neither were there any statistically significant differences detected in levels of improvement when the same analysis was applied to the Pyramid attendee data alone. These results provide early indications that the Pyramid Year 3 Intervention is suitable and generalisable across four of the main ethnic groups within the United Kingdom population.

3.8.4. Efficacy of school-based intervention:

Overall, these results suggest that manualised, school-based preventative interventions such as Pyramid appear to offer schools further support for the pastoral provision they provide (Fredrickson, Warren &Turner, 2005; Pyramid 2007; Stallard et al 2007 and Webster-Stratton, Reid & Hammond, 2001).

A noteworthy advantage of using the Pyramid model is that it can be delivered, after school, by trained undergraduate volunteers, community members or para-professionals such as learning support assistants, freeing valuable teaching and learning time (King and Kirschenbaum 1990). The initial two stages of the model effectively provide a universal approach as the entire cohort are screened and their socio-emotional progress is discussed by teachers and other relevant professionals and further onward referrals made to appropriate agencies where deemed necessary. It has been seen from the results of Study One that there is a need within school community samples such as these to screen for early indications of potential emotional health difficulties. Children of both Pyramid and Comparison groups were found to be in both the higher risk ('Borderline' and Abnormal') groups of the SDQ scoring bands and indeed some remained in these groups at post-intervention follow-up, thus highlighting the necessity of taking continued preventative action, to ensure that the progress of children that remain at risk of failing to thrive socially and emotionally is monitored. Stage three of the intervention then offers an opportunity, for those children selected as most likely to benefit from taking part in a Pyramid Club because they may find interaction difficult not only with peers but also with adults, to rehearse their interaction skills and develop social-emotional competence in the safe and accepting environment offered by the Pyramid after-school Club (Pyramid, 2007).

3.8.5 Conclusions and implications for the replication of Study One:

The results of Study One, whilst encouraging in terms of the improvements found in the current cohort of Pyramid attendee children, indicated replication was required with some

amendments in order to address certain limitations. Cowen (1978) suggested that one of the drawbacks of evaluating community- based interventions is that some experimental rigour may be lost in the interests of limiting interference to the delivery of an existing service. These losses have to be weighed against what is gained in terms of ecological validity with the chance to make a realistic appraisal of a programme in action and the results yielded in this first study of the current research certainly indicate the need for further investigation through replication on a larger scale and with amendments to address identified limitations in the current study.

In this initial study the marked differences between groups in their baseline scores could be indicative of some disparity in implementation fidelity of the selection component of the model. Implementation fidelity is a crucial issue in the success of programmes such as Pyramid and unless the model, as described in the manual, is adhered to as originally intended then what is delivered may not have the desired outcomes or indeed be the programme (Mihalic, Fagan, Irwin, Ballard and Elliott 2002). Whilst the SDQ (Goodman, 1997) appears to provide a reasonable selection measure for Pyramid, offering as it does sub-scales that are relevant to the improved socio-emotional outcomes that the intervention aims to achieve; there is margin for misallocation of children to take place during the multi-agency meeting. Furthermore, as previously discussed, a more equivalent balance across the sample of the four main identified ethnic groups might add support to the generalisability of the effectiveness of the Pyramid Year 3 intervention reported in this first study. In order to address these potential limitations, it was considered both prudent and necessary to replicate Study One using a larger cohort drawn from two Pyramid projects and within this second, larger study, to introduce a method in which the selection component (Stage Two) of the Pyramid model could be scrutinised and tested.

Chapter Four

Study Two

This chapter describes the second study of this research programme, which had two principle aims. Firstly, it sought to replicate Study One on a larger scale to determine whether the effects found in relation to the Pyramid intervention group's significant improvement could be supported and secondly, it sought to investigate whether there was any value–added derived from the multi-agency meeting that is integral to the traditional selection component of the Pyramid intervention (Stage Two) and whether this would, to some extent, address the baseline heterogeneity of variance found within the groups in the Study One sample.

4.1. Introduction:

The three-stage Pyramid model, as described in previous chapters, posits that a multi-agency integrated approach to selection of attendees is most effective not only in ensuring that the children who will benefit most are selected to take part in a Pyramid Club but that other children in the year group who are flagged up as a cause for concern can be offered alternative support (Pyramid 2007). The advantages of this multi-agency screening process are that on a macro-level it promotes inter-agency partnerships and on a micro-level provides an opportunity for an 'emotional health check' for the entire Year 3 cohort (Pyramid 2007). It also ensures a Club where each attendee has been considered to encourage compatibility and cohesion amongst its members which is important for the success of the intervention as it has been recently shown that children in middle childhood are already treating in-groups as part of their self-concept and social identity (Bennett and Sani, 2004 & 2008).

The promotion of child emotional health and well-being is currently at the forefront of the national agenda. A consultation recently launched by the Department for Children,

Families and Schools (DCSF) and Office for Standards in Education (Ofsted) sought stakeholder suggestions as to best practice in how the indicators of a school's contribution to pupil well-being could be measured (www.ofsted.gov.uk, accessed October, 2008). This follows recent guidance from the National Institute for Health and Clinical Excellence (NICE) that recommends that teachers and primary health care workers should be provided with training to ensure that they are able to recognise when children are struggling emotionally as well as educationally or physically failing to thrive (NICE, 2008).

Subsequent changes in the national agenda concerning the delivery of children's services outlined in the revised Children's Act of 2004 (www.everychildmatters.gov.uk) have resulted in a steady increase in the prevalence of multi-agency delivery of school-based emotional health prevention programmes (Maddern, Franey, McLaughlin & Cox, 2004, Frederickson, Warren & Turner, 2005, Denham, Hatfield, Smethurst, Tan & Tribe, 2006; Stallard et al, 2007). A significant advantage of these programmes is that not only do they enhance integrated working relationships between external agencies and school staff but evaluations of this type of programme have shown that teachers, school support staff and community members can be trained to deliver the programmes as effectively as clinicians (King & Kirschenbaum, 1990; Lowry-Webster, Barratt & Dadds, 2001; Stallard et al, 2007). Furthermore, the use of such trained 'para-professionals' (King & Kirschenbaum, 1990, p171) to deliver school-based programmes offers an opportunity for both temporal and fiscal savings.

The time scale of the current research project precluded any investigation into the preventive potential of the Pyramid intervention. It has been suggested, (Durlak &Wells, 1997) that given the difficulties researchers face in demonstrating the efficacy of preventive intervention it might be more pragmatic to emphasise the short-term gains from these programmes as well as the achievement of more distal targets (Durlak & Wells 1997). Therefore the principal aims of this study were twofold. Firstly, it sought to extend the initial investigation carried out in Study One, into the impact of the Pyramid Year 3 intervention on the socio-emotional well-being of the Pyramid attendee children

with a larger sample. Whilst the initial findings of this research programme reported in Chapter Three were encouraging, suggesting a beneficial effect upon the socio-emotional well-being of the Pyramid attendees over and above that of their Comparison group classmates, replication was indicated using the original procedure with some modifications in order to address identified limitations.

Firstly, Study One was limited by the late withdrawal of two prospective participant schools thus greatly limiting the sample size. Secondly, the ethnicity of the remaining sample was unbalanced by the proportion of children of Asian origin (51% of the total sample population). Although this imbalance was not reflected in the results for the Pyramid attendees with attendees of all identified ethnic groups showing similar levels of improvement at post-intervention measurement, nonetheless, it was considered prudent to try to procure a more balanced ethnic mix for this second study.

The second aim of Study Two was to investigate the selection component of Pyramid; a central tenet of the intervention model (Pyramid, 2007). More specifically, whether there is any value-added gained by using this prescribed second stage; i.e. multi-agency meeting approach to the Pyramid selection process. To ascertain this, participating schools were randomly allocated to two different screening conditions (*see Procedure section 5).*

Consistent with the original expectations for Study One, it was predicted for this second cohort that whilst the baseline scores of the Pyramid attendee children would be higher than those of the Comparison group, post-intervention their scores would have reduced to be approximately in line with those of their Comparison group classmates and that at Time 2, (post-intervention follow-up) Pyramid attendee children's scores in the Emotional difficulties, Peer difficulties and Pro-social SDQ sub-scales would show greater levels of improvement. Furthermore that there would be some value-added discerned for use of the multi-agency component of the second 'selection stage' of the Pyramid model (Pyramid, 2007).

4.2. Design:

As selective intervention is an integral part of the Pyramid model, participating schools were used as units for random allocation to one of two selection methods (*described in*

detail see Procedure). As in Study One, a mixed model design was used; 2 Selection Methods (SDQ & Meeting versus SDQ alone) X Group (intervention group versus Comparison group) X 2 timepoints (pre-post-intervention) with repeated measures on the time factor in order to investigate and evaluate the impact of the Pyramid Year 3 intervention on the socio-emotional health of primary school children. As in the prior study, socio-emotional health status was measured using the Strengths and Difficulties Questionnaire, (Goodman, 1997) at two time-points; pre-intervention (baseline) and post-intervention (a short-term follow-up).

4.2.1. Selection of the Salford Pyramid Project

Data was collected over two academic years, 2006-2007 and 2007-2008, at primary schools in the London Borough of Ealing and Salford Greater Manchester. The Salford project was selected to participate principally for methodological reasons. Both projects were funded by the Children's Fund therefore the selection criteria for schools would be identical and both Pyramid project co-ordinators had been in post for similar lengths of time. Therefore they had the same extent of experience of the training and selection of volunteers and good existing relationships with the participant schools senior management teams. Geographically and demographically the areas were well-matched, both being part of the conurbation of large cities with significant areas of deprivation and need and it was considered that value would be added to Study Two by using a project in the North West of England as opposed to using another project from the South East.

4.3. Method:

4.3.1. The Pyramid Year 3 intervention

The Pyramid Year 3 intervention is a school-based selective intervention targeted at children who are quiet and withdrawn and who may find interaction with peers and adults difficult. For further detail see *Chapter 2 Section 2.2 and Chapter 3 Section 3.3.1.*

4.3.2. Intervention dosage, participation rates and attrition

Consistent with Study One, optimum participation rate was set at 70% attendance for Pyramid attendees *(see Chapter 3 section 3.3.2).* The procedure used in Study One to treat attrition was used again in Study Two (*Chapter 3 Section 3.3.2 refers).*

4.3.3. The sample population

The participants were all primary school children attending five West London primary schools (two schools were one-form entry, the remainder two form entry) and six schools in Salford, Greater Manchester (four two-form entry and two one-form entry). Post-intervention (Time 2) data was not received for the Comparison group children in the four two-form entry schools in Salford and these schools were therefore excluded from the results leaving seven schools in the study. Of the remaining sample 383 children (103 Pyramid attendees and 280 Comparison group children) took part.

4.3.3.1. London Borough of Ealing

The London Borough of Ealing is described in detail in Chapter Three *(Section 3.3.3 refers).*

4.3.3.2. Salford, Greater Manchester

The city of Salford is on the western side of the Greater Manchester conurbation. It is ranked within the 10% most deprived areas in England (Index of Mass Deprivation, 2004). There are inner city areas of severe social deprivation including Broughton where one of the participating schools is situated. Levels of employment (70%) and unemployment (3.8%) are roughly equivalent to the national rate (75% and 3.4% respectively); no statistics were available concerning the ratio of renting to home ownership for the City of Salford as a whole.

The incidence of black and minority ethnic groups within Salford at 3.9% is far lower than that for Ealing (41%), (www.salford.gov.uk accessed August, 2008).

4.3.4. West London schools: These are described in detail in Chapter Three, *(refer to section 3.3)*

4.3.5. Salford Schools:

In Salford both schools were small schools with one form entry per year group in each. The schools were situated in different areas of Salford and these are described below:

4.3.5.1. Broughton is an area of Salford with significant deprivation and this is reflected in a high eligibility for free school meals (FSM) at the participant school of 42%. Broughton is currently the focus of an extensive neighbourhood regeneration scheme (www.salford.gov.uk accessed August, 2008). It is an area of significant deprivation with the majority of homes rented either from private landlords or through social housing schemes indicated by a significantly low level of home ownership at 29% less than half the national average of 68.9%. There are a high proportion of lone parents with dependent children and residents in the 20-34 and over 75 age groups than in other areas of Salford (Salford City Council, 2006). Black and Ethnic Minority residents account for 8% of the local population over double the Salford average of 3.9%. Socio-economic well-being is generally far lower than both the Salford and national average with high levels of long-term unemployment. Educational attainment at both primary and secondary levels is also lower than the national average (www.salford.gov.uk).

4.3.5.2. Irlam is situated on the edge of a large 'green belt' area with poor transport links and is accessible only by dual carriageway. Although there are small pockets of deprivation within 3% of the most deprived nationally (Index of Multiple Deprivation, 2004) the area is more prosperous economically than Broughton, this is reflected in the FSM take up of just 5% at the participant school. There is a higher than average proportion of children and adults aged 30-39 in Irlam, which suggests that it is an area popular with young families and home ownership is higher than in Broughton. Five

percent of the resident population are students this is in keeping with figures for Salford generally which report high levels of resident students from both Salford and Manchester universities (www.salford.gov.uk accessed August, 2008). The unemployment rate is lower than the national average with most workers employed in a skilled or semi-skilled capacity. There is, however, a lower than the national average proportion of managers and professionals living in Irlam. Educational achievement in Irlam is higher than the national average at both Key Stage 2 and G.C.S.E. (www.salford.gov.uk accessed August, 2008).

4.3.6. Participant schools and participant children:

All the participants were primary school pupils in Year 3 attending schools in either the London Borough of Ealing, (five Schools) or the City of Salford, Greater Manchester, (two schools). The age range for the sample was 7-8 years with a greater number of the children, (54%), still being aged 7 at post-intervention data collection. Consistent with the schools in Study One, all the schools were sited in areas of significant need within all the participating boroughs this is demonstrated by the high mean percentage of eligibility for free school meals (FSM) in both areas (37% for West London and 23% for Salford), both of these higher than the national average for primary schools (17%), (www.ealing.gov.uk; www.salford.gov.uk accessed August, 2008).

4.3.6.1. Pyramid participant ethnicity in Study Two compared to both Pyramid participant ethnic profiles nationally and in Study One:

The ethnic profile for the entire sample of Study Two is shown in comparison to those of Study One and Pyramid participants nationally in Table 4.1. Consistent with that of Study One, the West London sample had a diverse multi-ethnic demographic, conversely, the Salford sample was predominantly White British (92%) and this is representative of reported figures for the Salford area demographic which show 94% of residents being of White British origin (www.salford.gov.uk accessed August, 2008). Compared to the Pyramid national statistics for ethnicity (Pyramid 2007) shown in Table 4.1, the sample

for Study Two, has an over representation of black and ethnic minority children (55% of the sample) the majority of these being of Asian origin (39% of the sample).

Table 4.1: Ethnicity of Sample for Study Two compared to the sample for Study One and Pyramid nationally (2006/2007) by percentage:

Ethnicity	Study Two Participants		Study One Participants		Pyramid Participants Nationally %
	%	(n)	%	(n)	
White British	23.90 %	(89)	12 %	(11)	77%
Black British	11.50 %	(43)	12 %	(11)	3%
Indian Asian	13.40 %	(50)	22%	(21)	2%
Pakistani Asian	26.00 %	(97)	29%	(27)	0.5%
Somali	4.60 %	(17)	6%	(6)	1%
Eastern European	5.90 %	(22)	5%	(5)	1%
Mixed Black/White	2.40 %	(9)	3%	(3)	9%
Mixed Asian/White	1.30 %	(5)	2%	(2)	0.5%
Other	11.00 %	(41)	9%	(8)	6%
Total	100.00 %	(373)	100%	(94)	100%

It should be noted that this is a considerable reduction on the figures for Study One which were 69% BME and 51% of Asian origin. Nevertheless, due to the continued over representation of BME participants in the sample for Study Two, consistent with the procedure adopted in Study One, the results will be further analysed to investigate any implications that for this sample ethnicity has an effect on Strengths and Difficulties scores over time.

4.3.6.2 Special Educational Needs (SEN) status profile of the sample for Study Two compared to that of the sample for Study One and Pyramid participants SEN profile nationally:

As previously discussed in Chapter Three the current national provision for children with Special Educational Needs (SEN) is classified using three categories (*see section 3.3.4.2 for detailed analysis of these*). The figures for SEN children accessing the Stage Two screening component and participating in Pyramid Clubs nationally is 32% with 67% of those discussed at the Stage Two multi-agency meeting being selected to take part in Pyramid Clubs and 15% being referred on to other more appropriate intervention (Pettit & Kwast, 2004). Of these SEN children 31% are classified at School Action or above.

Within the sample for Study Two SEN figures are only available for children who took part in the five schools that were randomly allocated to Selection Method One (Strengths and Difficulties Questionnaire (SDQ) screening plus multi-agency meeting) (*Section 4.5.3. refers)* as the other schools used selection by SDQ screening alone. In these five schools 70 children (45%) were discussed at the Stage Two meeting with 51 children being allocated places at a Pyramid Club, the other nineteen children were already registered as having SEN status (7 at School Action, 8 at School Action plus and 4 with Statements) the eight School Action plus and the four children with statements were then excluded from the study (*see section 4.5).* Nineteen (37%) of the children in the SDQ and Meeting Pyramid attendee group were registered as having SEN, 16 (31%) at School Action, 2 (4%) at School Action Plus and 1 (3%) child had a Statement of SEN. Overall these figures for Study Two SEN status in Pyramid attendees are comparable to the Pyramid national figure of 32% (Pettit & Kwast, 2004). It should be noted that in the interests of ethical requirements separate meetings were held to discuss the SDQ scores of children in the Selection Method Two schools in order to ascertain whether any of the Comparison group children had any previously undetected needs.

4.3.6.3: Gender split of participants in Study Two compared to the sample for Study One and Pyramid participants:

There were a slightly higher number of boys in the overall sample for Study Two, (196 to 187girls) but more girls in the intervention group (57 to 46 boys). These figures are

comparable to both the gender split for Study One (51 girls and 54 boys) and for Pyramid figures nationally for 2006/2007 (599 girls and 597 boys).

4.3.7. Comparison group:

Consistent with the procedure for Study One a non-equivalent Comparison group was used. (*See Chapter Three section 3.3.5*)

4.4. Measure: The Strengths and Difficulties Questionnaire T4-16 (SDQ) (Goodman 1997)

The SDQ was the principal instrument used in order to measure the socio-emotional status of the participants, pre- and post-intervention in Study Two.

The Strengths and Difficulties Questionnaire (SDQ) is a brief behavioural screening questionnaire that takes a few minutes to complete by parents, carers or teachers of children aged 4-11 and there is a self report version for children aged 11-16. It is widely used in both the National Health Service and schools. It consists of 25 items divided into five sub-scales; four of which measure potential 'difficulties' being emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship problems. The fifth sub- scale measures pro-social behaviour and is treated as a strength alone. The measure can be used to define 'caseness' using combinations of the five sub scale scores. The bandings (out of a possible score of 40) for the Total Difficulties Score are: Normal (0-13), Borderline (14-16) and Abnormal (17-40) (Goodman 1997) (*Refer to Chapter Three, Section 3.3 for further detail*).

4.4.1 Using the SDQ to screen and select for Pyramid Clubs:

To facilitate selection the children's scores in the sub-scales of Emotional, Peer-related Difficulties and Pro-social behaviour were computed to form a new variable 'Pyramid Screen'. 'Pyramid Screen' has a scoring range of 0-30 and only those children whose mean score in the new variable exceeded 11 (with a relatively even distribution across the three sub-scales) were considered suitable for allocation to the intervention group by either method. (*Refer to Chapter Three, Section 3.3 for further detail*).

4.4.2 Teachers as informant-raters:

Consistent with the procedure used in Study One, class teachers were again used as informant-raters for the completion of the baseline and post-intervention SDQ forms. (*See Chapter Three, Section 3.4.6.*)

4.5. Procedure:

Figure 4.1 illustrates the differences at the preparation and intervention phases in procedure for Study Two. The evaluation phase for Study Two is identical to that of the procedure used in Study One (*See Chapter Three, Section 3.5, Figure 3.1).*

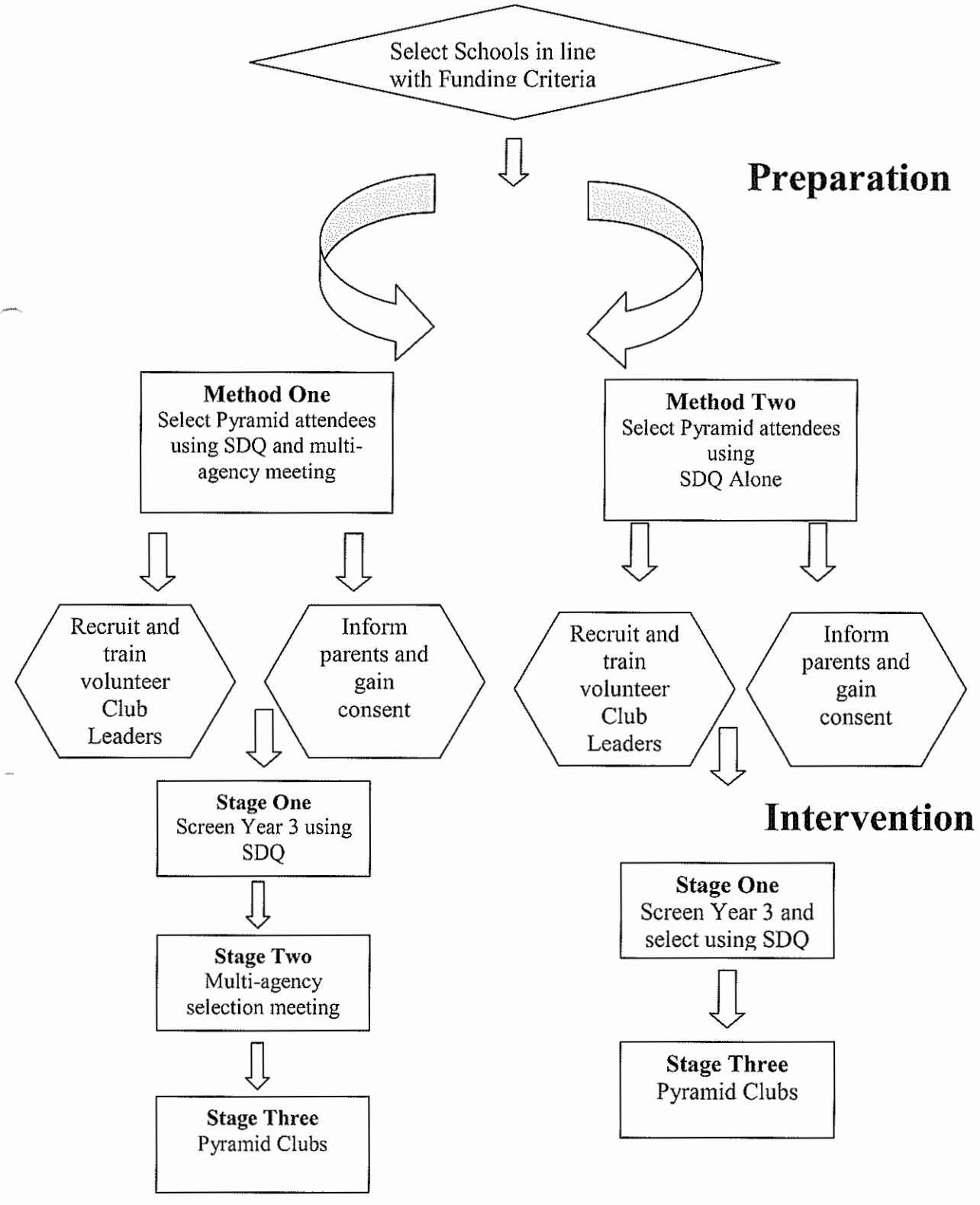
4.5.1.1. Preparation Phase for Study Two:

Consistent with the methods used in Study One schools were selected based upon the local funding criteria *(see sections 3.5.2 and 3.5.3).* As both Salford and Ealing Pyramid projects were funded by their local Children's Fund the criteria for both areas were the same (*see section 4.5.2*). Secondly, schools were used as units of random allocation to one of two selection methods either selecting children using the traditional Pyramid selection method of SDQ scores plus discussion at a multi-agency meeting or selecting using SDQ scores alone (*see section 4.5.3*). Informing parents and gaining consent and the recruitment and training of volunteer Club Leaders then followed the same methods as used in Study One (*see section 3.5.1.1.)*

4.5.1.2. Intervention Phase for Study Two:

Dependent upon which selection method schools were allocated to the intervention followed either a three stage (Method One: Screening using SDQ scores, multi-agency meeting and ten weeks of Pyramid Clubs, *section 4.5.3.1 refers*) or two stage (Method Two; Selection using SDQ scores alone and ten weeks of Pyramid Clubs, *section 4.5.3.2 refers)* process.

Figure: 4.1. Study Two Procedure for setting up Pyramid Clubs in Primary schools in Salford and West London



4.5.2. Selection of schools:

Both Pyramid Schemes, (Salford and West London) were funded principally by the Children's Fund at the time this research project took place therefore the procedure for selection of schools followed the same criteria as that for Study One for both areas (*Chapter Three, Sections 3.5.1.).*

4.5.3 Random allocation of schools to one of two selection methods:

The principal aim of the current study was to investigate whether there was any value-added gained in the post-intervention scores from the use of the two-part multi-agency screening process.

In order to do this, schools were used as units for random allocation to one or other of the two selection methods. The data for Study Two was collected over two academic years 2006/2007 and 2007/2008 starting in the autumn term using the same schools. It was decided to limit the study to two Pyramid projects (West London and Salford) as the researcher was concerned that there was a possibility that manipulating the selection component might have a negative impact on any beneficial effects of the intervention. Additionally including more projects might not be ethical because these were existing projects providing a service with limited funding therefore the local Children's Funds were made aware and gave their support to the research project. As stated, written permission had already been received from head teachers of the participating schools before the Clubs took place as this was a requirement of the University Research Ethics Committee *(a copy of these letters can be found in Appendix 3).*

At the start of each academic year the participating schools were randomly assigned to either selection method. Random allocation took place for each cohort to limit any 'school practice effect'; however, by chance three schools were allocated to the same selection method for two consecutive years running. The two selection methods are described as follows:

4.5.3.1. Selection Method One: Selection using SDQ scores and multi-agency meeting (traditional Pyramid model Stages One and Two):

It should be noted that only a brief overview of Stages One and Two of the Pyramid model is given here refer to Chapter Three sections 3.5.5.1 and 3.5.5.2 for further detail).

The Year 3 class teachers assessed the whole cohort for need using the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997). In addition, an interdisciplinary meeting took place attended by the Special Educational Needs Co-ordinator, the year-group teachers, the local Pyramid Co-ordinator and any other agencies involved in the care of the children. At this meeting the SDQ scores were reviewed and considerations such as whether children were experiencing particular emotional or peer-related problems were discussed. This additional information was used to allocate children to the Pyramid intervention and refer other children with identified need to appropriate agencies. Children not referred to other agencies were allocated to the Comparison group.

4.5.3.2. Selection Method Two: Selection using SDQ scores alone:

In each school, the class teacher using the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997) assessed the whole Year 3 cohort for need. Ten to twelve children with the highest mean scores in 'Pyramid Screen' (as described previously in Measures, *Section 4.4.1*) were allocated to attend a ten-week run of Pyramid after-school Clubs and the others, unless known to be receiving another significant behavioural intervention from another agency (such as the Primary Behaviour Service) were allocated to the Comparison group.

4.5.4. Informing parents and gaining consent:

As per the original procedure of Study 1 (*Chapter Three Section 3.5.3.)*, parental permission for the Comparison group children was obtained using a system of 'opt-out' consent after information sheets describing the evaluation process were issued to all children in Year 3 (*See Appendices 4 and 5 respectively for copies of participant information sheets and opt-out consent forms*). In line with recommended procedure

(Pyramid, 2007) further written consent was obtained for all the children selected as Pyramid Club attendees and these were sent out on the school's own headed paper (*an example of one of these letters can be found in Appendix 6).* Written parental consent was received for all 103 children in the intervention group.

Over the two academic years, Parental permission was presumed (no opt-out form returned) for 280 of the children designated as Comparison group. No children were withdrawn by parents from the study after it had started, therefore, any attrition from this point onward was due either to intervention group children who did not attend sufficient sessions i.e. 70% (*see Chapter Three section 3.3.2*), children leaving the school or to lack of /or missing Baseline or Post-intervention data and these are described in detail in the results section.

4.5.5. Recruitment and training of volunteer Club-Leaders:

Over the three year data collection period 54 undergraduate students and 3 community members were recruited in London and Salford by the researcher and her colleague and trained as volunteer Club Leaders using the Pyramid training manual and programme. The Salford and London volunteer Club Leaders were trained separately but both trainers were highly experienced in delivering the Pyramid intervention training programme and agreed strategies from the outset, for example running the training programme in the same format of three full days and covering the same modules on the same days (two modules per session for the first two sessions then one module and a 'practice' Pyramid Club on the third) to ensure that the training programme was implemented as faithfully as possible and therefore to ensure homogeneity of the training process between the two areas. Where there was a choice of several activities for the interactive sections of the programme the same ones were chosen for both areas. (*For further details on the training and supervision of volunteers see Chapter Three, Section 3.5.4.)*

The majority of the student volunteers (n= 48, 85%) were second and third year undergraduate psychology students who were taking part as fulfilment of the practical component of their experiential module at either Thames Valley University, London Metropolitan University, Manchester Metropolitan University or Westminster University. 10% were second year education students from Roehampton University who had opted to

take a practical non-classroom based placement and 5% (n=3) were community volunteers. Consistent with Study One, female (n=49) again outnumbered male volunteers (n=8) but as previously stated, this appears to be a reflection of the make volunteers up of the entire student cohort for the period of data collection academic years 2005-2008 which show 80% female to 20% male admissions to BSc Psychology courses during the time period (based upon Thames Valley University Admission Statistics).

Volunteers were once again selected, where possible, to reflect the ethnicity of the children in the schools where they were likely to be placed. Breakdown of the volunteer cohort by ethnicity for the three years is shown in Table 4.3.

Table 4.3: Study Two volunteers by ethnicity and academic year compared to those in Study One and Pyramid volunteers nationally:

Ethnicity	Study One 2005/2006 % (n)	**Study Two 2006/2007 % (n)**	**Study Two 2007/2008 % (n)**	Pyramid Nationally %
White British	18% (3)	**26.0% (9)**	**13% (3)**	78.5%
White Other	33% (6)	**12.0% (4)**	**17.5% (4)**	1.0%
Asian Indian	24% (4)	**12.0% (4)**	**13% (3)**	10.6%
Asian Pakistani	0% (0)	**9.0% (3)**	**13% (3)**	0.8%
British Black African	0% (0)	**6.0% (2)**	**13% (3)**	0.2%
British Black Caribbean	18% (3)	**9.0% (3)**	**17.5% (4)**	0.3%
Mixed White/African	0% (0)	**2.5% (1)**	**0% (0)**	0.7%
Mixed White/Caribbean	0% (0)	**2.5% (1)**	**13% (3)**	0.2%
Chinese	6% (1)	**12.0% (4)**	**0% (0)**	0.2%
Other/Not Disclosed	0% (0)	**9.0% (3)**	**0% (0)**	7.5%
Total	100% (17)	**100% (34)**	**100% (23)**	100%

Whilst the ethnic breakdown for volunteers differs considerably to the Pyramid figures for volunteer ethnicity nationally, the figures are comparable to those for the ethnic breakdown of the participants in Study Two (*shown in Table 4.1 Section 4.3.6.1).*

Before starting in their school placements all the volunteer Club Leaders were subjected to undergoing an enhanced Criminal Records Bureau check to ensure that they were fit to work with a vulnerable primary school population.

Once training of volunteer Club Leaders was completed and participant schools identified the intervention took place following one of two selection routes (*as described in sections 4.5.2.1 and 4.5.2.2).*

4.6 The Intervention:

4.6.1. Stage One: Screening of the Year 3 cohort

Following the original procedure of Study One, all participant schools screened the Year 3 cohorts using teacher completed Strengths and Difficulties Questionnaires to assess the baseline socio-emotional status of the cohort *(see Chapter Three, Section 3.5.5.1*).

4.6.2. Stage Two: Selection of children/Multi-Agency Meeting

Only the schools randomly allocated to Selection Method One (n=5 schools over the two academic years) (*see section 4.5.2*) followed this component of the Pyramid model to select the children who would take part in Pyramid Clubs. The schools allocated to Selection Method Two used the mean baseline Strengths and Difficulties Scores and the computed screening variable Pyramid Screen (*see section 4.4.1)* to allocate children to either the Pyramid Club intervention or Comparison groups. To comply with ethical considerations, separate meetings were held to discuss the implications of high baseline SDQ Total Difficulties scores for the children not allocated to the Pyramid intervention (*see section 4.3.6.2*. As a result of these meetings 6 children already receiving alternative intervention for behavioural/learning difficulties were excluded from the final data analysis.

4.6.3. Stage Three: The Pyramid Clubs

Once selection of Pyramid attendees had taken place for both Selection Method groups then both proceeded to Stage Three of the model and the rest of the intervention was delivered identically from this point onward. (*See Chapter Three, Section 3.5.5.3 for a more detailed description).*

Implementation fidelity of the intervention was assured by ongoing supervision of the Clubs by the researcher and her colleague in Salford, both of whom visited each Club at least twice during the ten-week period to ensure that Leaders were running the Clubs in line with the Pyramid intervention ethos (*see Chapter Two*) and were in weekly telephone contact with identified Club Leaders for feedback after each Club.

Post Pyramid Club intervention, class teachers completed SDQ forms for all the children with parental permission to take part in the study. There then followed a post-intervention multi-agency meeting (for both selection method groups) to discuss the children's progress and to decide action for any children within the cohort whose scores indicated that they still presented a cause for concern. Reports outlining the result of these meetings were prepared and disseminated to all participating schools by the researcher, *(an example may be found in Appendix 7*).

4.7. Statistical Analysis:

4.7.1. Distribution of the data:

Following the original procedure for Study One the data was tested to ensure it met the assumptions for parametric testing (*see Chapter Three, Section 3.6.1*). Any data that showed evidence of skewness was subsequently transformed using log to the base of 10 transformation, as recommended by Field (2005) and as per Study One. This transformed data was used to run the appropriate inferential tests (*Chapter Three, Section 3.6.1. refers).*

4.7.2. Analyses of outcome and improvement:

4.7.2.1. Mixed model analysis of variance (ANOVA)

Mixed model analyses of variance were used to test for main effects and any interaction of the independent variables, (timepoint, group and selection method) upon the dependent variable (mean scores of the SDQ and its sub-scales). Significant interactions discerned were then subjected to tests of simple effects to investigate the effects further. Effect sizes were calculated for any resulting t-tests that proved statistically significant ($p < .05$).

4.7.2.2. Analysis of covariance (ANCOVA)

4.7.2.2.1 Detecting and accounting for differences in baseline scores between groups:

Levene's test was run to discern whether the assumption of homogeneity of variances had been violated. If this was proved to be the case then analysis of covariance was run to provide more stringent analysis of the data consistent with the methods of statistical analysis used in Study One (*See Chapter Three, Section 3.6.2.2.*).

4.7.2.3. Shifts in SDQ scoring bands:

Shifts in SDQ scoring bands generated by changes in mean SDQ scores for both Pyramid attendee and Comparison group children were examined as per the original statistical analysis used in Study One, (*See Chapter Three, and Section 3.6.2.3.*).

4.8. Results:

Class teachers completed Strengths and Difficulties Questionnaires at both baseline (Time 1) and post-intervention follow-up (Time 2) for 397 children. It should be noted that there were 22 participants excluded from the final data analysis; 7 children (1 Pyramid attendee and 6 Comparison group) had sufficient amounts of missing data to exclude them, 3 Pyramid attendees from the West London sample who attended less than 70% of sessions were also excluded and 12 Comparison group children were also excluded due to receipt of other significant intervention for behavioural and learning

difficulties *(see section 4.3.6.2.)*. Therefore the final analysed sample consisted of 102 Pyramid attendees (27%) and 273 Comparison group children (73%).

4.8.1. Potential differences between the Salford and West London samples:

To ensure parity between the two areas in respect of participant demographic characteristics a series of chi square tests was run to ensure there were no significant association in either of the two areas that might indicate one showing a greater prevalence towards any of the major demographic variables than the other. No significant association was found for Free School Meal eligibility (χ^2, (df2) = 0.19, p>.05), Gender (χ^2, (df1) =0.13, p>.05) or Age in School Year (χ^2, (df1) =0.33, p>.05) and these results were taken to indicate an adequate degree of parity to continue data analysis.

In respect of Ethnicity, it is clear from the percentages shown in Table 4.1 *(Section 4.3.6.1 refers)* that there are considerable differences in participant ethnicity between the two areas. Therefore Ethnicity, as previously discussed *(Section 4.3.6.1)* will be treated separately in the final data analysis.

4.8.2. Exploratory data analyses:

Visual inspection of histograms suggested that the data for Study Two were positively skewed. Therefore ratios of the skewness statistic to its standard error were calculated for all the SDQ sub-scales and these ratios are presented in Table 4.4:

Table 4.4: Ratio of Skewness to its Standard Error for the Baseline (Time 1) and Post-intervention (Time 2) mean SDQ Sub-Scale scores for Study Two:

	TDS	Emotional Difficulties	Conduct Difficulties	Hyperactivity	Peer Difficulties	Pro-social
Time 1	6.14***	8.35***	13.58***	3.82***	10.45***	-5.33***
Time 2	6.17***	9.41***	13.45***	4.46***	12.26***	-5.03***

*** $p < .001$

TDS= Total Difficulty scores

As occurred previously in Study One, the sub-scales that comprise the Total Difficulty Score, (Emotion, Conduct, Hyperactivity and Peer difficulties) showed positive skew to a level that was statistically significant ($p < .001$ in all cases). In contrast to Study One, evidence of negative skew was found in the pro-social sub-scale and this too was statistically significant at both timepoints, ($z = -5.33$, $z = -5.03$, $p < .001$). Non-normality of data was confirmed by running the Kolmogarov-Smirnov test which revealed that the data of both intervention groups was positively skewed at both timepoints; (Pyramid attendees at baseline, $D(103) = .133$, $p < .001$; post-intervention, $D(103) = .120$, $p < .01$ and Comparison group at baseline, $D(270) = .130$, $p < .001$ and post-intervention, $D(270) = .150$, $p < .001$). Therefore, consistent with the treatment of data in Study One, (*see Chapter Three, Section 3.7.1*), log to the base of 10 transformations (+1 to account for 0 values in the SDQ scoring range and with the required adjustments for the negatively skewed Pro-social sub-scale data) were employed to reduce the level of skew as recommended by Field, (2005) across all five sub-scales.

4.8.3. Analysis of the SDQ Total Difficulties Score:

4.8.3.1. Descriptive Statistics:

The means and standard deviations of the Total Difficulties scores for both Pyramid attendee and Comparison group children are shown in Table 4.5. It should be noted that in the interests of clarity the arithmetic means and standard deviations for the baseline and post-intervention follow-up SDQ scores for both groups and selection methods are presented as opposed to the transformed mean scores, as these are more meaningful when interpreting the scoring bands of the SDQ.

Inspection of the means in Table 4.5, reveal that whilst as predicted the baseline scores of the Pyramid attendees are greater than those of the Comparison group there is a far smaller differential than was found at baseline in Study One.

Table 4.5: Descriptive Statistics for Total Difficulty scores at baseline (Time 1) and post-intervention follow-up (Time 2) for Pyramid attendees and Comparison group children:

Group (Selection Method)	Baseline (Time 1) Total Difficulty scores M (SD)	Post –Intervention Follow-up (Time 2) Total Difficulty scores M (SD)
Pyramid attendees:		
SDQ & Meeting	8.76 (7.27)	5.08 (4.95)***
SDQ alone	10.98 (5.52)	10.54 (5.81)
Comparison group:		
SDQ & Meeting	7.85 (7.16)	7.56 (6.60)
SDQ alone	8.28 (6.85)	8.74 (6.97)

*** $p < .001$

The highest level of baseline (Time 1) Total Difficulty (TD) scores are found in the SDQ alone Schools (Selection Method Two) Intervention group children (mean =10.98) and their scores show only a modest decrease at post-intervention follow-up (Time 2) (mean = 10.54) with very little variance in the spread of scores (Time 1 SD = 5.52, Time 2 SD= 5.81). The Comparison group children in the SDQ alone schools, whilst scoring lower in baseline TD scores (mean = 8.28), showed a slight increase in their TD scores (mean = 8.74) at post-intervention follow-up. Importantly, the decrease in scores for the Pyramid attendees in the SDQ and Meeting (Selection Method One) is of a far greater magnitude; (Time 1 TD score mean = 8.76, Time 2 TD score mean = 5.08) which coupled with a considerable decrease in the standard deviation (Time 1 SD =7.27, Time 2 SD= 4.95)

suggests that a larger proportion of the children in this group showed a sizeable decrease in TD scores at the post-intervention follow-up time point.

4.8.3.2. Comparison of the descriptive statistics for Study Two to the SDQ Normative data for the United Kingdom:

The means and standard deviations for the Total Difficulties score and SDQ subscales for the sample in Study Two are shown with those for the SDQ UK normative data in Table 4.6:

Table 4.6. UK Norms (mean and standard deviation) for the SDQ Total difficulty score and sub-scales compared to those for the sample in Study Two:

Teacher Rated SDQ	SDQ UK Norms (n= 4801) Mean (SD)	Selection Method	Study Two Pyramid attendees (n=102) T1 Mean (SD)	Study Two Pyramid attendees (n=102) T2 Mean (SD)	Study Two Comparison group (n=273) T1 Mean (SD)	Study Two Comparison group (n=273) T2 Mean (SD)
Total Difficulty Score	6.70 (5.90)	SDQ & Meeting	8.76 (7.27)	5.08 (4.95)	7.85(7.16)	7.56 (6.60)
		SDQ alone	10.98(5.52)	10.54(5.81)	8.28(6.85)	8.74 (6.97)
Emotional	1.50 (1.90)	SDQ & Meeting	3.84 (2.85)	1.68 (1.97)	1.46(2.00)	1.10 (1.67)
		SDQ alone	3.80 (2.50)	3.49 (2.31)	1.51(2.04)	1.99 (2.33)
Conduct	0.90 (1.60)	SDQ & Meeting	0.74 (1.55)	0.50 (0.88)	1.48(1.93)	1.36 (2.12)
		SDQ alone	1.00 (1.18)	1.11 (1.48)	1.45(1.90)	1.59 (2.11)
Hyperactivity	3.00 (0.80)	SDQ & Meeting	2.78 (2.52)	1.88 (2.27)	3.52(2.94)	3.48(3.39)
		SDQ alone	4.00 (3.14)	4.37 (3.08)	4.01(3.25)	3.81(3.08)
Peer	1.40 (1.80)	SDQ & Meeting	1.39 (1.95)	1.00 (1.43)	1.34(1.83)	1.48 (1.77)
		SDQ alone	2.16 (1.97)	1.72 (1.72)	1.30(1.46)	1.35 (1.74)
Pro-Social	7.30 (2.40)	SDQ & Meeting	7.80 (2.58)	8.61 (1.60)	7.39(2.68)	7.30 (2.67)
		SDQ alone	7.51 (2.56)	7.68(2.12)	6.98(2.73)	6.90 (2.34)

Inspection of the means and standard deviations in Table 4.6 reveal, that consistent with the scores of the Study One sample, the overall TD and Emotional scores for Study Two children in all four groups are considerably higher than the SDQ UK normative means (6.70 and 1.50 respectively) at both timepoints although the differential is not as great as that of the children in Study One (*See Chapter Three, Section 3.7.2.2, Table 3.5).* Mean scores for the other four sub-scales (Conduct, Hyperactivity, Peer and Pro-social) are approximately equivalent to those for the UK normative sample. More importantly, it should be noted that, at post-intervention follow-up, the SDQ & Meeting Pyramid attendee group's scores have decreased sufficiently in both TD and Emotion to be equivalent or slightly less than the SDQ UK normative means whilst the SDQ alone Pyramid attendee and SDQ & Meeting Comparison group scores show modest decreases and the SDQ alone Comparison group scores showed a slight increase on their baseline scores.

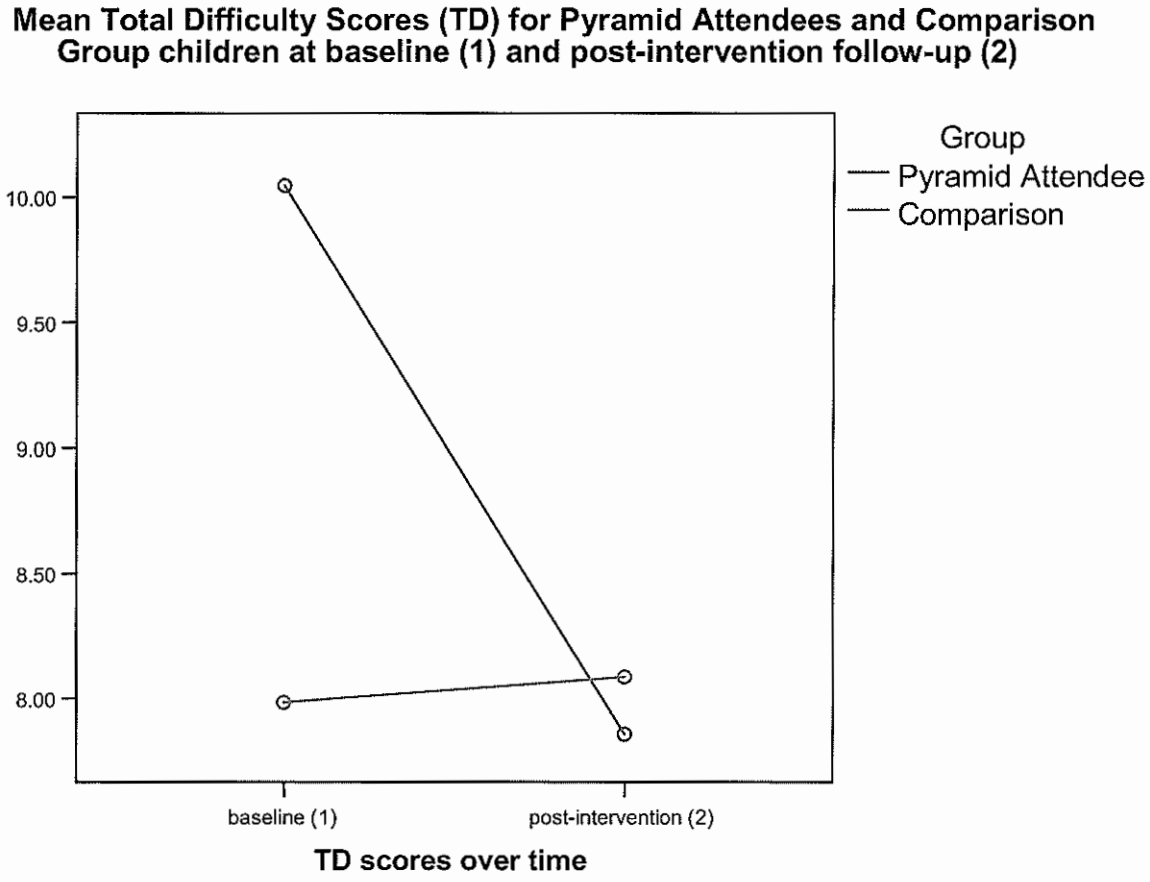
4.8.4. Measures of outcome:

4.8.4.1. Analysis of Total Difficult Scores over time in respect of Group and Selection Method:

To investigate the changes in the children's mean Total Difficulties (TD) scores over time, the transformed data was analysed using a 3-way mixed model analysis of variance (ANOVA) with Group (Pyramid attendee and Comparison) and Selection Method (SDQ & Meeting and SDQ alone) as between subjects variables and repeated measures (within-subjects) on the time factor (baseline to post-intervention follow-up).

The mixed model ANOVA revealed a significant main effect for TD scores over time, ($F(1, 1, 369) = 10.10$, $p < .05$) indicating that the post-intervention follow up TD scores were significantly lower than the TD scores at baseline. Furthermore, there was a highly significant interaction found between TD scores over time and group ($F(1,1,369) = 15.16$, $p < .001$) indicating that the TD scores of one group had decreased more than the other over time and this interaction is shown in Figure 4.2

Figure 4.2:



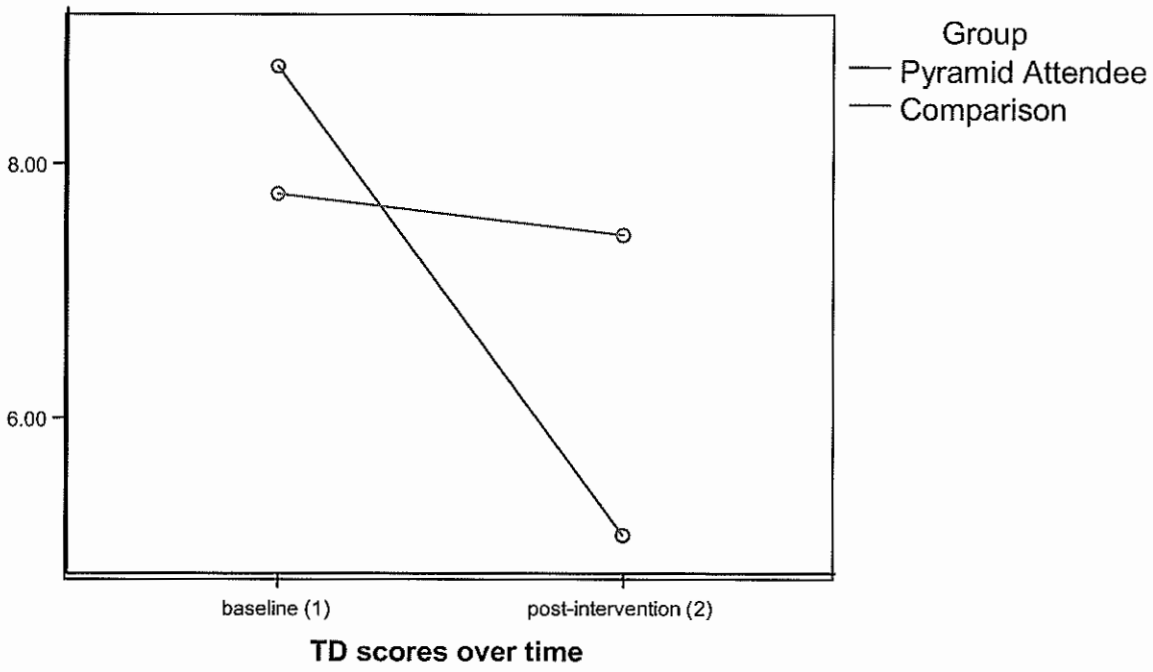
Tests of simple effects were run to decompose the interaction further. There was a significant decrease over time for the Pyramid attendees ($t(101) = 4.51$, $p < .001$) that generated a moderate effect size ($r=0.41$). In contrast, TD scores over time for the

Comparison group showed a very slight increase but this was not significant at the.05 level, (t (270) = -0.996, P> .05).

The mixed model ANOVA also revealed a significant interaction between TD scores over time and selection method (F (1,1,369) = 10.28, p< .01) indicating that the TD scores of children in one selection method group, the SDQ & Meeting group, decreased more than those of the SDQ alone group, this interaction is shown in Figure 4.3.

Figure: 4.3.

Mean TD scores for Pyramid attendees and Comparison group children in the SDQ & Meeting selection method at baseline (1) and post-intervention follow-up (2)



Inspection of the means showed the more improved group to be the schools using the traditional Pyramid selection method (SDQ & Meeting) so tests of simple effects were run to examine the interaction further. The SDQ & Meeting group of schools showed a significant decrease in TD scores at post-intervention follow-up (Time 2), ($t(155) = 2.583$, $p < .05$) tests for the SDQ alone group of schools showed a slight increase which was not significant ($t(216) = -.788$, $p > .05$. In order to confirm which of the two intervention groups within the selection method groups of schools were driving this interaction, further tests of simple effects were run. These tests showed the decrease in TD scores for the SDQ and Meeting Pyramid attendee group to be highly significant ($t(50) = 5.01$, $p < .001$) results that generated a moderate to strong effect size ($r=0.60$). Tests conducted for the SDQ & Meeting Comparison group and the SDQ alone Pyramid attendees showed no statistically significant decrease over time ($t(104) = 0.50$, $p > .05$ and $t(51) = 1.28$ $p > .05$ respectively. Results for the SDQ alone Comparison group indicated that TD scores at post-intervention follow-up had increased and this increase was statistically significant ($t(164) = -2.01$, $p < .05$). The three-way interaction for group, selection method and TD scores over time did not achieve significance ($F, (1, 1, 1, 369) = 2.180$, $p > .05$).

As previously found in Study One, the baseline TD scores for the Pyramid attendees and Comparison children in the Study Two sample showed a marked difference, albeit of a lower magnitude than those for Study One. To investigate the difference further an independent samples t-test was run this revealed that Levene's test was significant ($F(2, 371) = 10.13$, $p < .01$, indicating that the assumption of homogeneity of variance had been violated. The data was then subject to an analysis of covariance (ANCOVA). ANCOVA increases the sensitivity and accuracy of results as it enables the 'partialling out' of the TD baseline scores to adjust for different levels of potential difficulties between the Pyramid attendee and Comparison children (Field 2005; Tabachnik & Fidell, 2007).

A test of the homogeneity of regression slopes was run first and this proved to be not significant, $F(3,366) = 2.17$, $p > .05$ thus indicating this assumption of homogeneity was tenable. The ANCOVA revealed a significant main effect of pre- TD scores indicating that there were significant differences between the groups at baseline ($F(1, 366) = 191.63$, $p < .001$). Consistent with the results of the mixed model ANOVA, there was a

significant main effect for intervention group (F (1,366) = 4.40, p<. 05. However the main effect for Selection Method no longer achieved significance once difference at baseline had been controlled for, F (1,366) = 0.66, p>.05. Once again, these results show that the Pyramid attendee group, despite scoring more highly in potential total difficulties at baseline than the Comparison children, achieved greater decreases in mean total difficulties scores at post-intervention follow-up and these results concur not only with the predictions made at the start of the research programme but also build upon the initial findings of Study One.

4.8.5 Characteristics of the Study Two sample by ethnicity and gender:

4.8.5.1. Ethnicity:

The balance of participant ethnic origin for Study Two (*see Table 4.1, Section 4.3.6.1.)* whilst more evenly spread than that of Study One (*see Table 3.1, Section 3.3.4.1.)* once again showed an greater proportion of participants of Asian origin (39%) compared to those of the London Borough of Ealing demographic statistics (16%), Salford City Council (3.9%) and Pyramid participants nationally (2.5%). Therefore it was considered prudent to explore the implications of this further by investigating separately any potential effects of ethnicity on TD scores over time. Consistent with the data analysis in Study One, individual ethnic categories were collapsed into four larger categories (White origin, Black origin, Asian origin and Mixed/Other origin) to form a four level independent variable 'Ethnic origin' (*see Chapter Three, Section 3.7.3.1).*

A mixed model analysis of variance test was run to discern whether there was any main effect of ethnicity on the data for Study Two. No significant main effect of ethnicity was revealed (F (3,356) = 2.27, p=. 08) however, there was a significant interaction revealed between ethnicity and TD scores over time indicating that the scores of one ethnic group decreased more than the others. Tests of simple effects were run to discern which of the ethnic groups were driving this main effect. These t-tests revealed a significant change in TD scores for children of Asian origin (t (148) = 2.26, p< .05) but no significant decrease

in the other four categories (White British; t (108) = -.21, p>.05; Black British; t (62) = -.42, p>.05; and Mixed Other; t (50) = .79, p>.05). However, there was no significant interaction of TD scores, ethnic origin and intervention group (F (1,3,356) =. 59, p>.05) nor was there a significant three way interaction shown for Ethnic Origin, Intervention group and selection method on TD scores over time (F (1,1,3,356) = .88, p>.05). Therefore it can be construed that, consistent with the findings of Study One, whilst Asian children in both intervention groups across the sample showed a slightly greater decrease in TD scores at post-intervention follow-up, the impact of the intervention across the four ethnic categories and two selection methods was not moderated by ethnic origin. To confirm these results a mixed model ANOVA was run on Pyramid attendee data alone and once again no significant interaction was found between ethnic group and TD scores (F (3,98)= .173, p>.05).

4.8.5.2 Gender:

Consistent with the analysis carried out in Study One, a mixed model ANOVA was run to ascertain whether there was evidence of gender effects for either group. There was a significant main effect of gender (F (1,365) = 11.10, p<. 01) indicating that differences were present between gender scores across both intervention groups at both timepoints. However, there was no significant main effect of gender on TD scores over time (F (1, 1,369) = 1.95, p>.05), nor was there a significant interaction of gender, group, selection method and TD over time (F (1, 1, 1,369) =. 07, p>.05). However, there was a significant interaction of Gender, Group, and TD over time (F (1, 1,369) = 5.81, p<. 05). Tests of simple effects were run to decompose this interaction further. These tests revealed a decrease in TD scores at post-intervention (Time 2) for the male Pyramid attendees that did not achieve significance (t (44) =1.14, p>.05) however, the mean TD scores for female Pyramid attendees showed a decrease at post–intervention that was highly significant (t (57) = 4.68, p< .001 which elicited a strong effect size (r= 0.60). In contrast, male and female Comparison group children's TD scores showed slight increases over time although neither was significant at the .05 level; (t (143)= -.100, p>.05 and t (125) = -1.25, p>.05 respectively).

4.8.6 Characteristics of the sample for Study Two by Strengths and Difficulties sub-scales:

A series of mixed model ANOVA to discern changes in participant mean scores in the five sub-scales of the Strengths and Difficulties Questionnaire was run. The means and standard deviations are shown in Table 4.7 below. In the interests of clarity and consistent with the methods used in Study One, the arithmetic means are displayed as opposed to the log transformed mean scores.

Table 4.7: Study Two SDQ Sub-scale scores for Pyramid attendees and comparison children at baseline (T1) and post-intervention follow-up (T2) by selection method:

SDQ Sub Scale	SDQ & Meeting P. Attendees (n51)		SDQ alone P. Attendees (n52)		SDQ & Meeting Comparison (n106)		SDQ alone Comparison (n167)	
	T1 Mean (SD)	T2 Mean (SD)	T1 Mean (SD)	T2 Mean (SD)	T1 Mean (SD)	T2 Mean (SD)	T1 Mean (SD)	T2 Mean (SD)
Emotional	3.84 (2.85)	1.68*** (1.97)	(2.0) (2.50)	3.49* (2.31)	(2.0) (2.00)	1.10 (1.67)	1.51 (2.04)	1.99* (2.33)
Conduct	0.74 (1.55)	0.50 (0.88)	1.01 (1.18)	1.11 (1.48)	1.48 (1.93)	1.36 (2.12)	1.45 (1.90)	1.59 (2.11)
Hyperactivity	2.78 (2.52)	1.88** (2.27)	4.01 (3.14)	4.37 (3.08)	3.53 (2.94)	3.48 (3.39)	4.01 (3.25)	3.81 (3.08)
Peer	(1.95) (1.95)	1.00* (1.43)	2.16 (1.97)	1.72* (1.72)	1.34 (1.83)	1.48 (1.77)	1.30 (1.46)	1.35 (1.74)
Pro-Social	7.80 (2.58)	8.61* (1.60)	7.52 (2.56)	7.68* (2.12)	7.39 (2.68)	7.30 (2.67)	6.98 (2.73)	6.90 (2.34)

*** $p < .001$

** $p < .01$

* $p < .05$

In order to ascertain that the assumptions of homogeneity of variance had not been violated as had occurred for the Total Difficulty scores, Levene's test was run for each of

the four 'Difficulty' sub-scales. No significant violations of homogeneity were revealed for the following sub-scales at either baseline (T1) or post-intervention follow-up (T2); Emotion (T1) F (1,371) = 0.93, p>.05, Emotion (T2) F (1,371) = 0.02, p>.05; Hyperactivity (T1) F (1,371) = 0.14, p>.05, Hyperactivity T2 F (1,371) F= 0.06, p>.05 and these sub-scales were analysed using mixed-model ANOVA alone. However, Levene's test proved significant for Conduct at both timepoints (T1, F (1,371) =5.16, p< .05 and T2, F (1,371) = 8.15, p<. 01 and also for Peer at both timepoints (T1, F (1,371) =5.63, p< .05 and T2, F (1,371) = 4.68, p< .05) and these were further analysed using ANCOVA in order to account for any baseline differences.

4.8.6.1. Emotion:

Consistent with the results of Study One, the mixed model ANOVA revealed a highly significant main effect for Emotion over time (F (1, 1,369) =14.18, p<. 001). There were significant interactions between Emotion and Group (F (1, 1,369) =18.41, p< .001) and Emotion and Selection Method (F (1, 1,369) =21.38, p< .001), however, a three-way interaction; Group x Selection Method x Emotion over time did not quite achieve significance (F (1, 1, 1,368) = 3.42, p=0.07). Inspection of the means indicated that the SDQ & Meeting Pyramid attendee group also drove these results. Tests of simple effects ran confirmed this assumption, decreases in Emotion at Time 2 for the SDQ & Meeting Pyramid attendee group were highly significant (t (50)=5.76, p<. 001), in contrast, decreases in the SDQ & Meeting Comparison group and SDQ alone Pyramid attendees were slight and not significant at the .05 level (t (104)= 1.55, p>.05) and (t (51) = .739 p>.05) respectively and the scores of the SDQ alone Comparison group actually showed an increase in Emotional difficulties at Time 2 and this was significant at the .01 level (t (164)= -3.52, p< .01).

4.8.6.2. Conduct:

No changes in outcome for Conduct at post-intervention follow-up (Time 2) were discerned for either group or selection method, (F, (1, 1,369) =. 238, p>.05) and (F, (1,369) =1.94, p>.05) respectively.

4.8.6.3. Hyperactivity:

The mixed model ANOVA revealed a significant main effect of Hyperactivity over time, (F, (1, 1,369) = 4.91, p< .05) but there was no significant interaction between Hyperactivity and Group (F, (1, 1,369) = 0.41, p >.05). However, a significant interaction was revealed between Hyperactivity and Selection Method (F, (1,369) = 8.93, p<. 01 indicating that one selection method group's scores had decreased to a greater degree than the other. Furthermore, there was a significant three-way interaction revealed for Hyperactivity, Selection Method and Group over time (F (1,1,1,369)= 3.70, p< .05). Inspection of the means suggested that scores for the SDQ and Meeting Pyramid attendees had decreased more than those of the other groups. Tests of simple effects run confirmed that the decrease in SDQ and Meeting Pyramid attendee's Hyperactivity scores was significant at the .01 level (t, (50) =3.63, p<. 01). In contrast, means for the SDQ alone intervention group showed a slight increase but this was not statistically significant (t, (51) = -1.38, p>.05). Both the Comparison groups showed slight decreases in mean score at post-intervention follow-up (Time 2) neither of which were statistically significant (SDQ alone: t, (164) = 0.41, p>.05 and SDQ and Meeting: (t, (104) =1.38, p>.05).

4.8.6.4. Peer:

There was no main effect for Peer scores over time, neither was there a significant interaction detected for Peer x Intervention group x Selection Method (F (1, 1,369) = 0.02, p>.05). However, the mixed model ANOVA revealed a significant interaction between Intervention group and Peer scores (F (1, 1,369) =7.37, p< .01) suggesting that one intervention group's scores decreased more than the other. Inspection of the means

suggested that both Pyramid attendee group's scores had decreased whilst the Comparison group scores had remained the same or slightly increased (SDQ & Meeting and SDQ alone respectively). Tests of simple effects were run and these confirmed this with Pyramid attendees showing a decrease in mean Peer scores significant at the .05 level ($t(1,102) = 2.13$, $p < .05$) that elicited a modest effect size ($r = 0.21$) and the Comparison group showing a slight increase in mean Peer scores that was not statistically significant, ($t(1,269) = -1.63$, $p > .05$).

As Levene's test for homogeneity of variance had proved significant in respect of Peer mean scores the data for both groups were subjected to more stringent analysis using ANCOVA. The assumption of ANCOVA proved tenable ($F(3,366) = 2.19$, $p > .05$ and the results of the ANCOVA, having controlled for baseline (Time 1) differences, upheld those of the mixed-model ANOVA showing a significant main effect of group on Peer scores at post-intervention follow-up ($F(1,366) = 4.70$, $p < .05$) thus confirming that the greater improvement in Peer difficulties post-intervention was made by children in both the Pyramid intervention groups.

4.8.6.5. Pro-Social:

The Pro-social sub-scale is classed as a strength, therefore an increase in score over time represents an improvement and a decrease the reverse. This method of scoring is the opposite to that for the other four sub-scales (Goodman, 1997). The mixed-model ANOVA revealed a significant main effect for Pro-social scores over time ($F(1, 1,369) = 4.48$, $p < .05$ interaction indicating that Pro-social scores increased between the two timepoints (baseline and post-intervention follow-up). Furthermore, there was a significant interaction between Pro-social scores and Intervention group ($F(1,1,369) = 3.67$, $p = .05$) indicating that one group's scores increased more than the other, however, no significant three-way interaction was revealed for Pro-social scores, intervention group and selection method ($F(1,1,1,366) = 1.18$, $p > .05$). Tests of simple effects were run to decompose the interaction between changes in Pro-social score over time and Group. These revealed a significant increase in Pro-social scores for the Pyramid attendee group ($t(102) = -2.86$, $p < .01$) that yielded a moderate effect size ($r = 0.30$) and a slight

increase for the Comparison group children that did not achieve statistical significance (t (269) = -.311, p >.05).

These results were also subject to analysis using ANCOVA to control for variance in the Pro-social scores, the interaction between Intervention group and Pro-social scores remained significant and at a higher level than reported in the mixed model ANOVA (F (4,368) = 12.33, p< .01.

4.8.7. Effect of ethnicity and gender on SDQ sub-scales for sample in Study Two:

4.8.7.1. Ethnicity:

Consistent with the analysis for Study One a series of mixed model ANOVA was run in order to investigate whether there were any effects of ethnicity for the SDQ sub-scale data for Study Two. No significant main effects or interactions of ethnicity with group and selection method group over time were found for Emotion, (F (3, 356) =1.586, p>.05, F (1,1,3,356) =1.055, P>.05); Conduct, (F (3,356) = 1.854, p>.05, F (1,1,3,356) =1.55, p>.05); Hyperactivity, (F (3,356) = 1.854, p>.05, F (1,1,3,356) = 1.579, p>.05) and Pro-social, (F (3,356) =1.648, p>.05, f (1,1,3,356) =1.217, p>.05). However, a significant interaction was found between Peer and ethnicity over time (F (3,356) = 3.78, P<. 05). Inspection of the means indicated that Asian children across both groups (Pyramid attendees and Comparison) mean scores decreased more than those of the three groups of ethnic Origin. Tests of simple effects were run to examine this further, all three of the other Ethnic groups showed slight increases in Peer scores at Time 2 (post-intervention follow-up) with the White and Black origin groups not achieving significance at the .05 level (t (108) = -.81, p>.05 and t (62) = -1.54, p>.05 but the Mixed origin group increase in scores was shown to be significant (t (50) = -2.08, p<. 05). Only the Asian group showed a decrease in Peer scores at Time 2 and this achieved significance, (t (148) = 2.05, p<. 05). However, more importantly, the two-way interactions for Ethnic Origin and group and three-way interaction for ethnic origin, group and selection method did not achieve significance (F (1,3,356) = .71, p>.05, F (1,1,3,356) = 2.3, p>.05 respectively) therefore indicating that the experience of the Pyramid intervention did not appear to show an effect of ethnic origin. To confirm this, a mixed model ANOVA was run for

peer scores using Pyramid attendee data alone; this too revealed no significant main effect of ethnic origin (F (3,94) = 1.93, p>.05) and no significant interactions with selection method (F (1,3,94) =2.32, p>.05). These results add support to those of Study One wherein no effect of ethnic origin was found on how the intervention was experienced.

4.8.7.1. Gender:

In order to ensure that there was no effect of Gender in respect of the experience of the intervention a series of mixed model ANOVA was run. No main effect of gender or interaction of gender and group were found for the following sub-scales; Emotion, (F (1,365) = 1.17, p>.05 and F (1,1,365) = .92, p>.05); Conduct, (F (1,365) = 3.12, p>.05 and F (1,1,369) = F0.15, p>.05); and Pro-social, (F (1,365) = .35, p>.05 and F (1,1,365) = .020, p>.05). A significant main effect of gender was observed on Hyperactivity, (F (1,365) = 3.67, p= .05) indicating that one gender scored more highly than the other, tests of simple effects confirmed this showing boys scored more highly than girls at both timepoints (Pre-hyperactivity, t (365.44) = 5.83, p<. 001 and Post-Hyperactivity, (t (367.55) = 6.51, p<. 001). Furthermore, the two-way interaction between gender and group was also shown to be significant, (F (1,365) =3.76, p= .05). Tests of simple effects were run to investigate this interaction further and these showed that girls in the Pyramid attendee in group showed a decrease in Hyperactivity scores at post-intervention follow-up (Time 2) that was significant at the .05 level (t (53) = 2.59, p<. 05). Girls in the Comparison group and boys in both the Pyramid attendee and Comparison group also showed decreases in Hyperactivity over the two timepoints but none of these achieved significance (t (125) = .49, p>.05; t (44) = 1.09, p>.05 and t (143) = 1.36, p>.05 respectively). The three-way interaction group, gender and selection method did not achieve significance (F (1, 1, 1,365) = .61, p > .05). A similar pattern of results was shown for the Peer sub-scale. Although no significant main effect of gender was observed (F (1,365) =2.36, P>.05) there was a significant two-way interaction for gender and group. Tests of simple effects were run to examine this interaction. Once again Pyramid attendee girls were shown to have the greatest level of improvement, (t (57) = 3.17, p<.

01), Pyramid boys and Comparison group boys also showed decreases in Peer difficulties, however, these did not achieve significance (t (44) = .18, p>.05 and t (143) = .62, p>.05 respectively). In contrast, Comparison group girls showed increases in Peer difficulties although these were not significant at the .05 level (t (125) = -2.53, p>.05).

4.8.8. Outcome for those children scoring in the higher bands of the SDQ at baseline

In order to assess the progress of all the children on an individual basis a comparison of pre- and post- intervention SDQ banding categories was conducted. As previously described in Study One, (*Chapter Three*), the SDQ has three banding levels which can be used to identify children whose Total Difficulties scores suggest they maybe at a higher risk of emotional, social and behavioural problems. The bandings for the teacher-rated version, used in these studies are defined as follows: 'Normal' Score (0=11), 'Borderline' Score (12-15) and 'Abnormal' Score (16-40) (Goodman, 1997, www.sdqinfo.com).

At baseline, 23 (22.5%) Pyramid attendee children's TD scores placed them within the 'Abnormal' band, 10 (9.8%) within the 'Borderline' band and 69 (67.7%) within the 'Normal' band. As previously reported in Study One, the baseline scores of the sample distribution were higher than the SDQ UK norms (Goodman, 1999) for such a community sample (10%, 10% and 80% respectively). At post-intervention follow-up 9 Pyramid attendees (39%) had moved from the 'Abnormal' to the 'Normal' band, 3 (13%) had moved from the 'Abnormal' band to the 'Borderline' band. The net result of this inter-band movement being that at Time 2 the number of children in the 'Normal' band had increased from 69 (67.7%) to 79 (77%).

Movement in the bandings of the Comparison group were also compared post-intervention. As would be expected as a result of the selection process there was a higher proportion of Comparison group children whose baseline scores fell within either the Borderline (n=28, 10%) or Normal (n= 202, 75%) bands. Inter-band movement at Time 2 was also much less with 5 (1.8%) Comparison group children moving from the 'Abnormal' band to the 'Borderline' band and just one child moving from the 'Normal'

band to the 'Borderline' band. Table 4.8 shows the percentage shifts in SDQ bands for Study Two:

Table 4.8: Number (%) of children in each Strengths & Difficulties Questionnaire (SDQ) category at baseline (T1) and post-intervention follow-up (T2):

	Pyramid Club Attendee group (N = 102)		Comparison group (N = 271)	
	T1	T2	T1	T2
SDQ category (scoring range)	No (%)	No (%)	No (%)	No (%)
Abnormal (16-40)	23 (22.5)	11 (10.7)	41 (15.1)	36 (13.3)
Borderline (12-15)	10 (9.8)	12 (11.8)	28 (10.4)	34 (12.5)
Normal (0-11)	69 (67.7)	79 (77.5)	202 (74.5)	201 (74.2)

From these shifts in scoring bands two important conclusions can be drawn. Firstly, that post-intervention and in concurrence with the findings of Study One, a larger proportion of the Pyramid attendees, are showing greater levels of improvement than their Comparison group classmates as can be evidenced in the higher percentage reduction in their banding scores and secondly, that the Pyramid attendee improvement has not been to the detriment of the Comparison group children whose bandings have barely shifted at all. Additionally, the post-intervention changes in scoring bands brought the percentage distribution of the Pyramid intervention group; Abnormal (10.7%), Borderline (11.8%) and Normal (77.5%) approximately into line with the SDQ UK Norms for a community sample; that is 10%, 10% and 80% respectively.

4.9. Discussion:

4.9.1. Impact of the Pyramid Year 3 intervention on the sample for Study Two

This study set out to further investigate the impact of the Pyramid Year 3 intervention on the socio-emotional health of the Pyramid attendee group and whether the improvements shown in both Study One and prior research would be replicated (Fitzherbert, 1985; Skinner, 1996; Davies, 1999). Significant decreases in the TD and SDQ sub-scale scores revealed at post-intervention follow-up for the Pyramid attendees in this second study suggested this to be the case, thus providing support for both the results of Study One and those of prior research into the effectiveness of the Pyramid model (Fitzherbert, 1985, Skinner, 1996; Davies, 1999).

4.9.2. Improvements in relation to SDQ sub-scales:

The Pyramid Year 3 intervention aims to improve socio-emotional well-being in the children that attend. Therefore, at the outset of this programme of research, it was predicted that children in the Pyramid attendee groups would show greater levels of improvement (i.e. decreases) in the SDQ domains of Emotional and Peer difficulties and an increase in their scores in respect of the Pro-social sub-scale. Furthermore, for the sample of children that took part in Study Two that there would be value-added observed in Pyramid attendees in those schools randomly allocated to the SDQ and Meeting selection method group. Inspection of the mean scores revealed that children in both Pyramid attendee groups showed, statistically significant decreases in both Emotional and Peer difficulty sub-scales and increases in Pro-social behaviour, in contrast both Comparison groups showed an increase in Emotional difficulties that was statistically significant indicating that their emotional difficulties had worsened over time, and only marginal improvements in Peer difficulties and Pro-social behaviour for both Comparison groups that did not achieve significance. Support was also found in these results for the notion that the traditional Pyramid selection method of SDQ screening and multi-agency meeting provides added value to the improvements made by the intervention children

allocated to this group. Pyramid attendee children selected using the SDQ and Meeting method showed levels of improvement that were statistically significant in three of the difficulty subscales (Emotion, Hyperactivity, and Peer) and also increases in Pro-social behaviour that were also shown to be statistically significant. These results build upon those of Study One with greater levels of improvement shown by the Pyramid attendee children in the Study Two cohort and provide further support for prior research by Davies (1999) and Skinner (1996) in respect of the effectiveness of the Pyramid intervention in improving children's socio-emotional health status.

4.9.3. Results in respect of the selection component (Stages One and Two) of the Pyramid Model:

The Pyramid Year 3 intervention described in this and the preceding study is by definition a selective intervention (Munoz et al, 1996). Furthermore, it could be suggested that Stages One (screening of the entire Year 3 cohort) and Two (multi-agency meeting to discuss children whose scores place them within the higher risk bands of the SDQ with a view to onward referral) of the Pyramid model comprise a universal intervention. From this perspective the multi-agency meeting (*Chapter Two, Section 2.2.2.2 refers)* can be viewed as an essential element of the selection procedure, wherein the Strengths and Difficulties scores of children that suggest that they may have socio-emotional problems are reviewed and knowledge shared regarding children known by the professionals present to be experiencing particular emotional or peer-related difficulties (Pyramid, 2007). Conversely, it could be argued that this meeting might provide an opportunity for the misallocation to Pyramid of children who might indeed have sufficient difficulties to be considered for intervention but whose difficulties do not fit the acknowledged Pyramid profile *(see Chapter Two, Section2.2)* and whose presence in the Club might moderate any beneficial effects and thus the level of improvement for other attendees. The first study in this research programme (Study One), marked differences in baseline Total Difficulty scores between Pyramid attendees and the Comparison group children gave rise to concern that this might indeed be the case and given that the sub-scales of the Strengths and Difficulties Questionnaire (SDQ), (Goodman, 1997) map on

so well to the intended outcomes of the Pyramid intervention it is reasonable to consider that allocation might be made purely on the results of the baseline SDQ screening scores. Furthermore, none of the prior evaluations of Pyramid had examined the model itself focussing instead upon pre- and post-intervention outcomes for socio-emotional competencies and whether there was any impact on academic achievement for Pyramid attendees (Cooper, 2001; Davies, 1999; Headlam-Wells, 2000 and Skinner, 1996). Therefore, a major focus of this second study (Study Two) was to investigate the selection component of the Pyramid model, (Stage Two), to discern whether there is any value-added by using a combination of screening using the SDQ (Goodman, 1997) and a multi-agency meeting in order to select children who would most benefit from attending a Pyramid Club. Additionally, it was predicted, that if there was any valued-added by use of the traditional selection component of the Pyramid model (Stage One Screening plus Stage Two Multi-Agency Meeting) then it would be expected that any improvement detected in the post-intervention follow-up, (Time 2), SDQ scores would be shown to be greater for those children allocated to the Pyramid intervention group by this selection method.

The results of this second study (*Section 4.7 refers*) support this supposition with improvements in the post-intervention follow-up (Time 2) SDQ scores being driven by those of the SDQ & Meeting (traditional Pyramid selection method) group of Pyramid attendees. Decreases in mean SDQ scores reveal that they were the only group whose post-intervention follow-up (Time 2) scores showed decreases in every 'Difficulty' category and that those decreases for TD scores; Emotional Difficulties; and Hyperactivity were statistically significant at the .05 level or below. In contrast the other three groups (SDQ alone Pyramid attendees and both Comparison groups showed either small decreases or in some instances small increases in their post-intervention follow-up (Time 2) scores (*refer to results section, 4.7*). Importantly these results provide early indication that the traditional Pyramid selection model (Stages One and Two *see Chapter Two, section 2.2)* does indeed offer valued-added to the level of improvement in Pyramid attendee children.

4.9.4. Improvements in respect of children who scored in the 'higher risk' SDQ bands

As predicted, the baseline TD scores of the Pyramid attendee group children in Study Two were greater than those for their Comparison group classmates. In common with the pattern of results shown in Study One, more movement between scoring bands was shown at post-intervention follow-up by Pyramid attendee children from both selection method groups (25% of Pyramid attendees). Children in both Comparison groups within the cohort of this second study (Study Two) had a higher representation within the 'Abnormal' and 'Borderline' bands than those in the prior study (Study One) that is 15.1% and 10.4% respectively, but a similar level of band shift movement (4% compared to 5%) to the Comparison children in Study One. Overall shifts in scoring bands for the Pyramid attendees in both selection method groups brought their post-intervention follow-up scoring percentages (10.7% Abnormal, 11.8%, Borderline and 77.5% Normal) in line with those for the community sample UK Norms of the SDQ (10%, 10% and 80% respectively) whilst those of both Comparison groups remained reasonably static and high in relation to the SDQ UK norms at (13.3% 'Abnormal, 12.5% Borderline and 74.2% Normal).

4.9.5. Impact of the Pyramid Year 3 intervention in respect of ethnicity:

Despite the inclusion of an additional Pyramid scheme (Salford) in Study Two there was once again found to be a higher proportion of black and ethnic minority participants, principally Asian (39% of the sample) when figures were compared to local demographic statistics for both areas where data were collected (*section 4.3.6.1 refers*). Therefore, consistent with the methods used in Study One further analysis was carried out to investigate whether as a result of this there might exist a moderating effect of ethnic origin on the impact of the Pyramid Year 3 intervention.

This further analysis of the Study Two data revealed, that whilst Asian children across both Pyramid attendee and Comparison groups showed marginally greater decreases in their TD scores than children from the other groups of ethnic origin there was no main effect of, or interaction with, ethnicity and the intervention group of either selection

method. This finding further suggests that for the Study Two Pyramid attendees the intervention was experienced with equivalence across the four identified categories of ethnic origin.

4.9.6. Impact of the Pyramid Year 3 intervention in respect of gender:

Contrary to the results for Study One, female Pyramid attendees in Study Two showed greater levels of improvement than the males. However, this finding is consistent with the reported performance of girls within education nationally. The Office of National Statistics reports that girls routinely outperform boys throughout their school career with the difference starting as early as Key Stage One in primary (ages 5-7 years old), (www.statistics.gov.uk, accessed 8th December, 2008). It should be noted that in both the samples for the current study (Study Two) and its precursor (Study One), the number of female Pyramid attendees was greater than that of the males. Furthermore, Keiley, Bates, Dodge and Pettit (2000) have suggested that teachers may be more likely to report higher levels of externalising behaviours for boys, with boys having higher incidence of diagnosis for oppositional and conduct disorders. This could result in the girls' behaviour being compared more favourably or teachers rating them more often on the internalising end of the behavioural continuum thus resulting in more girls being selected as suitable for inclusion in the Pyramid intervention group (Keiley et al, 2000).

4.9.7: Results of Study Two in relation to those of Study One:

Overall the results of both this second study, (Study Two) and its forerunner (Study One) can be seen to provide more evidence for the efficacy of the Year 3 Pyramid intervention on two fundamental counts. Firstly, there are clear statistical indications that in both studies the Pyramid attendee children's improvements at post-intervention follow-up outrank those of their Comparison group classmates and therefore what positive changes might also be reasonably expected over the time period in due to typical maturational changes. Statistically significant improvements in Pyramid attendee TD scores were found in both studies and furthermore a greater percentage of Pyramid attendees showed

downward shifts in SDQ scoring bands whilst inter-band movement for the Comparison group children across the two studies remained comparatively static. A similar pattern of Pyramid attendee improvement was observed in the individual sub-scales of the SDQ; with statistically significant decreases shown in the domains of Emotional and Conduct difficulties in Study One and in all four of the 'difficulty' sub-scales in Study Two.

Secondly, the results of Study Two provide support for the notion that value-added is provided to the outcome of those Pyramid attendee children selected through the use of the traditional Pyramid two-stage selection method over those selected using the Strengths and Difficulties Questionnaire baseline measure alone. Previous research into the efficacy of the Pyramid Year 3 intervention had not addressed any of the components of the model (Cooper, 2000, Davies, 1999, Headlam-Wells, 2000; Skinner, 1996) in terms of how they might contribute to any beneficial effect of the intervention on the children that take part. This finding should be considered a strength of the current programme of studies as it places the Pyramid Year 3 intervention at the crux of recent recommendations concerning the role of schools in ensuring pupil emotional health and well-being (Department of Children, Schools & Families, (DCSF) 2008; National Institute of Health & Clinical Excellence (NICE), 2008).

The greater percentage of children in the entire cohort of Study Two with higher levels of socio-emotional and behavioural problems at baseline clearly had an impact on the results for both groups but importantly, this did not detract from the greater level of improvement in the Pyramid attendee groups compared to lesser improvement in both Comparison groups. Further analysis provided no evidence of effect of ethnicity, although in both groups of Pyramid attendees the girls showed a greater level of improvement than the boys, which proved to be statistically significant, however, this might be attributable to the fact that there were a greater number of girls than boys in the intervention group in the Study Two sample.

Furthermore, these results were maintained and in some instances improved upon when subjected to the more rigorous analysis of ANCOVA thus further demonstrating that the Year 3 Pyramid Club programme provided an effective intervention for the children in Study Two as it had previously for those in Study One.

4.9.8: Concluding comments:

The significant improvements revealed following the Pyramid intervention described in these two studies, whilst encouraging, have only demonstrated the preliminary goal of showing a short-term improvement as a result of the intervention. Therefore it was considered both prudent and necessary to follow-up this cohort in a longitudinal manner. However, this longitudinal study was constrained by the time frame of the research project and the arrangement of the academic school year. Thus the third and final quantitative element of this research programme consists of a follow-up collection of data at 12 months (post-intervention) of the first cohort (Year 3 of the Academic year 2006/2007) of Study Two (Chapter Five).

things. Eventually they may become disaffected with school, an early predictor of poor performance and subsequent premature departure from education (Buhs & Ladd, 2001; Coie, 1990; Connell & Wellborn, 1991; Ladd, Herald-Brown & Reiser, 2008). Furthermore, children who withdraw socially may be at risk of peer-rejection if their withdrawal persists through middle-childhood. Peer-rejection has been shown to be related to lowered participation rates in the classroom (Ladd, Herald-Brown & Reiser, 2008). Fordham & Stevenson-Hinde, (1999) found that withdrawn children were likely to experience rejection and low self-worth and this pattern became more salient through middle childhood as puberty was approached (Fordham & Stevenson-Hinde, 1999). However, they also found that these detrimental effects could be mediated by the involvement in and maintenance of a good quality friendship indicating that the approval of just one or two of one's peers might be enough to increase self-validation (Fordham & Stevenson-Hinde, 1999; Schwartz, Dodge, Pettit & Bates, 2000). Therefore this would suggest that there exists a need for children who present more with internalising traits and who struggle to assert their needs both in the classroom and the playground to take part in an intervention that will provide them with an opportunity to rehearse their socio-emotional skills in the accepting environment of a ready-made peer group (Pyramid, 2007).

It has been suggested that researchers seeking to demonstrate the primary preventative effects of interventions are faced with several challenges not least of which is the difficulty in specifying the timing of the onset of certain disorders from a developmental perspective (Durlak & Wells, 1997). This factor may make it difficult for researchers to gauge whether it is the intervention that has successfully averted development of maladaptive behaviour or the natural passing of time (Durlak & Wells, 1997). However, despite this it is essential to evaluate the long-term benefits of programmes such as the Pyramid Year 3 intervention in order to discern whether beneficial effects observed post-intervention, are not just shown in the short-term but prove to be more enduring.

Additionally, it is important to try to determine whether the programme might have provided an 'enhancement effect'- that is, not only does it demonstrate positive post-

intervention changes in behaviour in the short term but it is also shown that it might enable attendees to acquire competencies and coping skills that will help them deal with subsequent difficulties they might face (Cowen, 1994).

Substantiation for the need to evaluate the effect of interventions over a longer time period post- intervention is provided in recent guidance published by the National Institute for Health & Clinical Excellence (NICE) on the promotion of social and emotional wellbeing in primary schools (NICE, 2008). Many of the interventions considered within the NICE reviews showed short-term health benefits and several of these were also interventions that, in common with the Pyramid Year 3 intervention, ran for shorter periods of time (8-10 weeks). However, this guidance also identified that overall there was a gap in the evidence on the effect of these interventions on pupil mental health and emotional wellbeing outcomes in the longer term and that it is necessary for this gap to be addressed in order to augment the evidence base (NICE, 2008).

Hence, it may be construed that intervention programmes that can demonstrate the continued enhancement of coping skills after initial post-intervention improvement has been shown, could be viewed as extending further the benefits of attendance in addition to adding to the evidence base.

Studies One and Two (*previously described in Chapters Three and Four*) provide support for the short-term efficacy of the Pyramid Year 3 intervention as demonstrated in prior research (Davies, 1999; Headlam-Wells, 2000; Skinner, 1996). The research described thus far has concentrated upon the short-term goal of monitoring change to participant's scores on the Strengths and Difficulties Questionnaire (SDQ) pre- and post–intervention. In both studies it was shown that improvement in Pyramid attendee SDQ Total Difficulty and sub-scale scores was of a greater magnitude (with the majority of changes in Pyramid attendee sub-scale scores achieving statistical significance) than improvement shown by their Comparison classmates. Furthermore, despite both samples having an over-representation of participants from black and ethnic minorities, ethnicity was not shown

to moderate the effect of how the intervention was experienced across the four identified ethnic groups. These results indicated that in the short term, the Pyramid Year 3 intervention provided Pyramid attendee participants, in both studies One and Two, with an effective intervention that not only reduced levels of socio-emotional difficulties post-intervention but also brought the SDQ scores of Pyramid attendees scoring in the higher risk bands for the Total Difficulty score to a level that were commensurate with the SDQ UK normative values.

In addition to the two studies described in this thesis and those of Davies (1999) and Skinner (1996) and Headlam-Wells, (2000), there has been one long-term, mixed-methods follow-up study of Pyramid carried out since the original research by Fitzherbert, (Cooper, 2000). Cooper interviewed eleven Year 8 high school pupils (eight Pyramid attendees and three control group children) who, whilst in primary school, had taken part in prior Pyramid research (Skinner, 1996). A semi-structured interview was used with both Pyramid attendees and Control children being asked to rate their perception of their progress to date in learning skills and motivation, social relationships and self-esteem and also to rate how they had changed over the past five years (since the previous study). In addition, the former Pyramid attendees were asked to reflect on their experience of attending the Clubs. Form tutor-ratings of the children were also completed using a health and welfare screening checklist containing items concerning the four domains that formed the basis of the interview; school progress (n=5), learning skills and motivation (n=5), relationships and social skills (n=10) and self-esteem (n=3). Cooper found a mean increase in teacher ratings over the five year time span for the Pyramid attendees, which achieved significance at the .05 level in all four domains. No significant changes were reported for the Control children over time although the mean ratings for the 'school progress' domain was higher at both timepoints for this group indicating that the Pyramid attendees were likely to have overall greater need. The qualitative data revealed that the Pyramid attendees rated themselves more highly than the control group children in terms of 'ability to seek help when necessary' and 'getting on well with teachers' and in terms of 'confidence in their progression' since primary school. Furthermore, six of the former Pyramid attendees clearly remembered the Clubs

and specifically mentioned the enjoyment of being with the undergraduate volunteers who ran the Club and also how easy they found it to talk to them about their problems. All the attendees felt it had provided an opportunity to make friends and this had benefited them. However, these results should be treated with a degree of caution as the sample size is very small and significant amounts of missing data from the quantitative element of the study were reported (Cooper, 2000).

Although the results of Studies One and Two provide encouraging indications for the efficacy of the Pyramid Year 3 intervention it was deemed necessary and prudent to collect follow-up data at a further time-point in order to determine whether the effects shown were enduring, i.e. participants were maintaining the improvements in their SDQ scores by the end of the following academic year. Therefore the principal objective of this third study is to follow-up children who took part in the first cohort of the Study Two sample (academic year 2006/2007).

5.2. Design:

Consistent with the analysis of both Studies One and Two, a mixed model design was used; 2 Selection Methods, (SDQ & Meeting versus SDQ alone) x 2 Groups (Pyramid intervention group versus Comparison group) x 3 time-points (pre-intervention, post-intervention and twelve month follow-up) with repeated measures on the time factor, to investigate whether changes observed immediately post-intervention (Study Two) in Pyramid attendee and Comparison group children's mean SDQ scores would be maintained at the third time point (i.e. twelve months post-intervention). As in both prior studies (One and Two), the children's socio-emotional health status was measured at time-point three using the Strengths and Difficulties Questionnaire (Goodman, 1997).

5.3. Method:

5.3.1. The sample population

The participants were all primary school children attending four West London primary schools (two schools were one-form entry and two were two form entry) and two schools

in Salford, Greater Manchester (both were one-form entry) all six schools previously participated in the first cohort of Study Two. Data was not received from teachers for some of the Comparison group children in two of the West London schools (n=29) and across the six schools 46 children had moved, either away from the area or changed schools. Therefore, time-point three follow-up data was available for 65% of the original sample (n=130; 62 of the children were boys and 68 girls). Of these, 54 children were Pyramid attendees and 76 were Comparison group children.

5.3.2. London Borough of Ealing

The London Borough of Ealing is an ethnically diverse borough to the west of the centre of London, forty one percent of its population belong to black and ethnic minorities (BME) the largest group being from the Indian sub-continent. There is also considerable social and economic inequality with 16% of its wards being within the 20% most deprived in the country and 10% being amongst the least deprived. It is described in more detail in Chapter Three *(Section 3.3.3 refers).*

5.3.2.1. Salford, Greater Manchester

The city of Salford is on the western side of Greater Manchester, it is ranked within the 10% most deprived areas in England (Index of Mass Deprivation, 2004). The incidence of BME in Salford is far lower than that for Ealing (3.9%). It is described in more detail in Chapter Four *(Section 4.3.3.2 refers)*

5.3.3. West London Schools:

Four London schools took part in the follow-up study, three were two form entry and one was one form entry *(refer to Chapter Three, section 3.3.*

5.3.4. Salford Schools:

Two Salford schools took part in the follow-up study, both schools were one form entry *(refer to Chapter Four, section 4.3)*

5.3.5. Participant schools and Participant children:

All the participants were primary school pupils in Year 4 attending schools in either the London Borough of Ealing, (four Schools) or the City of Salford, Greater Manchester, (two schools). The age range for the sample was 8-9 years with a greater number of the children, (85%), being aged 9 at time-point three data collection (July 2008).

5.3.6. Attrition:

As previously stated the attrition rate for this follow-up study was 35% of the original sample. Across the six schools, forty-six children, (an average of seven per school), had left between the start of the academic year in September 2007 and the point of data collection in July 2008. A further 29 children in the Comparison group had incomplete data or were omitted from data collection by their class teacher's non-completion of a form.

5.3.7.1. Pyramid participant ethnicity in Study Three compared to participant ethnicity in Studies One and Two and Pyramid participant ethnic profile nationally:

The ethnic profile for the entire sample of Study Three is shown in comparison to those of Studies One and Two and Pyramid participants nationally in Table 5.1. Consistent with that of Study Two, the West London sample had a diverse multi-ethnic demographic, conversely, the Salford sample was predominantly White British (92%) and this is representative of reported figures for the Salford area demographic which show 94% of residents being of White British origin (www.salford.gov.uk accessed August, 2008). Compared to the Pyramid national statistics for ethnicity shown in Table 5.1 (Pyramid, 2007),

Table 5.1: Ethnicity of Sample for Study Three compared to the sample for Study Two and Pyramid nationally (2006/2007) by percentage:

Ethnicity	Study Three Participants by %	(N)	Study Two Participants by %	(N)	Pyramid Participants Nationally by %
White British	39.2 %	(51)	23.9 %	(89)	77%
Black British	12.3%	(16)	11.5 %	(43)	3%
Indian Asian	10.8%	(14)	13.4 %	(50)	2%
Pakistani Asian	10.8%	(14)	26%	(97)	0.5%
Somali	6.9%	(9)	4.6%	(17)	1%
Eastern European	2.3%	(3)	5.9%	(22)	1%
Mixed Black/White	3.1%	(4)	2.4%	(9)	9%
Mixed Asian/White	0%	(09)	1.3%	(5)	0.5%
Other	14.6%	(19)	11.0%	(41)	6%
Total	100%	(130)	100%	(373)	100%

The ethnic balance of participants has shifted in Study Three from a higher proportion of children of Black and Ethnic minority (BME) origin to an approximately equivalent percentage of BME children (40.8%) in relation to children of white origin (41.3%). These figures are also representative for the ethnic profile of the London Borough of Ealing (BME = 41%, White Origin = 45%) however they are higher for those of Salford (BME = 3.9%) and for Pyramid Nationally (BME = 6.5%). However, in the interests of consistency with the procedure adopted in both Studies One and Two, the results will be further analysed to investigate any implications that for this sample ethnicity has an effect on Strengths and Difficulties scores over time.

5.3.7.2 Special Educational Needs (SEN) status profile of the sample for Study Three compared to that of the sample for Study Two and Pyramid participants SEN profile nationally:

As previously discussed in Chapter Three, the current national provision for children with Special Educational Needs (SEN) is classified using three categories (*see section 3.3.4.2 for detailed analysis of these*). The figures for SEN children accessing the Stage Two screening component and participating in Pyramid Clubs nationally is 32% with 67% of those discussed at the Stage Two multi-agency meeting being selected to take part in Pyramid Clubs and 15% being referred on to other more appropriate intervention (Pettit & Kwast, 2004). Of these SEN children 31% are classified at School Action or above.

Within the sample for Study Three SEN figures are only available for children who took part in the schools that were originally randomly allocated to Selection Method One (Strengths and Difficulties Questionnaire (SDQ) screening plus Multi-Agency meeting) (*Section 4. 5.3.1 refers)* in Study Two, as the other schools used selection by SDQ screening alone. In these three schools it was reported that fifteen children from the follow-up cohort of Pyramid attendees were registered as having SEN status all at the School Action level and this represents 27% of this group. Overall, these figures for Study Three SEN status in Pyramid attendees, is slightly lower but comparable to the Pyramid national figure of 32% (Pettit & Kwast, 2004).

5.3.7.3: Gender split of participants in Study Two compared to the sample for Study One and Pyramid participants nationally:

There were a slightly higher number of girls in the overall sample for Study Three, (68 to 62 boys) and considerably more girls in the intervention group (35 to 19 boys). The number of girls is greater than both the gender split for Study Two (57 girls and 46 boys) and for Pyramid figures nationally for 2006/2007 (599 girls and 597 boys).

5.4. Measure:

The Strengths and Difficulties Questionnaire T4-16 (SDQ) (Goodman 1997)

At the twelve-month follow-up time point (Time 3), the SDQ was once again the principal measure of the socio-emotional status of the participants. The Strengths and Difficulties Questionnaire (SDQ) is a brief behavioural screening questionnaire that takes a few minutes to complete by parents, carers or teachers of children aged 4-11 and there is a self-report version for children aged 11-16. It is widely used in both the National Health Service and schools. It consists of 25 items divided into five sub-scales; four of which measure potential 'difficulties' being emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship problems. The fifth sub scale measures pro-social behaviour and is treated as a strength alone. The measure can be used to define 'caseness' using combinations of the five sub scale scores. The bandings (out of a possible score of 40) for the Total Difficulties Score are: Normal (0-13), Borderline (14-16) and Abnormal (17-40) (Goodman 1997) (*Refer to Chapter Three, Section 3.3 for further detail*).

5.4.1 Teachers as Informant-raters:

Consistent with the procedure used in Studies One and Two, class teachers were again used as informant-raters for the completion of the SDQ forms at the twelve-month follow-up timepoint (*See Chapter Three, Section 3.4.6.*) To ensure parity between the ratings of the Year 3 class teachers who had completed the pre and post-intervention timepoints (Times 1 & 2) and the Year 4 class teachers who completed the SDQs for the twelve-month follow-up (Time 3) inter- rater reliability was calculated using Cronbach's alpha and these alpha values are reported in the Results *(Section 5.7. refers).*

5.5. Procedure:

5.5.1. Informing parents and gaining consent:

As per the original procedure of Studies One and Two (*Chapter Three Section 3.5.3.)*, parental permission for the Comparison group children was obtained using a system of 'opt-out' consent at the time of the first two collections of data (2006-2007 and 2007-2008) after information sheets describing the evaluation process were issued to all children in Year 3 (*See Appendices 4 & 5 for copies of participant information sheets and opt-out consent forms*). In line with recommended procedure (Pyramid, 2007) further written consent was obtained for all the children selected as Pyramid attendees and these were sent out on the school's own headed paper (*an example of one of these letters can be found in Appendix 6).* Written parental consent was received for all children in the Pyramid intervention group within the Study Three cohort.

Year 4 Class teachers completed SDQ forms for all the children with parental permission to take part in the follow-up study. Reports outlining the result of the follow-up SDQ scores were prepared and disseminated to all participating schools by the researcher, *(an example may be found in Appendix 7*) the scores of any children seen to represent a cause for concern from either the Pyramid intervention or Comparison groups were discussed with the relevant Class teacher so that further action could be taken to provide the necessary support.

5.6. Statistical Analysis:

5.6.1. Distribution of the data:

Following the original procedure used in both Studies One and Two, the data was tested to ensure it met the assumptions for parametric testing (*see Chapter Three, Section 3.6.1*). Any data that showed evidence of skewness were subsequently transformed using log to the base of 10 transformation, as recommended by Field (2005) and as per Studies One and Two. This transformed data was used to run the appropriate inferential tests (*Chapter Three, Section 3.6.1. refers).*

5.6.2. Analyses of outcome and improvement:

5.6.2.1. Mixed model analysis of variance (ANOVA)

Mixed model analyses of variance were used to test for main effects and any interaction of the independent variables, (timepoint, group and selection method) upon the dependent variable (mean scores of the SDQ and its sub-scales). Significant interactions discerned were then subjected to tests of simple effects to investigate the effects further. Effect sizes were calculated for any resulting t-tests that proved statistically significant ($p < .05$).

5.6.2.2. Analysis of covariance (ANCOVA)

5.6.2.2.1 Detecting and accounting for differences in baseline scores between groups:

Levene's test was run to discern whether the assumption of homogeneity of variances had been violated. If this was proved to be the case then analysis of covariance was run to provide more stringent analysis of the data consistent with the methods of statistical analysis used in Study One (*See Chapter Three, Section 3.6.2.2.*).

5.6.2.3. Shifts in SDQ scoring bands:

Shifts in SDQ scoring bands generated by changes in mean SDQ scores for both Pyramid attendee and Comparison group children were examined as per the original statistical analysis used in Study One, (*See Chapter Three, Section 3.6.2.3.*).

5.7. Results:

Class teachers completed Strengths and Difficulties Questionnaires at twelve-month follow-up for 130 of the 205 children in the first cohort of Study Two (academic year 2006/2007). It should be noted that 75 of the original participants were excluded from the final data analysis; 29 Comparison group children had sufficient amounts of missing data to exclude them, and 46 children (Pyramid attendees n=7 and Comparison group n=

39) had either changed schools or moved away from the area in the course of the year between data collection points. Therefore the final analysed sample consisted of 54 Pyramid attendees and 76 Comparison group children.

5.7.1. Potential differences between the Salford and West London Samples:

To ensure parity between the two areas in respect of participant demographic characteristics a series of chi square tests was run during the analysis of Study Two to ensure there were no significant association in either of the two areas that might indicate one showing a greater prevalence of any of the major demographic variables than the other *(Section 4.8.1 refers)*.

5.7.2. Potential differences between teacher-raters at pre- and post-intervention (Time 1 and Time 2) and twelve-month follow-up (Time 3):

In Study Two, SDQ forms at both timepoints, (pre and post-intervention) had been completed by the same Class teacher. However, as the children had moved up into Year 4 it was necessary to ensure that there was inter-rater agreement amongst the class teachers for both year groups in all participating schools. Therefore, Cronbach's alpha analyses were run for the Total Difficulty (TD) scores and all five-subscales to ensure agreement amongst teacher-raters across the three time-points. Very strong levels of agreement were found for TD (α=0.80), Conduct (α=0.81), Hyperactivity (α= 0.87), Pro-social (α= 0.83) and Peer (α= 0.71) and a moderately strong level of agreement was found for Emotion (α =0.60).

5.7.3. Exploratory data analyses:

Visual inspection of histograms suggested that the data for Study Three was positively skewed therefore ratios of the skewness statistic to its standard error were calculated for all the SDQ sub-scales and these ratios are presented in Table 5.2:

Table 5.2: Ratio of skewness to its standard error for Time 1, Time 2 and Time 3 mean SDQ Sub-Scale scores for Study Three:

	TDS	Emotion Difficulties	Conduct Difficulties	Hyperactivity	Peer Difficulties	Pro-Social
Time 1	3.62***	4.32***	9.36***	2.02**	6.29***	-2.29**
Time 2	3.28***	2.90**	7.42***	2.56**	4.55***	-4.56***
Time 3	3.30***	5.56***	6.72***	1.77ns	7.99***	-2.98**

*** *p <. 001*

** *p< .01*

* *p <.05*

ns = not significant

TDS = Total Difficulties score

As occurred previously in Studies One and Two, the sub-scales that comprise the Total Difficulty Score, (Emotion, Conduct, Hyperactivity and Peer difficulties) showed positive skew to a level that was statistically significant (p< .001 in the majority of cases, Table 5.2 refers). Furthermore, evidence of negative skew was found in the Pro-social sub-scale and this too was statistically significant at all three timepoints. Non-normality of data was confirmed by running the Kolmogarov-Smirnov test which revealed that the data of both intervention groups was positively skewed at all three timepoints; (Pyramid attendees at baseline, D (56) = .170, p<. 001; post-intervention, D (56) =. 131, p<. 01; twelve-month follow-up D (56) = .156, p<. 01 and Comparison group at baseline D (76) =. 134, p<. 01; post-intervention D (76) = .144, p<. 001; twelve-month follow-up D (76)= .113, p<. 001). Therefore, consistent with the treatment of data in Study One, (*see Chapter Three, Section 3.7.1*), log to the base of 10 transformations (+1 to account for 0 values in the SDQ scoring range and with the required adjustments for the negatively

skewed Pro-social sub-scale data) were employed to reduce the level of skew as recommended by Field (2005) across all five sub-scales.

5.7.4. Analysis of the SDQ Total Difficulties score:

5.7.4.1. Descriptive statistics:

The means and standard deviations of the Total Difficulties scores for both Pyramid attendee and Comparison group children are shown in Table 5.3. It should be noted that in the interests of clarity the arithmetic means and standard deviations for the baseline, post-intervention and twelve-month follow-up SDQ scores for both groups and selection methods are presented as opposed to the transformed mean scores, as these are more meaningful when interpreting the scoring bands of the SDQ.

Table 5.3: Descriptive statistics for TD scores at Time 1, Time 2 and Time 3 for Pyramid attendees and Comparison group children:

Group (Selection Method)	Baseline (T 1) Total Difficulty Scores M (SD)	Post–Intervention (T 2) Total Difficulty Scores M (SD)	Twelve-Month Follow-up (T3) Total Difficulty Scores M (SD)
Pyramid attendees:			
(SDQ & Meeting)	8.29 (6.56)	5.25 (4.56)**	7.07 (6.10)
(SDQ alone)	10.50 (5.32)	10.19 (5.91)**	8.77 (6.06)*
Comparison group:			
(SDQ & Meeting)	8.11 (6.96)	10.70 (7.54)	10.89 (9.48)
(SDQ alone)	7.90 (7.08)	8.14 (6.24)**	10.16 (7.59)

*** $p < .001$

** $p < .01$

* $p < .05$

Inspection of the means in Table 5.3 reveals, that for the children followed-up from the first cohort (academic year 2006-2007) of Study Two, mean TD scores decrease between pre- and post –intervention (timepoints 1 and 2) and these decreases are significant at the .01 level. However changes in mean score measured at the twelve-month follow-up point do not achieve statistical significance indicating that the level of improvement in both selection method groups of Pyramid attendees has been maintained. Conversely, of those children followed up from the Comparison groups, the mean TD scores show increases at both post-intervention timepoints (Time 2 and Time 3) suggesting their socio-emotional competencies, as measured by their class teachers in Years 3 and 4 have deteriorated. Consistent with the results of Study Two, the highest level of baseline (Time 1) Total Difficulty (TD) scores are found in the SDQ alone Schools (Selection Method Two) Intervention group children (mean =10.50) and their scores show only a modest decrease at post-intervention follow-up (Time 2) (mean = 10.19) with very little variance in the spread of scores (Time 1 SD = 5.32, Time 2 SD= 5.91). However, their mean scores continue to decrease and have fallen to 8.77 by the twelve month follow-up (Time 3). The Comparison group children in the SDQ alone schools, whilst scoring lower in baseline TD scores (mean = 7.90), showed a slight increase in their TD scores (mean = 8.14) at post-intervention and by twelve-month follow-up this had increased to a mean TD of 10.16. The decrease in scores for the Pyramid attendees in the SDQ and Meeting (Selection Method One) is of a far greater magnitude; (Time 1 TD score, mean = 8.29, Time 2 TD score, mean = 5.25) however their TD scores increase slightly at Time 3 (mean = 7.07) but this increase is not statistically significant and the results for this group overall suggests that a larger proportion of the children in this group showed a sizeable decrease in TD scores at the post-intervention follow-up time point and have maintained this improvement over time.

5.7.4.2. Comparison of the descriptive statistics for Study Three to the SDQ normative data for the United Kingdom:

The means and standard deviations for the Total Difficulties score for the sample in Study Three are shown with those for the SDQ UK normative data in Table 5.6:

Table 5.6. UK Norms (mean and standard deviation) for the SDQ Total difficulty score and sub-scales compared to T1, T2 and T3 means and standard deviations for the Study Three sample:

Teacher Rated SDQ	SDQ UK Norms (n= 4801) Mean (SD)	Selection Method	Study Three Pyramid attendees (n=54) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	Study Three Comparison group (n=76) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)
Total Difficulty Score	6.70 (5.90)	SDQ & Meeting	8.29 (6.56)	5.25 (4.56)	7.07 (6.10)	8.11 (6.96)	10.70 (7.54)	10.89 (9.48)
		SDQ alone	10.50 (5.32)	10.19 (5.91)	8.77 (6.06)	7.90 (7.08)	8.14 (6.24)	10.16 (7.59)
Emotional	1.50 (1.90)	SDQ & Meeting	3.79 (2.60)	2.25 (2.14)	2.21 (2.32)	2.15 (2.38)	2.78 (2.23)	1.78 (2.38)
		SDQ alone	3.42 (2.70)	3.23 (2.23)	2.08 (2.12)	1.14 (2.09)	1.22 (1.72)	1.57 (1.89)
Conduct	0.90 (1.60)	SDQ & Meeting	0.68 (1.21)	0.43 (0.84)	0.79 (1.45)	1.07 (1.36)	2.00 (2.37)	2.74 (3.76)
		SDQ alone	1.04 (1.15)	1.04 (1.34)	1.27 (1.76)	1.61 (2.14)	1.61 (2.17)	2.39 (2.36)
Hyperactivity	3.00 (0.80)	SDQ & Meeting	2.79 (2.41)	1.61 (1.91)	3.07 (2.61)	3.81 (2.98)	4.37 (3.52)	5.04 (3.72)
		SDQ alone	3.96 (2.97)	3.88 (3.09)	3.46 (2.61)	3.73 (3.00)	3.57 (2.72)	4.20 (3.35)
Peer	1.40 (1.80)	SDQ & Meeting	1.04 (1.66)	0.96 (1.32)	1.00 (2.09)	1.07 (1.80)	1.56 (1.67)	1.33 (1.82)
		SDQ alone	2.08 (1.94)	2.04 (2.13)	1.96 (2.52)	1.41 (1.57)	1.73 (1.47)	2.00 (2.44)
Pro-Social	7.30 (2.40)	SDQ & Meeting	8.11 (2.41)	8.89 (1.37)	7.86 (2.49)	7.74 (3.13)	7.04 (3.24)	7.33 (3.00)
		SDQ alone	7.27 (2.75)	7.31 (2.11)	7.35 (2.40)	6.82 (2.78)	6.37 (2.43)	5.88 (2.60)

Inspection of the means and standard deviations in Table 5.6 reveals, that consistent with the scores of the samples of Study One and Study Two, the overall TD and Emotional scores for the children in all four groups followed up in Study Three are considerably higher than the SDQ UK normative means (6.70 and 1.50 respectively) at all three timepoints. (*See Chapter Three, Section 3.7.2.2, Table 3.5 and Chapter Four, Section 4.8.3.2, Table 4.6.).* Mean scores for the other four sub-scales (Conduct, Hyperactivity, Peer and Pro-Social) are approximately equivalent to those for the UK normative sample for the two SDQ and Meeting groups (intervention and comparison) but higher for both the SDQ alone groups. Moreover, it should be noted that, Pyramid attendee groups of both selection method type show decreases in all four 'difficulty' sub-scales at post-intervention follow-up (Time 2) with the majority of these decreases being maintained at the twelve-month follow-up (Time 3). In contrast both Comparison groups (SDQ & Meeting and SDQ alone) show a steady increase across the three timepoints that is consistent across these four 'difficulty' sub-scales. Furthermore, both the Pyramid attendee groups show increases in Pro-social behaviour that are by the third time point either equivalent or higher than those of the UK normative mean score for this sub-scale whereas both Comparison groups show Pro-social mean scores at the third time point that have decreased to below that of the SDQ UK norms (www.sdqinfo.com).

5.7.5. Measures of Outcome:

5.7.5.1. Analysis of Total Difficult scores over time in respect of group and selection method:

To investigate the changes in the children's mean Total Difficulties (TD) scores over time, the transformed data were analysed using a 3-way mixed model analysis of variance (ANOVA) with Group (Pyramid attendee and comparison) and Selection Method (SDQ & Meeting and SDQ alone) as between subjects variables and repeated measures (within-subjects) on the time factor (baseline, post-intervention and twelve-month follow-up*). It should be noted that where Mauchly's test of sphericity was found to be significant the*

Greenhouse-Geisser correction is reported and if applicable the level of probability adjusted.

5.7.1.2. TD scores by Group and Selection Method

The mixed model ANOVA revealed no significant main effect for TD scores over time, ($F(2, 2, 217.52) = 0.38$, $p > .05$). However, the mixed ANOVA revealed a significant interaction between TD scores over time and group ($F(2, 2, 217.52) = 7.95$, $p < .01$) indicating that the TD scores of one group showed more change than the other over the three timepoints.

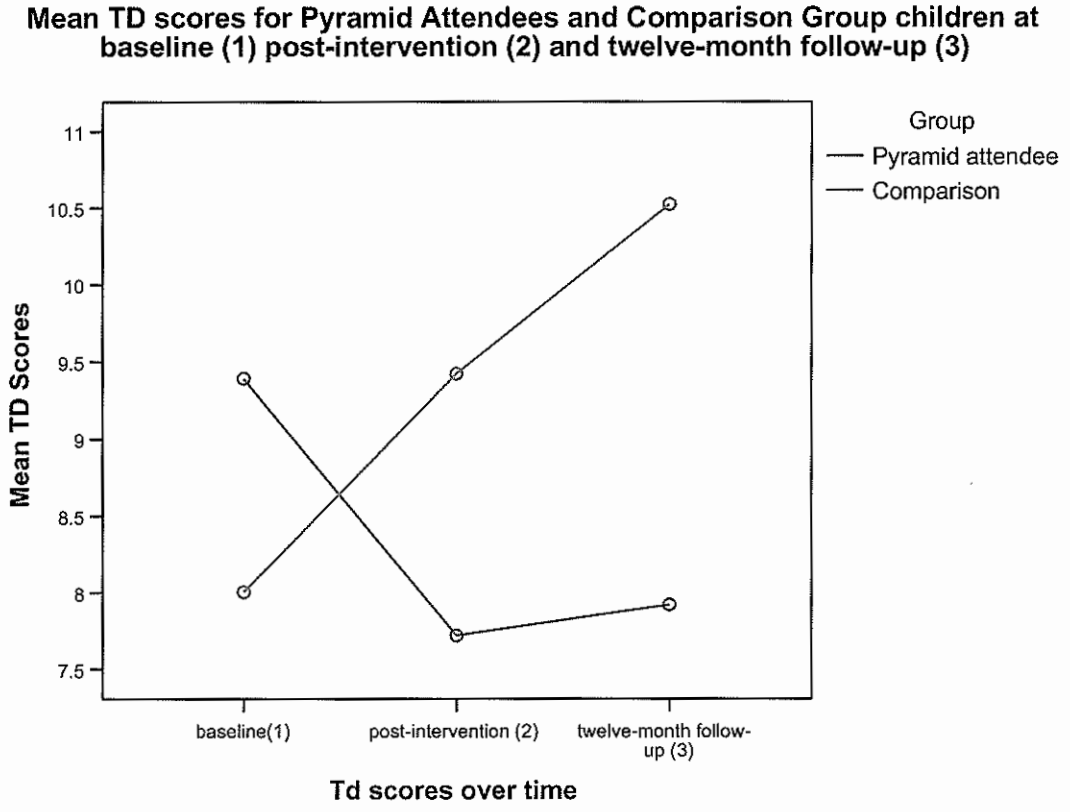
Tests of simple effects were run to decompose this interaction further and to ascertain at which time point and which group were responsible. Consistent with the results of Study Two changes between baseline and post–intervention follow-up (T2) showed a significant decrease over time for the Pyramid attendees ($t(53) = 3.32$, $p < .001$) that generated a moderate effect size ($r=0.42$). In contrast, TD scores over time for the Comparison group showed an increase which was significant at the.01 level, ($t(75) = -2.96$, $p <. 01$. Tests of simple effects were run for both groups between the Post-intervention follow-up (T2) and Twelve-month follow-up (T3) timepoints; these showed slight increases in TD scores at T3 that proved to be not significant for either Pyramid attendees ($t(53) = -.032$, $p > .05$) or Comparison group children ($t(75) = -.164$, $p > .05$) indicating that changes in TD shown at T2 (improvement for Pyramid attendees, deterioration for the Comparison group) had been maintained.

The three-way interaction of TD scores over time, selection method and group only achieved borderline significance ($F(2,2,217.52) = 2.68$, $p = .07$). However, tests of simple effects were run to discover which of the two time periods (baseline to post-intervention follow-up (T1-T2) and post-intervention follow-up to twelve-month follow-up (T2-T3) drove this interaction. These tests showed a significant decrease in TD scores between timepoints two and three for the Pyramid attendees in the SDQ alone selection method group ($t(25) = 1.80$ $p =. 05$), however no significant change in scores were noted for the other three groups; the Pyramid attendees in the SDQ and Meeting group and SDQ alone Comparison group both showing slight increases in TD at timepoint 3 neither

of which were significant at the .05 level (t (27)= -1.26, p>.05 and t (48)= -1.34, p>.05 respectively. Comparison children in the SDQ and Meeting group showed a slight decrease (t (26) = 0.93, p>.05) but this did not achieve significance.

Changes in mean TD scores for both Pyramid attendees and Comparison group children across the three timepoints are shown in Figure 5.3 below:

Figure 5.3



As the baseline TD scores for the Pyramid attendees and Comparison children in both the previous studies had shown marked differences, Levene's test was run for the children in the twelve-month follow-up sample for both baseline (T1) to post-intervention follow-up (T2) and for post-intervention follow-up (T2) to twelve-month follow-up (T3). Levene's

test proved to be significant between the two groups at baseline (T1) ($F(1, 128) = 6.47$, $p < .05$) but not between timepoints 2 and 3 ($F(1,128) = .065$, $p > .05$) indicating that the assumption of homogeneity of variance had been violated at baseline. The data for the first two timepoints was then subject to an analysis of covariance (ANCOVA). ANCOVA increases the sensitivity and accuracy of results as it enables the 'partialling out' of the TD baseline scores to adjust for different levels of potential difficulties between the Pyramid attendee and Comparison children (Field, 2005; Tabachnick & Fiddell, 2007). However a test of the homogeneity of regression slopes was run first to test the assumptions of ANCOVA had been met, this proved to be not significant, $F(1,128) = 2.78$, $p < .05$ thus indicating that the assumption of homogeneity was tenable. The ANCOVA revealed a significant main effect of pre-TD scores confirming that there were significant differences between the groups at baseline ($F(1,128) = 133.56$, $p < .001$). Consistent with the results of the mixed model ANOVA, there was a significant main effect for intervention group ($F(1,128) = 6.628$ $p = .01$) however, in this model, the main effect of selection method approached significance ($F(1,128) = 3.385$, $p = .06$). More importantly, the ANCOVA also revealed an interaction between group and selection method that achieved significance at the.01 level ($F(1,128) = 7.39$, $p < .01$). This result is in contrast to the results of the mixed model ANOVA for which this interaction did not quite achieve significance ($p = .07$). Therefore by using the ANCOVA to control for the initial differences between groups at baseline the degree of actual improvement at Time 2 can be discerned. As the assumption of homogeneity of variance was proven tenable between timepoints 2 and 3 no further analysis was run.

Once again, these results show that the Pyramid attendee group, despite scoring more highly in potential total difficulties at baseline than the Comparison children, achieved greater decreases in mean total difficulties scores at post-intervention follow-up. Furthermore, these results show that Pyramid attendees in this sample appear to maintain their level of improvement at the third timepoint (twelve-month follow-up) thus providing further support to the findings of Studies One and Two for the efficacy of the Pyramid Year 3 intervention.

5.7.2 Characteristics of the Study Three sample by ethnicity and gender:

5.7.2.1. Ethnicity:

The balance of participant ethnic origin for the follow-up sample in Study Three (*see Table 5.1, Section 5.3.7.1.)* shows a greater representation of participants of White origin (44%) compared to those of Studies One and Two. This percentage is approximately equivalent to the London Borough of Ealing demographic statistics (45%), but lower than those for Salford City Council (92%) and Pyramid participants nationally (77%). Therefore it was considered prudent to further explore the implications of ethnicity and whether there would be any effect on participants SDQ scores over time in this sample. Consistent with the data analysis used in both Studies One and Two, individual ethnic categories were collapsed into four larger categories (White origin, Black origin, Asian origin and Mixed/Other origin) to form a four level independent variable 'Ethnic origin' (*see Chapter Three, Section 3.7.3.1.)*

A mixed model Analysis of Variance test was run to discern whether there was any main effect of ethnicity on the data for Study Three. No significant main effect of Ethnic origin was revealed ($F(3, 115) = 1.18$, $p > .05$) indicating that changes in scores over all four ethnic groups were similar. Neither did the mixed model ANOVA reveal a significant interaction for TD scores over time with Intervention- group and Ethnic origin ($F(2,6, 177.91) = .853$, $p > .05$) nor for that of TD scores over time with Intervention group, Selection Method and Ethnic origin ($F(2,2,6, 177.91) = .365$, $p > .05$) further confirming the results of both Studies One and Two and again indicating the universality of the Pyramid Year 3 intervention across the four groups of Ethnic origin that participated in this series of studies.

5.7.6.2 Gender:

Consistent with the analysis carried out in both Studies One and Two, a mixed model ANOVA was run to ascertain whether there was evidence of gender effects for either group. There was a significant main effect of gender on TD scores over time ($F(1,122)=$

6.75, p<. 05) and inspection of the means showed that for the sample in Study Three TD scores for female children in both intervention groups were lower at each time point than those of the boys and these means are shown in Table 5.6. However, there was no significant two-way interaction of Gender, Group, and TD over the three timepoints, (F (2, 214.38) = 1. 58, p>.05) nor was there a significant three-way interaction of Gender, Group, Selection Method and TD scores over time (F (2, 2, 214.38 = 2.34, p>.05) indicating that these gender differences were a characteristic of the sample as opposed to an effect of the intervention.

Table 5.6:

Descriptive statistics for the TD scores at all three timepoints (T1, T2 & T3) for male and female participants in Study Three

Group (Gender)	Baseline (T 1) Total Difficulty Scores M (SD)	Post-Intervention (T 2) Total Difficulty Scores M (SD)	Twelve-Month Follow-up (T3) Total Difficulty Scores M (SD)
Pyramid attendees:			
(Males)	10.21 (6.16)	9.00 (5.97)	8.74 (6.90)
(Females)	8.89 (6.02)	6.89 (5.61)	7.43 (5.65)*
Comparison group:			
(Males)	10.12 (6.90)	10.95 (6.67)	11.67 (8.12)
(Females)	5.18 (6.15)	6.58 (6.21)	8.79 (8.26)*

*$p < .05$

5.7.7. Characteristics of the sample for Study Two by Strengths and Difficulties sub-scales:

A series of mixed model ANOVA to discern changes in participant mean-scores in the five sub-scales of the Strengths and Difficulties Questionnaire was run. The means and standard deviations are shown in Table 5.7 below. In the interests of clarity and consistent with the methods used in Studies One and Two, the arithmetic means are displayed as opposed to the log transformed mean scores.

Table 5.7: Descriptive statistics: SDQ sub-scale scores for Pyramid attendees and Comparison children at T1, T2 and T3 by selection method for Study Three:

SDQ Sub Scale	SDQ & Meeting P[1]. Attendees (n28) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	SDQ alone P[1]. Attendees (n26) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	SDQ & Meeting Comparison (n27) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)	SDQ alone Comparison (n49) T1 Mean (SD)	T2 Mean (SD)	T3 Mean (SD)
Emotional	3.79 (2.60)	2.25** (2.14)	2.21* (2.32)	3.42 (2.70)	3.23* (2.23)	2.08 (2.12)	2.15 (2.38)	2.78 (2.23)	1.78 (2.38)	1.14 (2.09)	1.22 (1.72)	1.57 (1.89)
Conduct	0.68 (1.21)	0.43 (0.84)	0.79 (1.45)	1.04 (1.15)	1.04 (1.34)	1.27 (1.76)	1.07 (1.36)	2.00 (2.37)	2.74 (3.76)	1.61 (2.14)	1.61 (2.17)	2.39 (2.36)
Hyperactivity	2.79 (2.41)	1.61 (1.91)	3.07* (2.61)	3.96 (2.97)	3.88 (3.09)	3.46 (2.61)	3.81 (2.98)	4.37 (3.52)	5.04* (3.72)	3.73 (3.00)	3.57 (2.72)	4.20 (3.35)
Peer	1.04 (1.66)	0.96 (1.32)	1.00 (2.09)	2.08 (1.94)	2.04 (2.13)	1.96 (2.52)	1.07 (1.80)	1.56 (1.67)	1.33 (1.82)	1.41 (1.57)	1.73 (1.47)	2.00 (2.44)
Pro-Social	8.11 (2.41)	8.89 (1.37)	7.86 (2.49)	7.27 (2.75)	7.31 (2.11)	7.35 (2.40)	7.74 (3.13)	7.04 (3.24)	7.33 (3.00)	6.82 (2.78)	6.37 (2.43)	5.88 (2.60)

****p <.001*

***p <.01*

**p <.05*

[1]P = Pyramid

In order to ascertain that the assumptions of homogeneity of variance had not been violated as had occurred for the Total Difficulty scores, Levene's test was run for each of the four 'Difficulty' sub-scales. No significant violations of homogeneity were revealed for the following sub-scales at either baseline (T1), post-intervention follow-up (T2) or Twelve-month follow-up (T3) Emotion (T1) F (1,128) = 1.99, p>.05, Emotion (T2) F (1,128) = 1.06, p>.05; Emotion (T3) F (1,128) = 1.95, p>.05; Hyperactivity (T1) F (1,128)= 0.50, p>.05, Hyperactivity T2 F (1,128) F= 0.12, p>.05, Hyperactivity (T3) F (1,128) =. 641, p>.05 and Peer (T1) F (1,128) =2.17, p>.05, Peer (T2) F (1,128) = 2.94, p>.05, Peer (T3) F (1,128) =. 269, p>.05 therefore these sub-scales were analysed using mixed-model ANOVA alone. However, Levene's test proved significant for Conduct at two timepoints (T2, F (1,128) =8.54, p< .01 and T3, F (1,128) = 22.63, p<. 0 01) and also for Pro-social at two timepoints (T2, F (1,128) =13.03, p< .001 and T3, F (1,128) = 3.60, p= .05). Further analysis using ANCOVA was not appropriate as these differences occurred post-intervention rather than at baseline. Therefore these two variables were excluded from further analysis using ANCOVA in Study Three and this should be noted when reading the results.

5.7.7.1. Emotion:

Consistent with the results of Studies One and Two, the mixed model ANOVA revealed both a significant main effect for Emotion over the three timepoints; (F (2, 233.37) =13.39, p<. 05) and a significant interaction between Emotion and Group (F (2, 233.37) = 5.45, p< .01), indicating that one intervention group's scores showed more change than those of the other. Furthermore and in contrast to the previous study (Two) the three-way interaction Group x Selection Method x Emotion over time also achieved significance (F (2, 2, 233.37) = 3.70, p< .005). Inspection of the means in Table 5.7 indicated that between both baseline (T1) and post-intervention follow-up (T2) and post-intervention follow-up (T2) and twelve-month follow-up these results were driven by decreases in the mean scores of the two Pyramid attendee groups. Tests of simple effects ran confirmed this assumption, decreases in Emotion at Time 2 for the Pyramid attendees were significant (t (53)= 2.20, p<. 05) and this elicited a small to moderate effect size (r=

0.30), in contrast, the Comparison group children's scores showed a slight increase at Time 2 that approached significance (t (75) = -1.74, p = .08). At twelve-month follow-up (Time 3), changes in neither group achieved significance (Pyramid attendees; t (53) = 1.49, p>.05 and Comparison group; t (75) =. 328 p>.05) further indicating that changes shown at Time 2 were being maintained.

Tests of simple effects were also run to examine the three-way interaction for Group x Selection Method x Emotion over time, these showed that at T2 the Pyramid attendees in the traditional Pyramid SDQ & Meeting selection group made the most improvement (t (27) = 3.87, p<. 01 eliciting a strong effect size r= 0.63) whilst the SDQ alone Pyramid attendees decreases in mean Emotion scores at T2 did not achieve significance (t (25) =0.45, p>.05). In contrast both Selection method groups of Comparison children's Emotion scores showed increases, however neither of these achieved significance at the .05 level (SDQ & Meeting; t (26) = -1.47, p>.05 and SDQ alone; t (48) = -.990, p>.05). At T3 (twelve month follow up) three of the four intervention groups showed evidence of improvement (Pyramid attendees SDQ & Meeting t (26) = .357, p>.05, Pyramid attendees - SDQ alone t (25) = 1.79, p>.05 and Comparison children -SDQ & Meeting, (t (27) =2.81, p<. 05) with the fourth Comparison children SDQ alone showing a slight decrease (t (48) = -1.33, p>.05) which did not achieve significance. These scores indicate maintenance of improvements made at T2 for the Pyramid attendees and slight improvement on T2 scores for the Comparison groups.

5.7.7.2. Conduct:

There was a significant main effect of conduct over time (F (1.675, 210.997) = 4.22, p<. 05) but there were no significant interactions with either group, (F (1.675, 210.997) = 2.72, p>.05) or selection method (F (1.675, 210.997) = 1.00, p>.05). This result indicated that changes in both groups' scores over time were at a comparable level. No further analysis was conducted. It should also be noted that Levene's statistic was shown to be significant at the second and third timepoints (post-intervention and twelve-month follow-up) therefore no further analysis using ANCOVA was appropriate as the intervention had already taken place. (*See Section 5.7.7*).

5.7.7.3. Hyperactivity:

As previously shown in Study Two, the mixed model ANOVA revealed a significant main effect of Hyperactivity over time, (F, (2,252) = 4.62, p< .05) but there was no significant interaction between Hyperactivity and Group (F, (2, 252) = 0.41, p >.05). However, a significant interaction was revealed between Hyperactivity and Selection Method (F, (2, 252) = 4.81, p<. 01 indicating that one selection method group's scores had decreased to a greater degree than the other. However, in contrast to the results of Study Two the three-way interaction for Hyperactivity scores over time, Selection Method and Group did not achieve significance (F (2,2,252)= 2.08, p> .05). Inspection of the means in Table 5.7 indicated that all the groups except for the SDQ alone Pyramid attendees showed slight increases in Hyperactivity mean scores at Twelve-month follow-up (T3). Tests of simple effects run confirmed increases in Hyperactivity at T3 for the SDQ and Meeting Pyramid attendee's and both Selection groups of Comparison group children. Of these, both SDQ & Meeting Selection groups (Pyramid attendees and Comparison group children) achieved significance (t (27) = -3.81, p<. 05 and t (26) =2.08, p<. 05 respectively). The SDQ alone Comparison children's scores also increased but this did not achieve significance (t (48) = -4.55, p>.05). In contrast, means for the SDQ alone Pyramid attendees showed a decrease at Time 3 but this was not statistically significant (t, (25) = .42, p>.05).

5.7.7.4. Peer:

As previously shown in the Study Two analysis, there was no main effect for Peer scores over time, (F (2, 215.66) = 1.38, p>.05). Nor were there significant interactions detected for either Peer x Intervention group (F (2,215.66) = 2.32, p>.05) or Peer x Intervention group x Selection Method (F (2, 2,215.66) = 0.65, p>.05) indicating that there were not statistically different changes in Peer scores between the groups over time for the sample in Study Three.

5.7.7.5. Pro-social:

No significant main effect of Pro-social scores was revealed by the mixed model ANOVA (f (1.891, 238.312) = .956, p>.05) neither were there significant interactions between Pro-social and Intervention group nor Pro-social, Intervention group and Selection method (F (1.891, 238.312) = 1.435, p>.05 and F (1.891, 238.312) =2.171, p>.05). This variable was excluded from further analysis using ANCOVA (*see Section 5.7.7*).

5.7.8. Effects of ethnicity and gender on SDQ sub-scale scores:

5.7.8.1. Ethnicity:

Whilst the balance of participant ethnic origin for Study Three was more evenly spread between children of white origin and black and minority ethnic origin than both those of Study One and Study Two; in the interests of consistency, the data was analysed to explore whether any effect of ethnic origin on the SDQ sub-scale scores over the three timepoints could be discerned. A further series of mixed model ANOVA was run to investigate this.

Once again, it should be noted that where Mauchly's test of Sphericity was shown to be significant at the .05 level or below the Greenhouse-Geisser correction to the degrees of freedom and where applicable the corrected level of significance (p value) has been reported.

The mixed model ANOVA revealed no significant main effect or interaction of ethnicity with group or group and selection method for three of the five sub-scales; Emotion (F (3,115)= 1.64, p>.05, F (1.9, 3.34, 217.6) = 1.11, p>.05 and F (1.9,5.6, 217.6)= 1.55, p>.05); Conduct (F (3,115)= 1.10, p>.05, F (1.9, 3.34, 217.6) = .919, p>.05 and F (1.9, 5.6, 217.6) = 1.34, p>.05 and Hyperactivity (F (3,115) = .51, p>.05), (F (6, 230)= 1.34, p>.05 and F (4, 230)= 1.89, p>.05. However, a significant main effect of ethnicity was observed for Peer scores (F (3,115) = 2.6, p=. 05) indicating that there were differences

amongst the scores of the four ethnic groups. Furthermore there was also shown to be a significant three-way interaction of ethnicity x intervention group x Peer scores over time, (F (6,2,230)= 2.30, p<. 05), but the interaction of ethnicity x intervention group x selection method x Peer scores over time did not achieve significance (F (6,2,2,230) = 1.62, p>.05). Tests of simple effects were run to examine the main effect and interaction further. Overall, three of the ethnic groups of Pyramid attendees showed slight increases in Peer scores between baseline (T1) and post-intervention (T2) none of which were significant at the .05 level (White (t (22) = -.708, p>.05), Black (t (8)= -.33, p>.05) and Mixed/Other (t (10) = -.235, p>.05). At twelve-month follow-up (T3) White and Black Pyramid attendees showed decreases in Peer scores (t (22) = .729, p>.05 and t (8) = .703, p>05 respectively) the Mixed/Other Pyramid attendees showed an increase that was once again not significant (t (10) = -.218, p>.05). Only the Pyramid attendees of Asian origin showed a decrease in peer scores at both time-points, (t (10) = 1.99, p>.05 and t (10) = .718, p>.05). In contrast, all four of the ethnic groups of the Comparison children showed small increases in peer scores at both timepoints, none of which achieved significance; White (t (32) = -1.63, p>.05, t (32) = -.86, p>.05); Black (t (16) = -.180, p>.05, t (16) = -1.54, p>.05); Asian (t (15)= -.471, p>.05, t (15)=-.98, p>.05) and Mixed/Other (t (9) = -1.99 p>.05, t (9)= -1.18, p>.05). As these results were inconclusive and the numbers in some of the groups were small, a further mixed model ANOVA was run using just Pyramid attendee data. This ANOVA revealed no significant main effect of Ethnic group (F (3, 46) = 1.38, p>.05) and no significant interaction with Selection method (F (6, 92) = .346, p>.05) thus confirming the results of Studies One and Two in respect of potential effect of ethnicity on the experience of the intervention across the four ethnic groups.

5.7.8.1. Gender:

Consistent with the analysis carried it out in both Studies One and Two a series of mixed model ANOVA was run to investigate whether there was any effect of gender on the SDQ sub-scale scores for the sample in Study Three. *Once again, it should be noted that where Mauchly's test of Sphericity was shown to be significant at the .05 level or below*

the Greenhouse-Geisser correction to the degrees of freedom and where applicable the level of significance (p value) has been reported.

No significant main effect of gender or interaction with intervention group and selection method were shown for the following sub-scales; Emotion ($F(1,122) = .241$, $p>.05$, $F(1.86, 227.47) = 2.34$, $p>.05$ and ($F(1.86, 227.47) = .100$, $p>.05$) and Peer ($F(1,122) = .753$, $p>.05$, $F(1.74, 212.39) = .366$, $p>.05$ and $F(1.74, 212.39) = 1.75$, $p>.05$ indicating that in these two sub-scales there were no differences between the changes in scores over time for both genders. However, mixed model ANOVAS run for Conduct, Hyperactivity and Pro-social scores all revealed significant main effects of gender ($F(1, 122) = 9.07$, $p< .01$, $F(1,122) = 12.20$, $p<.01$ and $F(1,122) = 11.42$, $p<.01$ respectively). Inspection of the mean scores for male and female participants across the sample revealed that males scored more highly in both Conduct and Hyperactivity scores at all three timepoints and girls scored more highly in Pro-social scores. These mean scores are shown in Table 5.8.

It should be noted that consistent with the tables of descriptive statistics in Studies One and Two the arithmetic mean rather than the transformed mean is shown in the interests of clarity.

Table 5.8 Descriptive statistics for Conduct, Hyperactivity and Pro-Social sub-scale scores by gender for Study Three:

		Conduct Sub-scale		Hyperactive Sub-scale		Pro-social sub-scale	
Gender	**Timepoint**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Male	T1	1.76	1.99	4.61	2.95	6.52	2.87
	T2	1.94	2.19	4.39	2.92	6.32	2.64
	T3	2.47	2.68	5.00	3.27	5.95	2.88
Female	T1	0.66	1.07	2.66	2.48	8.16	2.50
	T2	0.76	1.44	2.46	2.72	8.07	2.15
	T3	1.37	2.32	3.06	2.81	7.76	2.27

However, although there is evidence of an effect of gender across the sample shown in the scores in these three sub-scales, importantly and consistent with findings of Studies

One and Two, there were no significant interactions found for gender x intervention group and gender x selection method in Conduct (F (1.67, 203.51) = .95, p>.05, F (1.67, 203.51) = .786, p>.05); Hyperactivity (F (2, 244) = 2.12, p>.05, F (2, 244)= .471, p>.05 and Pro-social (F (2,244)= .725, p>.05, F (2,244)= .498, p>.05) suggesting that gender did not have a moderating effect on how the intervention was experienced by male and female participants.

5.7.9. Outcome for those children scoring in the higher bands of the SDQ at baseline

In order to assess the progress of all the children on an individual basis a comparison of pre- and post-intervention SDQ banding categories was conducted. As previously described in Study One, (*Chapter Three*), the SDQ has three banding levels which can be used to identify children whose total difficulties scores suggest they maybe at a higher risk of emotional, social and behavioural problems. The bandings for the teacher report version, used in these studies are defined as follows: 'Normal' Score (0=11), 'Borderline' Score (12-15) and 'Abnormal' Score (16-40), (Goodman, 1997, www.sdqinfo.com).

At baseline (Time 1), 11 (20%) Pyramid attendee children's TD scores placed them within the 'Abnormal' band, 7 (13%) within the 'Borderline' band and 36 (67%) within the 'Normal' band. As previously reported in both Study One and Study Two, the baseline scores of the sample distribution were higher than the SDQ UK norms (Goodman, 1999) for such a community sample (10%, 10% and 80% respectively). At post-intervention follow-up (Time 2) 5 Pyramid attendees (9%) had moved from the 'Abnormal' to the 'Normal' band. The net result of this inter-band movement being that at Time 2 the number of children in the 'Normal' band had increased from 36 (67%) to 41 (76%). There was less movement at twelve-month follow-up (Time 3) with two participants from the Borderline band moving up to the 'Abnormal' band.

Movement in the bandings of the Comparison group were also compared post-intervention. As would be expected as a result of the selection process there was a higher proportion of Comparison group children whose baseline scores fell within the 'Normal'(n= 57, 75%) band, however, for the sample in Study Three, there was a higher level of Comparison group children whose scores placed them in the 'Abnormal' band

(n=12, 16%). Inter-band movement at Time 2 was also much less with 5 (6.5%) of Comparison group children moving from the 'Normal' band, 1 (1.5%) to the 'Borderline' band and 4 (5.3%) moving from the 'Normal' band to the 'Abnormal' band. At Twelve-month follow-up (Time 3) 7 (9%) more of the Comparison children's scores had moved them from the 'Normal' band, 3 (4%) moving to the 'Borderline' band and 4 (5%) moving to the 'Abnormal' band, Table 5.9 shows the percentage shifts in SDQ bands for Study Three:

Table 5.9: Number (%) of children in each Strengths & Difficulties Questionnaire (SDQ) category at baseline (T1) and post-intervention follow-up (T2) and twelve-month follow-up (T3):

SDQ Category (Scoring Range)	Pyramid Attendees (n=54)			Comparison group (n=76)		
	T1 No (%)	T2 No (%)	T3 No (%)	T1 No (%)	T2 No (%)	T3 No (%)
Normal (0-11)	36 (67%)	41 (76%)	40 (74%)	57 (75%)	52 (68%)	45 (59%)
Borderline (12-15)	7 (13%)	7 (13%)	6 (11%)	7 (9%)	8 (10.5%)	11 (15%)
Abnormal (16-40)	11 (20%)	6 (11%)	8 (15%)	12 (16%)	16(21.5%)	20 (26%)
Total	54 (100%)	54(100%)	54(100%)	76 (100%)	76(100%)	76(100%)

From the shifts in scoring bands shown in Table 5.9, several important conclusions can be drawn. Firstly, that post-intervention (Time 2) and in concurrence with the findings of both previous studies (One and Two), a larger proportion of the Pyramid attendees improved compared to their Comparison group classmates who in effect only showed

movement to the higher 'potential difficulty' scoring bands by the third time point of this study. Secondly, that the Comparison group showed decreases to the 'Normal' band at every time point whilst the Pyramid attendee group showed increases for two of the timepoints and thirdly, at Twelve-month follow-up, the Pyramid attendee scoring band percentage distributions (15% 'Abnormal', 11% ' Borderline' and 74% 'Normal') are closer to those of the SDQ UK Normative percentages (10% 'Abnormal', 10% ' Borderline' and 80% 'Normal') than those of the Comparison group band percentages (26% 'Abnormal', 10.5% 'Borderline' and 59% 'Normal'). Finally, the steady increase in the 'difficulty' SDQ scores of the Comparison children shown over the three time-points of these studies clearly indicates the need for the universal approach of the first stage of the Pyramid Year 3 intervention model i.e. to screen the entire cohort, discuss their needs at a multi-agency level and to monitor regularly their progress to ensure that children who are struggling socially and emotionally are provided with the timely support of an appropriate intervention.

5.8 Discussion:

5.8.1. Preservation of gains shown in Study Two in Pyramid attendees at Twelve-month follow-up (Time-point 3):

In common with previous longer-term research into the Pyramid Year 3 intervention, (Cooper, 2000; Fitzherbert, 1985), the results of this third study provide support for the notion that there is preservation of the gains observed immediately post-intervention in attendees of the Pyramid Year 3 intervention. The first two studies in the current research programme sought to demonstrate the effectiveness of the Year 3 intervention in improving the socio-emotional competencies of the children selected to take part as Pyramid attendees. Post-intervention improvements were shown for Pyramid attendees in both studies and within the predicted domains of the Strengths and Difficulties Questionnaire (Total Difficulty Score, Emotional and Peer Difficulties and Pro-sociability). Furthermore, these improvements were shown to be of a greater magnitude than those of the Comparison classmates who in some domains (e.g. Emotion, Conduct and Peer) actually showed increases in potential difficulties over time. However, these

improvements were shown in the short-term and it has been acknowledged that there is a lack of longitudinal research within the literature that accounts for the developmental prognosis for children who display signs of internalised problems and social withdrawal (Coie, Lochman, Terry & Hyman, 1992; Rubin, LeMare & Lollis, 1990).

The previous longitudinal research into the possible continued benefits of having attended the Pyramid Year 3 intervention (Cooper, 2000; Fitzherbert, 1985) identified that there was evidence of preservation of gains in Pyramid attendees when they were followed-up at secondary school. Fitzherbert's, (1985), original long-term follow-up of the first Pyramid Clubs run between 1978 and 1982 found that 80% of the Pyramid attendees were still in mainstream education whilst 75% of the matched control group were either in pupil referral units or demonstrated poor levels of attendance (Fitzherbert, 1985). Cooper's study, (2000), reported that Pyramid attendees now in secondary school were likely to rate them selves more highly than control classmates in several necessary coping skills, including 'ability to seek help when necessary', 'good relationships with teachers' and 'confidence in their progress', furthermore their form tutors also rated the consistency of their progress since primary school more highly than those of their control classmates.

Results of the current longer-term follow-up of the Pyramid intervention, (Study Three), provide additional support for Cooper (2000) and Fitzherbert (1985). The data for the 130 children followed up from the initial cohort of Study Two (academic year 2006/207) demonstrates a similar trend of results between baseline and follow-up (timepoints one and two) as had been demonstrated in both Studies One and Two with Pyramid attendees showing greater improvement in Total Difficulty scores than the Comparison children. More importantly, after twelve months (the third time point), there is indication that the majority of Pyramid attendees have maintained their level of improvement in Total Difficulty (TD) scores whilst the Comparison group scores at the third time point continue to show increased levels of Total Difficulty.

5.8.2. Preservation of gains shown in Study Two for SDQ sub-scales at twelve month follow-up (Timepoint 3):

Furthermore, the results of this third study indicate that both Pyramid attendee groups maintain the improvements shown immediately post-intervention in all the SDQ sub-scale domains. During the selection process for both Studies One and Two of the current research, three sub-scales of the Strengths and Difficulties Questionnaire (Emotional difficulties, Peer difficulties and Pro-sociability) were used in order to select children for allocation to Pyramid Clubs. These sub-scales are used as they map well onto the objectives of the Pyramid Year 3 intervention, namely, to promote and enhance attendee socio-emotional competence (Pyramid, 2007). Therefore, it was predicted at the start of both prior studies that as a result of the intervention Pyramid attendees would either show equivalent or greater levels of improvements in their scores for these sub-scales than the Comparison group children. The results discussed in the previous two chapters showed marked decreases, particularly in Emotional difficulties for all cohorts of Pyramid attendees across the three academic years of data collection and in each case their improvements exceeded those of their Comparison group classmates in this domain. Furthermore, the results of this third data collection show that these improvements have been maintained over the twelve months post-intervention period.

5.8.3 Effects of ethnicity and gender at twelve-month follow-up:

The cohort for this third data collection was much more representational in terms of the ethnic demographic than the previous two *(See section 5.3.7.1)* (40.8% children of BME compared to 41.3% children of white origin.) Nonetheless, in the interests of consistency with the procedure adopted in both Studies One and Two, the results were analysed to investigate any implications that for this sample ethnicity might act as a moderator in terms of the impact of the intervention. Consistent with the results of the previous two studies this was not found to be the case, although statistically significant levels of increased improvement in Peer difficulties were observed across the entire sample for children of Asian origin. However, it is likely that this was a characteristic of this particular sample as these improvements did not achieve statistical significance when

analysis was run using Pyramid attendee data alone, indicating that the impact of the intervention was equivalent across the four ethnic groups identified.

Gender differences were observed at all three timepoints across the sample with boys scoring more highly in Hyperactivity and Conduct difficulty scales and girls scoring more highly in the Pro-social strength scale and this reflects similar findings in Study Two. As previously observed, this might be due to teacher-rated gender stereotyping and concurs with Keiley et al, (2000) who suggest that teachers are more likely to rate higher levels of externalising behaviours to male pupils than they are to female pupils.

5.8.4 Implications of the results at twelve-month follow-up for the selection component of the Pyramid model:

The major focus of Study Two (Chapter 4) was to investigate the selection component of the Pyramid model (Stage Two) in order to investigate whether this component provided value-added to any beneficial impact upon the socio-emotional competencies of the Pyramid attendee children. Participating schools were randomly allocated to either the traditional Pyramid selection procedure (Screening with the SDQ plus multi-agency meeting) or use of SDQ scores alone and it was predicted that if there was value-added to the inclusion of the multi-agency meeting then children allocated to attend Pyramid using this method would be expected to show greater levels of improvement post-intervention. Marked levels of improvement were indeed observed for the Pyramid attendees selected using the SDQ & Meeting method in both TD scores and every 'Difficulty' sub-scale with many statistically significant at the .05 level. By contrast children in the SDQ alone selection method intervention group and both Comparison groups showed only smaller decreases or in some instances for the Comparison groups slight increases in 'Difficulty' scores.

However, the results of the current study show slight increases at the twelve-month follow-up for the Pyramid attendee children in TD scores, Conduct and Hyperactivity none of which was statistically significant. Conversely the Pyramid attendee children in the SDQ alone selection group, whose decreases immediately post-intervention were modest and in many instances did not achieve statistical significance continued to show

improvement with the decreases in their TD scores at twelve-month follow-up achieving significance at the .05 level. Cowen (1994) suggests that some interventions can provide enhancement or 'sleeper' effects wherein either no change or small positive changes in behaviour are shown in the short-term post-intervention but also continue to be evident and may increase as the children continue to rehearse the skills they have acquired and use them to solve subsequent problems they might face (Cowen, 1994). Evidence of this effect has been shown previously, particularly in interventions aimed at improving internalised emotional disorders that are based around Cognitive Behavioural Therapy (CBT) principles (Barrett et al, 1996; Rutter & Taylor, 2002; Stallard et al 2007). Whilst the Pyramid intervention method is not based upon CBT theory it is an intervention that aims to promote behavioural change and in respect of the sample for the current study this would suggest that the children selected using their SDQ scores alone (i.e. purely based on their class teachers' rating of their behaviour) perhaps were slower to socialise as a group than the SDQ and meeting group but still able to acquire skills/change their behaviour in order to improve their socio-emotional competency. The implications of these findings for how the Pyramid model could be delivered will be discussed in Chapter Seven.

5.8.5. Inter-band movement in SDQ Total Difficulty (TD) scores at twelve-month follow-up:

The necessity of continuing to screen and discuss the emotional health and well-being of children across whole year groups has been demonstrated in the results of all three studies in the current research, not only in respect of the beneficial effect shown upon the progress of the Pyramid attendees but also in the continued increase in difficulties shown by the Comparison group children. Support for this assertion can be found in the pattern of inter-band movement in SDQ TD scores at twelve-month follow-up for the sample in Study Three. This sample was drawn from the first cohort of children who took part in Study Two during the Academic year of 2006/2007. At baseline, as expected, a higher percentage of the Comparison group children scored within the 'Normal' and 'Borderline' bands (75% and 9% respectively) compared to Pyramid attendees (67% and

13% respectively). The Comparison group percentages are similar to the UK normative figures for the SDQ of 80% and 10% for these bands (Goodman, 1999) the percentages for Pyramid attendees are substantially different. Both Pyramid attendees and Comparison group children shower higher percentages of scores in the 'Abnormal' band (20% and 16% respectively) than those indicated by Goodman (10%), (Goodman, 1999). However, importantly, twelve months post-intervention the Pyramid attendees showed increases in the number of children scoring within the 'Normal' band and decreases in the children scoring in the 'Abnormal' band that moved their percentages further towards those of the SDQ UK norms *(Table 5.9, Section 5.7.9 refers)* whilst the inter-band movement of Comparison group children showed the number in the 'Abnormal' band to have increased by 10% to 26% and in the 'Normal' band to have decreased by 16% to (59%) at twelve-month follow-up. Furthermore, it should be noted, that these are all children who at the start of each study were allocated to the Comparison group because they currently were not in receipt of any other form of school-based intervention. Layard and Dunn (2009) suggest there is a need to consistently monitor all children at various key stages of their primary school career, they argue that as children's academic progress is monitored at regular intervals so should their emotional health and well-being be. This proposal is in line with recent guidance from NICE (2008), that recommends that teachers and other multi-agency professionals involved in delivering children's services should be trained to recognise the signs of emotional and psychological vulnerability in children so that swift onward referral can be made as soon as the need for extra support is identified (NICE, 2008).

5.8.6. Overview of Study Three and further research direction:

It has been recognised both in the literature (Coie et al, 1992; Durlak & Wells, 1997; Rubin et al, 1990) and in recent guidance (NICE, 2008; DCSF, 2008) that there currently exists a gap in the extant evidence base in relation to the long-term effects provided by preventative intervention programmes aimed at promoting children's emotional health and well-being. This third study sought to extend the evidence base concerning the efficacy of the Pyramid Year 3 intervention investigated in Studies One and Two of this

thesis and prior research (Cooper, 2000; Davies, 1999; Fitzherbert, 1985; and Skinner, 1996) through a longer-term follow-up of children who participated in the first cohort of children in Study Two (academic year 2006-2007).

As previously stated, a significant challenge facing developmental psychologists researching the efficacy of preventative intervention is the timing of onset of disorder which can lead to inconclusive results as to whether the intervention has indeed changed behaviour or whether the passing of time has resulted in a spontaneous remission due to typical maturational changes (Durlak & Wells, 1997). However, the necessity of longer term follow-up is indisputable, in terms of both the outcomes for children and development of understanding within the field of what works and what does not (Arnold & Doctoroff, 2003). The results shown across the three studies in this programme of research described thus far demonstrate a pattern of outcomes that are promising on two counts. Firstly, there does appear to be evidence of preservation of gains made in both groups of Pyramid attendees and furthermore, in the instance of the SDQ alone group, some evidence of enhancement effects, (Cowen, 1994; Rutter & Taylor, 2001; Stallard et al, 2007) with continuing improvements shown over the course of the twelve-month post-intervention period. Secondly, the use of the Pyramid model in respect of the selection component (screening using SDQ and multi-agency meeting) highlights the necessity for regular monitoring of the emotional health and well-being status of all children in primary school. The exponential increase in TD and other domains of the SDQ observed in the Comparison group children's scores over the three timepoints highlights a need for integrated multi-agency involvement in monitoring and ensuring that children who become emotionally vulnerable, for whatever reason, are recognised and are enabled to receive timely, appropriate levels of support (DCSF, 2008; Layard & Dunn, 2009; NICE, 2008).

Before concluding this study three potential limitations to it should be taken into consideration when reviewing the results. Firstly, that it only represents 50% of the children who took part in Study Two as, owing to the limitations of the school year and funding conditions, two cohorts were studied spanning two academic years (2006-2007 and 2007-2008) in order to maximise the number of Pyramid Clubs that could be run. Secondly, that owing to the time constraints of this research programme collection of data

for the second cohort (2007-2008) will be analysed as a separate study and thirdly the high number of children leaving the participant schools between the post-intervention and twelve-month follow up contributed to an attrition rate of 35% of the original cohort.

Despite these limitations the trend of the results yielded by both this study and the two that preceded it do indicate that the Pyramid Year 3 intervention does provide a suitable intervention for children who are lacking in socio-emotional competencies and as such at risk of later poor academic and social outcomes and that furthermore the indications are that improvements made will be preserved.

Thus far this programme of research has used teacher-rated observations of how children fare socially and emotionally within the context of school. Harris, (1995), suggests in her theory of group socialisation, that children's socialisation is context specific and therefore the peer group increases in importance from middle childhood onwards and as such provides a barometer for aspects of a child's social and emotional competency. Bronfenbrenner's (1979) model also suggests that the interaction of the different micro-systems of a child's life (e.g. home, neighbourhood, school) also influence the path of their development therefore it is deemed important for this programme of research to take into account the child's view of their own progression within the school context as part of the research process. The children who participated in this study were not eligible to complete the self-report version of the Strengths and Difficulties Questionnaire, as Goodman and his colleagues recommend that it should only be used by children over the age of 11 years (Goodman et al, 1998). Therefore in order to ensure their experience of attending Pyramid Clubs was expressed, three focus groups were run with Pyramid attendees, one group for each academic year of the research programme. The following chapter presents the findings of this fourth and final study.

Chapter Six

Study Four

6.1. Introduction:

The results of the three studies described thus far *(Chapters 3 to 5)* indicate that the Pyramid Year 3 intervention is effective in improving the emotional health and wellbeing in the children selected to attend. This was demonstrated by the statistically significant decreases in attendees' post-intervention Strengths and Difficulty scores shown in both the short-term (Study Two) and the longer-term (Study Three). Importantly, there was also evidence of preservation of gains observed post-intervention shown in the longer-term follow up data for the majority of Pyramid attendees and, in addition, indications of an enhancement effect in the SDQ alone group of Pyramid attendees wherein the children showed evidence of further improvement twelve months post-intervention. Whilst these results can be viewed as providing further and stronger support of the effectiveness of Pyramid Clubs shown in prior research (Cooper, 2000, Davies, 1999, Fitzherbert, 1985, Skinner, 1996) they rely upon a teacher-rated measure and the views of the service users (the Pyramid attendees) themselves have so far not been solicited.

It has been recognised in the research literature that the majority of service satisfaction studies related to interventions for children tend to use parental generated feedback as opposed to the responses of the service-users themselves i.e. the children (Stallard, 1995, 2001). This may be due to the perception that there exists a critical age at which children are able to independently express their viewpoint reliably. Furthermore, this might explain why many validated and widely used pencil and paper measures do not have self-report versions for children before the age of 11 (e.g. the Strengths and Difficulties Questionnaire, Goodman, 1997, used in the prior studies of this thesis).

However, there clearly exists a need for a better understanding of how children experience school-based intervention so that their views can inform future intervention development, delivery and evaluation. Hennessy (1999), in a review of methods used to establish children's levels of satisfaction with child and adolescent health services they

had used, reports that very few measures have been developed that relate directly to the children themselves with most items being generated by adults whether parents or clinicians (Hennessy, 1999).

One way to ensure that the data collected reflects the views of all major stake holders is to employ a mixed methods approach (Patton, 1990). As previously stated, the current research has, thus far, used a teacher-rated quantitative method in order to measure the impact of the Pyramid intervention on the children that attend. However it is necessary to the strength of the design, internal validity and credibility of the results of a study to triangulate data collection by employing more than one method to investigate the same phenomenon (Patton, 1990). An advantage of employing methodological triangulation (Denzin, 1978) in the evaluation of a programme is that the qualitative component provides an opportunity for the voice of the service user in the instance of the current research the Pyramid Club attendees, to be heard.

This approach is becoming more widespread. For example, the Child and Adolescent Mental Health Service has a wide range of service users, the children who attend, their parents, teachers and carers all of whom it has been acknowledged may have different views on their experience of the service they receive (Day, Carey & Surgenor, 2006). In a recent review of the Child and Adolescent Mental Health Service (CAMHS) (DCSF, 2008), children who were asked to contribute identified three factors that they considered made them feel good about themselves and were important to their emotional health and well-being. Firstly, they value having a good system of social support, family, extended family and a wide network of friends. Secondly they identified being able to take part in enjoyable activities such as being part of a sports team or contributing to community-based projects and initiatives as well as relaxing with their families and friends. Thirdly, they identified the importance of having a strong sense of self-esteem i.e. they want and need recognition of their achievements and to be given targets to aspire to (DCSF, 2008). The ethos of the Pyramid Year 3 intervention *(see Chapter Two, section 2.4)* recognises and harnesses all of these identified 'needs' into the format of the weekly Pyramid clubs. Therefore, the aims of this fourth and final study were firstly, to elicit from Pyramid attendees their experience of taking part in the Clubs to see how their self-reported experiences map onto the four key areas of the Pyramid ethos (Love & Security, Praise &

Recognition, New Experience and Responsibility). Secondly, to monitor any changes or improvements attributed to having attended a Pyramid Club reported by the attendees or remarked upon by others (e.g. parents/teachers/ friends) and finally whether there were any perceived personal costs involved in attending. In a previous focus group study (Fox, Ohl, Hughes, Haye, Mitchell & Graham, 2006) the researcher and her colleagues identified that for some school-based interventions there were personal costs (e.g. missed opportunities to play with other friends) reported by some of the children who took part. It was considered important to ascertain whether the participant children within this study also perceived there to be costs as well as benefits involved in attending a Year 3 Pyramid Club.

6.2. Design:

Qualitative data on Pyramid attendee perceptions of the intervention was collected from three semi-structured focus groups. A focus group was run for each academic year of the data collection period of the research programme (2005-2006, 2006-2007 and 2007-2008). These focus groups were audio-taped, transcribed verbatim and then analysed using thematic analysis (Boyazatis, 1998).

6.3. Method:

6.3.1. Participants

Participants were 27 children (15 girls and 12 boys) who had previously attended a Pyramid Club in the autumn term of the same academic year (the focus groups were run in the summer term). Fourteen of the children were Year 3 pupils from primary schools (Schools 2 and 3) in the London borough of Ealing *(See Chapter 3, section 3.3.3)* in West London. The remaining 13 were from a London school (School 1) outside the borough of Ealing that had previously been selected to take part in a focus group study for the King's Fund (see Fox et al, 2006). At the time the focus groups took place all the children were aged between 8 and 9 years old (mean age 8.74 years).

Consistent with the procedure used in Studies One to Three *(See Chapter 3, section 3.5.4)* and in agreement with the University's Board of Ethics, parental permission was obtained using opt-out consent whereby parents were expected to return the form only if they did

not want their child to participate (see Day, Carey & Surgenor, 2006; Field, Lawson and Banerjee, 2008). In line with the three prior studies, this was a diverse sample in terms of ethnicity. Participant characteristics are shown in Table 6.1.

Table 6.1. Focus group participant characteristics for Schools 1-3:

Participant	Age	Gender	Ethnicity
Focus group 1 (School 1: 2006)			
C1	8	Female	Asian Indian
C2	9	Male	Mixed White/Caribbean
C3	9	Male	Black African
C4	9	Female	Black Caribbean
C5	8	Female	Black Caribbean
C6	9	Female	Black African
C7	9	Female	White British
C8	9	Male	Black Caribbean
C9	9	Female	White Eastern Euro.
C10	9	Male	Black Caribbean
C11	8	Female	Black African
C12	9	Male	Black Caribbean
C13	9	Male	Black Caribbean
C14	9	Female	White Eastern European
Focus group 2 (School 2: 2007)			
C15	9	Male	Asian Indian
C16	8	Male	White British
C17	8	Male	Mixed White/Other
C18	9	Male	Asian Indian
C19	9	Female	Asian Pakistani
C20	9	Female	Asian Indian
C21	9	Female	White Eastern Euro.
C22	9	Female	Asian Indian
Focus group 3 (School 3: 2008)			
C23	9	Female	Asian Indian
C24	9	Female	Black African
C25	9	Female	Asian Indian
C26	8	Male	Asian Pakistani
C27	8	Male	Mixed White/Caribbean

6.3.2. Focus group procedure:

The data was gathered using focus groups in preference to individual semi-structured interviews. It was considered that this method would be more likely to put participants at their ease as the focus group protocol was designed to emulate the type of 'circle time' session they had experienced during Pyramid Clubs. Furthermore, Sim (1998) observes that children tend to be more relaxed amongst their peers and therefore more likely to express their opinions and be more willing to explore them further than when being interviewed alone with an adult.

All three focus groups took place in the same room that had been used within each school for the Pyramid Clubs that the children had previously attended. The rooms were laid out as if for a circle time session with chairs arranged in a circle and the audiotape recorder placed in the centre. Before the focus groups started the children were offered juice and fresh fruit.

6.3.2.1.Facilitators:

Four facilitators took part in the focus group (the researcher and three of her colleagues). All four facilitators had lengthy experience of working with children and two of them had had extensive prior experience running children's focus groups. Two of the facilitators were Pyramid Club volunteer Club Leaders and the remaining two, (including the researcher), were Pyramid Co-ordinators at the time the focus groups took place. All four facilitators held clear, current, enhanced, Criminal Records Bureau checks. Before the focus groups took place the researcher briefed the other three facilitators. She emphasised their responsibility in ensuring that the children were protected from over-disclosure. It was made clear to the children at the start of the focus groups that they should address each other by their numbers not their names whilst the audiotape was in progress and that it was not necessary to reveal any personal details (Day, Carey & Surgenor, 2006).

6.3.2.2.Materials: Focus group questions:

The questions used were adapted from the focus group protocol of previous research commissioned by the King's Fund and undertaken by the researcher and her colleagues at Thames Valley University and Pyramid (Fox et al, 2006).

Most questions (questions 1-5) were phrased with the intention of encouraging the children to share their perspective of having been Pyramid attendees and identifying any benefits and or costs of attending that they themselves or others had observed (question 6). The final question (question 7) addressed how satisfied Pyramid attendees were with the format of the Clubs giving them an opportunity to express how they felt Pyramid Clubs could be improved and what they might suggest changing to do this. The focus group questions are shown in Figure 6.1:

Figure 6.1: Focus group questions:

Focus Group Questions: Year 3 Pyramid Attendees
Q.1. Tell me a bit about what you did at Pyramid Club…..
Q.2. What was the best thing about Pyramid?
Q.3. Why was this important to you?
Q.4. Has coming to Pyramid Club helped you and if so how?
Q.5. Has taking part changed how you feel about things? *For example; school, your schoolwork, friends……*
Q.6. What changes have your family/friends/school noticed in you?
Q.7. If you had a magic wand and you could change something about Pyramid Club what would you change?

6.3.2.3. Focus group protocol:

The full focus group protocol and script can be found in Appendix 8.

Each focus group had two facilitators, one asking the questions (the lead facilitator) the other making field notes. The children were met and invited in to the room by one facilitator whilst the other was sitting waiting in the circle. Children were given labels with a number to wear and as previously stated instructed to refer to each other by the numbers allocated to them and not by their first names whilst the audio-tape was running. An ice breaker game was played with the intention of putting the children at their ease (Day et al, 2006; Fox et al, 2006) and the lead facilitator then invited everyone to sit and then explained some 'ground rules' concerning participant etiquette (these are described in full in the focus group protocol in Appendix 8). The facilitators then introduced themselves and each explained their role. The children were then encouraged to do a 'round robin' introducing themselves to one another. The audiotape recorder was then switched on and the lead facilitator commenced asking questions.
Each focus group lasted no more than forty minutes, (the length of an average primary school lesson) as this was considered to be the optimum time span to keep participants' attention focussed considering their age. Once the children had had their say, the audio tape was switched off. The children were thanked for their participation and encouraged to ask any questions they had regarding the purpose of the research project. They were also offered more juice and given a small chocolate bar.

6.4 Data analysis:

The audiotapes were transcribed verbatim and analysed using thematic analysis (Boyazatis, 1998; Braun & Clarke, 2006; Bryman, 2008).

6.4.1. Thematic analysis:

Thematic analysis has been described as a 'foundational method for qualitative analysis' (Braun & Clarke, 2006, p78) and shares generic skills such as thematic coding with more

epistemological qualitative approaches such as grounded theory (Strauss & Corbin, 1998) and Interpretative Phenomenological Analysis (IPA) (Smith, 2004). It is used to generate and explore 'themes' within a data set and can employ either a data driven 'bottom' up approach (e.g. grounded theory, Strauss & Corbin, 1998) or can be used to address certain pre-determined questions about the data in a more 'top down' approach (Boyazatis, 1998). However, as thematic analysis is not driven by one particular theory it offers greater flexibility than those that are whilst still providing a research tool that can provide a rich and detailed analysis suited to the complexity of the type of personal experiential data generated by these focus groups (Braun & Clarke, 2006, Fox et al, 2006).

6.4.2. Coding and inter-coder reliability of the data:

The three transcripts were read completely several times by the researcher and a senior colleague who had prior experience of researching Pyramid using thematic analysis (Fox, et al., 2006). The children's responses to the focus group questions (phrases and sentences) were used as units of coding. These responses were then analysed for their manifest and latent content and as a result, five over-arching coding categories (themes) were derived from the data:

1) **Meeting the Pyramid intervention ethos**: Pyramid attendees identify experiencing activities at the Clubs that reflect the four elements of the Pyramid intervention ethos, namely; Love & Security, Praise & Recognition, New Experiences and Responsibility.
2) **Attendee self-reported changes and benefits:** Pyramid attendees identify in their responses what benefits they have derived from attending e.g. feeling more confident, participating in class more, have making new friends, feeling less nervous or shy since attending.
3) **Changes and benefits noticed by others:** Pyramid attendees mention that others have remarked on beneficial changes in their behaviour at home or at school e.g.

they are chattier, more confident or more settled, their teacher has noticed improvements in their school work.

4) **Costs noticed by self and/or others:** Pyramid attendees mention that they or others have identified personal costs (e.g. Fox et al, 2006) to themselves or others from attending a Pyramid Club.

5) **Suggested changes:** Pyramid attendees' suggestions for changing or improving the Pyramid Club format.

The three transcripts were subjected to an iterative process in order to determine inter-coder reliability using a method described by Hrushka, Schwartz, Cobb-St John, Picone-Decaro, Jenkins & Carey (2004).

A random sample of three sheets was taken from the transcripts and independently coded by both coders using the coding categories listed above. Once these sheets were fully coded they were compared for items of agreement and inter-coder reliability was tested using Cohen's Kappa (Cohen, 1960).

Cohen's Kappa was selected, as it adjusts for agreement by chance (Cohen, 1960, Hrushka et al, 2004) rather than like other coefficients of agreement comparing the proportion of actual inter-coder agreement only. Kappa can range from 1(perfect agreement) to 0 (agreement no better than chance). This process was then repeated until an acceptable Kappa statistic was obtained.

At the second coding round the inter-coder sampling of the current dataset generated a Kappa statistic of 0.69 which Landis and Koch describe in their convention for Kappa as 'substantial' (Landis & Koch, 1977). This level of inter-coder reliability was considered acceptable and the researcher proceeded to code the entire data set using the five themes previously identified.

Table 6.3 shows the coding framework for the entire data set:

Table 6.3 Table of themes for Pyramid focus group data:

Theme	Description	Examples
Meeting the Pyramid intervention Ethos	Attendees report taking part in activities that reflect the four part Pyramid ethos: Love & Security, Praise & Recognition, Responsibility and New Experiences	*We made a party and brought food and sweets and um things* Transcript 3: line 6 *I enjoyed when we was making the bread...* Transcript 3: line 47 *Well we had rules – so that is important...not to fight* Transcript 3: line 55
Attendee self-reported changes and benefits	Attendees report any changes or benefits they recognise in themselves that they attribute to attending.	*I think I feel more confident um when I had worries before um it has made me feel better.* Transcript 2: lines 59-60 *Feeling less nervous* Transcript 2: line 63
Changes and benefits noticed by others	Attendees report that others (e.g. parents/teachers) have commented on changes in how they are in themselves post-Club.	*...my Mum said that I am talking...chatty..* Transcript 2: line 76 *Um my Mum is glad I joined the club as it has taught me lots of new stuff...* Transcript 3: line87
Costs noticed by self and or others	Any costs identified by either attendees or others attributed to attending.	None reported
Suggested changes	Attendees' ideas for improving Pyramid Clubs.	*I think if it was for whole classes it would even it out, more could come* Transcript 1: lines 140-141 *To have more time* Transcript 2: line 90

6.5 Results:

Five over-arching themes were identified from the coding process of the three focus group transcripts previously described. These themes related to the Pyramid attendees' experience of taking part in a Year 3 Pyramid Club and are outlined and illustrated by verbatim extracts of Pyramid attendee contributions.

6.5.1. Meeting the Pyramid intervention ethos:

The Pyramid intervention ethos is based upon four key principles namely 'Love and Security', 'Praise and Recognition', 'New Experiences' and Responsibility'. Therefore this first thematic category encompassed all comments that were related to the children's experience of activities during the clubs that related to these four elements. The first three questions of the focus group were structured to encourage the children to discuss what they had done at Pyramid, why these activities had been important and what they had liked best.

Ethos 1: Love and Security:

Many of the activities the children reported liking best could be described as 'nurturing' for example many involved the cooking and eating of food playing games and having fun:

C.27: Well um, well I enjoyed when we was making bread. (Transcript 3, line 47)

C25: Um...we..we..we played games and we had a little snack, the snack was my favourite part of the club....I liked the food best.(Transcript 3, lines 17-19)

The need for feeling secure was also mentioned from both the children's and also a parental perspective:

C.26: Well we had rules – so that's important ...to not fight...to be safe (Transcript 3, lines 55-57)

C25: My Mum and Dad and everyone says it was very good cos there was teachers (means volunteer Leaders), *here and don't just let us do what ever we want, we had rules – um and they made sure we didn't get hurt and they didn't let us out of the school they looked after us. (Transcript 3, lines 82-85)*

Ethos 2: Praise and Recognition:

The children tended to equate the concepts of praise and recognition with being reinforced with a material thing such as a prize or a sticker as they might be for producing good work in class. Nonetheless, this does illustrate how the children recognise a need for achieving targets and goals:

C19: Get prizes and have fun? (Transcript 1, line 19)

C12: ...you can get a gold medal and certificates (Transcript 1, line 25)

C4: [Cuts in] and stickers (Transcript 1, line 26)

Ethos 3: New Experiences:

For many of the children the best part of attending Pyramid was the opportunity to try new things including art and craft activities, theatre trips and new games:

C9: And one time we went to Pizza Hut and went to a play called Pinozzio(?)

DH: Oh Pinocchio? You go on an outing? (Transcript 1, lines 34-35)

C2: We had pizza and ice cream and a bag with some stuff in it...

C5: We went bowling (Transcript 1, lines 52 & 54)

C2: We played a game where you have to put the balloons in a ring with chairs around it and then the others have to take it out of the ring (Transcript 1, lines 66-67)

C20: Colouring and making t-shirts and having fun with the leaders and discussing things (Transcript 2, lines 27- 28)

Ethos 4: Responsibility:

The children acknowledged that the fact that they had been allocated a place at Pyramid Club might be unfair on others in their class who had not. They also recognised the importance of working as a team:

C25: ...I wish there was more but I feel we have to give other children the chance (Transcript 3, lines 126-127)

C18: I think if it (Pyramid Club*) was for a whole class it would even it out, more could come.*

C20: There are a couple of children I would have asked but they weren't allowed to come (Transcript 3, lines 140-141)

C18: Because it got us working as a team (Transcript 2, line 38)

C20: Um getting um experience in team-work? (Transcript 2, line 44)

6.5.2. Attendee self-reported changes and benefits:

The second theme addressed changes that attendees perceived in themselves subsequent to having participated in a Pyramid Club. Questions 4and 5 of the focus group script asked attendees whether they felt differently having been to Pyramid and whether they felt it had helped them at all. The responses varied between children who were more insightful about their feelings and how they had changed and those who were more pragmatic and related progress made to school related improvement such as increased participation in class:

C27: Because...because it helps our education? (Transcript 3, line, 53)

C25: Um...I feel confident as well because we have been doing so much talking at first I never use to put my hand up (in class) *now I am (Transcript 3, lines 65-66)*

Several children reported that coming to the Club had helped them with their shyness and had made them less fearful:

C9: When um, before Pyramid Club I was a bit shy but after Pyramid Club finished I wasn't shy anymore (Transcript 1, lines141-142)

C2: When the Club started I was a bit shy but now I am not shy I like it because I am not scared anymore (Transcript 1, lines 145-146)

C27: (Um it makes me um..um confident because I used to be a little bit shy

C26: I was shy too ...um my Mum said that I am talking...chatty (Transcript 3, lines 70, 72 & 76)

Many of the children reported benefits gained from forming relationships with the volunteer Club Leaders. Leaders were identified as being understanding and helping children to address their feelings and deal with them. Additionally, some of the children felt that being able to talk to the Leaders who they perceived as very approachable helped them to feel better about things that had previously worried them. There is a distinct feeling conveyed in their responses that the children recognised that the Club Leaders identified with them and this helped the children become engaged with sharing worries and issues within the group:

C20: ....having fun with the Leaders and discussing things (Transcript 2, line 27)

C17: We were talking about...um what are your worries.

C20: We said about bullying um ...and we discussed um like things um in our primary school that we find (indistinct) *Transcript 2, lines 14-17)*

C22: It's like you...um... were worried about something you could...um tell one of the leaders and they would discuss it in the group and you weren't so worried about it. (Transcript 2, lines 48-50)

C20: The Club Leaders say we should share our problems and they helped us and they knew how we feel ....and we can share everything with them (Transcript 2, lines 130-131 & 133)

The children also recognised the opportunity Clubs provided them to make more friends and be an active part of a group:

C8: You make friends (Transcript1, line 29)

C4: Make lots of friends! (Transcript 1, line 84)

DH: Who made friends at Pyramid club? (All thirteen put their hands up) *(Transcript 1, lines 85-86*

MO: Why...why were these activities important? How did they help do you think?

C18: Because it got us working as a team (Transcript 2, lines 35-38)

Overall there were strong similarities expressed across the three groups not only in the children's identified needs but how they reported benefiting from attending the Clubs and this is a good indication that there was evidence of equivalence in how the intervention was being delivered in all three schools.

6.5.3. Changes and benefits noticed by others:

The third theme identified changes and benefits that the children reported that had been noticed in them by others, usually their parents. Question 6 of the focus group script specifically related to whether significant others had remarked upon changes they had noticed in them post-Pyramid Club:

C24: My mum and Dad and my family think that (indistinct) *um.. er.. it was good because we learned stuff and it helped my learning. (Transcript 3, lines 78-79)*

C26: um my Mum said that I am talking...chatty (Transcript 3, line 76)

Children also reported talking at home to their parents about how much they liked coming to Pyramid:

C4: I had so much fun I told my Mum everything about Pyramid (Transcript 1, line 173)

C9: Um if we just got a form to come to Pyramid club (again) *she* (Mother) *would sign it (Transcript 1, line 170)*

The majority of children seemed eager to share with their families how much they had enjoyed attending Pyramid Club.

6.5.4. Costs noticed by self and or others:

No costs to attendees could be identified in the narrative of any of the three transcripts.

6.5.5. Suggested changes:

The final theme encompassed Pyramid attendees' suggestions for changing or improving the Pyramid Club format. The final question (No.7) of the focus group script asked '*If you had a magic wand what would you change about Pyramid clubs?* This gave the children the opportunity to express their views about any elements of the Pyramid Club programme that they either particularly valued and wanted more of or conversely did not enjoy and would like to see changed. Many children suggested increasing the length of time spent at Pyramid either by extending the individual sessions or the number of weeks Pyramid Clubs ran for:

C25: I would like to change um that we get more time in Pyramid (Transcript 3, line 99)

C20: To have more time....12 weeks would be better (Transcript 2, lines 90 & 95)

C22: I think more because it would make us feel even more confident (coughs) *as much as others (Transcript 2, line 97)*

C10: So it can stay open for 24 hours! (Transcript 1, line, 129)

Linked into requests for more time were regrets expressed about being unable to return the following school year:

C27: Um, I...are we going to come back are you going to come back? (Transcript 3, line 120)

C25: I don't want to leave because it was such fun, I am going to miss you and all the Pyramid Leaders and I wish there was more but I feel we have to give other children the chance (Transcript 3, lines 125-127)

C20: I wish you would come back and do it again (Transcript 2, line 153)

Some children were concerned about practical matters such as the location, number and type of activities, food and number of volunteer Club Leaders:

C27: Um if I think um...we had a little bit more space, then we could play other games

Transcript 3, line 106)

C24: I wish there was less books around here (this club was held in the school library)

Transcript 3, line 112)

C20: More teachers?

C17:...and a man. (Transcript 2, lines 108& 110))

C16: The food

C14: Having the food um maybe a little more earlier (Transcript 2, lines 80& 82)

C20: I want more activities (Transcript 2, line 118)

These suggestions provide valuable information as to what children enjoy and how the initiative can be made even more appealing. However, one important indicator that the children were on the whole satisfied with their experience of Pyramid Club was that levels of attendance were high. Throughout the three academic years this research project ran, the minimum level of attendance at Clubs was set at 70% for children to be included in the study (i.e. attending 7 out of 10 sessions) and during this time period only 3 children in Study Two were excluded from the final (quantitative data) analysis because their attendance fell short of the prescribed level (*Chapter Four, section 4.8).*

6.6. Discussion:

Qualitative methodology was used in this fourth and final study for the purpose of triangulation of the results of the three previous quantitative studies (Chapters 3 to 5) thus reinforcing their validity and credibility (Patton, 1990). Using the thematic analysis of three focus groups it investigated how the attendees themselves experienced the Pyramid Year 3 intervention. There exists a scarcity of studies within the extant peer reviewed research literature that directly relates to how children themselves report experiencing interventions (Hennessy, 1999, Stallard, 1995). Nonetheless it is of great importance that children are involved in determining the relevance of emotional health and wellbeing initiatives that are designed to support them (Day et al, 2006). Therefore the current

study aimed to address this issue in addition to providing further support for both the quantitative studies described in this thesis (Studies One, Two and Three) and prior research into the Pyramid Year 3 intervention (Cooper, 2000; Davies, 1999; Fitzherbert, 1985; Skinner, 1996).

The thematic analysis of focus groups was selected as the most appropriate analytical methodology to elicit the children's views and experience of Pyramid clubs. It was considered that thematic analysis would provide this study with a more flexible method of qualitative data analysis than others that are bound by theory whilst still offering a coherent analytical framework of data enquiry (Braun & Clarke, 2006).

Five overarching themes were derived from the data using an iterative approach each relating to a different perspective of measuring how the children had experienced attending Pyramid Clubs.

6.6.1. How the Pyramid Club experience meets with the Pyramid intervention ethos:

The purpose of this theme was to map the children's descriptions of the activities they valued most with the four elements of the Pyramid intervention ethos in order to discern whether what the Clubs were delivering met with the expectations of the Pyramid model.

The Pyramid model draws upon Maslow's hierarchy of basic needs (Maslow, 1977) in order to identify what needs to be provided for children to be able to function and strive towards realisation of their potential (Pyramid, 2007) *(Chapter 2, section 2.3.3)* Overall, children reported valuing the 'nurturing' activities such as cooking, sharing food, and playing games. Furthermore, they also mentioned a need to be praised for meeting goals and targets and a need for boundaries particularly the Club rules they themselves had created which made them feel safe. These findings concur with those reported in the recent review of the Child and Adolescent Mental Health Service (DCSF, 2008). In this report children whose opinions were sought concerning on what they felt children needed most to thrive in terms of their emotional health and wellbeing highlighted the need to have all of these factors.

The value of new experiences were also mentioned, the children clearly identifying that Pyramid Clubs gave them the opportunity to expand their horizons. However this was not limited to trying new art activities and trips to the theatre but included experiencing the responsibilities of being a member of a peer group that worked coherently together as a team (Tuckman & Jensen, 1977) and within which they felt accepted and valued (Harris, 1995).

6.6.2. Self-reported changes and benefits attributed to attending a Pyramid Club:

The second theme identified how Pyramid attendees reported changes and benefits to themselves that they attributed to having attended Pyramid Club. The most important aspect of this theme provided support for the findings of all three quantitative studies in respect of the improvements shown in the Emotional sub-scale of the Strengths and Difficulties Questionnaire (SDQ) scores over time for the Pyramid attendee groups. The Emotional sub-scale of the SDQ consists of five items that measure somatic symptoms (item 3); worries (item 8); unhappiness (item 13); nervousness (item 16) and fear (item 24) (Goodman, 1997). Children in the focus groups consistently reported being less scared, less shy, less nervous and more confident as a result of attending clubs and in each of the three quantitative studies Pyramid attendee children showed decreased levels within this domain and in the majority of children decreases of a greater magnitude to changes shown in the Comparison group's scores. This provides important confirmation that the changes the teacher-raters have observed in the Pyramid attendees post-intervention meets with the experience of the children themselves and how they feel they have personally benefited from attending.

The children also reported benefits from their relationships with the volunteer Club Leaders. The children found the Club Leaders to be approachable and easy to talk to and the children appeared to value their advice. This gave the children the confidence to seek help when they needed to and also to share problems and issues within the group and circle time. These are valuable skills that it is likely they were lacking before and the acquisition of which would hopefully pave the way for increased participation in the classroom which it has been recognised that many quiet and socially withdrawn children find difficult to do (Ladd, Herald-Brown & Reiser; 2008).

6.6.3. Beneficial changes observed by others:

Some of the children reported that friends and family (particularly their parents) had reported changes in them subsequent to having attended Pyramid. Most of the changes observed by others were related to an increase in the amount the child was speaking and that confidence levels had improved. Other parents reported improvements in practical academic areas such as handwriting. Children seemed keen to discuss Pyramid club with their parents and this discussion was overwhelmingly positive with one child reporting that their mother would give permission straight away if Pyramid was to run again.

6.6.4. Potential costs to attending Pyramid:

At the outset of the current study it was considered important to consider whether there might be personal costs involved for Pyramid attendees in attending Pyramid Club. In a previous focus group study (Fox et al, 2006) the researcher and her colleagues had found that children involved in a playground inclusion scheme had reported some personal costs involved in participating. One issue might be that as the intervention is selective then other children, not selected, might stigmatise those that are and avoidance of this particular issue has been highlighted as an advantage of running universal school-based interventions (Stallard et al, 2007). There were no self reported costs found in the transcripts although one child did hint that they might be aware that there were differences in their behaviour that made them stand out from their non-Pyramid classmates. When describing how she would like Pyramid to run for longer she rationalised that then there would be an opportunity to become even more confident *'as much as others' (Transcript 2, lines 97-98).*

6.6.5. How could Pyramid Clubs be improved?

The final theme addressed how the children felt Pyramid could be improved. The children were pragmatic and articulate in expressing their views. Many of the children wanted more time at the intervention, some suggesting an increase to the length of each session others to extending the number of weeks (e.g. from the current ten weeks to the length of a full school term, circa twelve weeks). Other children were more concerned with the facilities provided such as the location, wanting more space and having the snack earlier as they were hungry at the end of the school day. All these suggestions give a clear

indication that the children's identified needs concurred with those of the children in the CAMHS review (DCSF, 2008) and further indicates the need to ensure that service satisfaction evaluations of this type of school-based intervention incorporate measures and methods that are salient to the children in their role as the service users (Day, Carey & Surgenor, 2006, Hennessy, 1999).

6.6.6. Limitations:

There are certain limitations to this study that need to be taken into consideration. Firstly, less than half of the participant schools were represented in the focus group sample and this may suggest a threat of self-selection bias on the part of the schools that did agree to take part (Stallard, 1996). Secondly, a more 'top down' approach was used which may have led to some loss in the richness of data as the style of the focus groups was quite structured. However, this potential cost was weighed against the need to have the participants feel comfortable within a familiar 'circle time' style scenario amongst their peers, in the belief that this would help them to be more relaxed about expressing their views (Sim, 1998). Finally, all the focus group facilitators were in some way involved with the local Pyramid project and once again this may have introduced an unintentional source of bias, the risk of which has to be, once again, weighed against the advantage that they were all known to the participants which would have increased the children's ease when taking part.

6.6.7: Conclusion:

This final study had the objective of determining the views of the children who had participated in the Pyramid Year 3 intervention during the academic years 2005-2006, 2006-2007 and 2007-2008. Overall, the children evaluated their experiences of the Pyramid intervention positively and the reported benefits reflected closely the intended aims and ethos of the project. More importantly, self-reported improvements in terms of emotional wellbeing from the attendees provided confirmation of similar improvements shown within this domain in the results of the three quantitative studies previously described in this thesis (Chapters Three to Five).

In summary, the emergent themes from this study provide further evidence of the suitability and efficacy of the Pyramid Year 3 intervention for supporting primary school

children in their socio-emotional competencies and serve to augment the validation of the inclusion of children in the evaluation process of school-based emotional health and well-being interventions such as Pyramid. Additionally, the use of triangulation strengthens and validates the results of both the quantitative and qualitative components within this research programme

Chapter Seven

Discussion

This Chapter will discuss the results of the four studies carried out in the current programme of research in relation to the impact of the Pyramid Year 3 intervention upon the children who attended and its implications for future policy and practice. Additionally, it will propose a conceptual model for the future promotion and support of socio-emotional health and wellbeing in primary schools.

7.1. Introduction:

The overarching aims of the current research were threefold. Firstly, it sought to examine the impact of the Pyramid Year 3 intervention upon the socio-emotional competency and wellbeing of the children that attended both in the short-term (Davies, 1999; Headlam-Wells, 2000; Skinner, 1996) and the longer-term (Cooper, 2000; Fitzherbert, 1985). Secondly, it sought to investigate the selection component (Stages One and Two); a principal component of the Pyramid model, to discern whether there was any value-added from the second stage (multi-agency meeting). Thirdly, to explore how the implications of the current research could be used to develop a model for the future promotion and support of socio-emotional health and wellbeing within primary schools.

Both quantitative and qualitative methods were used to explore these research aims. This enabled the impact of the intervention to be investigated from both the point of view of a teacher-rated behavioural measure and also from the children's self-reported experience of the Pyramid intervention via the thematic analysis of focus group transcripts. Support was provided by the results of all four studies for the efficacy and suitability of the Pyramid Year 3 model as an intervention to support the socio-emotional wellbeing of the children selected to attend. Evaluation of the findings of these studies will be addressed in this chapter in relation to their implications for both the Pyramid intervention model and current policy and practice from the perspective of present and future provision.

7.2. Overview of the results:

The Strengths and Difficulties Questionnaire (Goodman, 1997) was used to measure any changes observed over time across the cohort. The Pyramid Year 3 intervention aims to improve levels of socio-emotional competency in the children that attend. Therefore, the a priori predictions for the current research posited that children selected to attend the intervention would show greater levels of improvement in the Emotional, Peer and Pro-social SDQ sub-scales at both follow-up time-points.

The results of the current research provide support for this, with Pyramid attendees across all three quantitative studies showing greater levels of improvement than their Comparison group classmates and additionally from the self-described improvements reported by the Pyramid attendees in the focus groups (Study Four).

In Study One, significant decreases in Total Difficulty (TD) scores were observed for the Pyramid Attendee group that elicited a strong effect size. Comparison group TD scores also showed decreases however these were of a lesser magnitude. These findings were consistent with both Davies (1999) and Skinner (1996) whose studies both showed post-intervention decreases in Total Difficulty scores (Davies, 1999) and depressive symptomology (Skinner, 1996) for Pyramid attendees. As predicted at the start of Study One, baseline TD scores for the Pyramid attendees were higher than those of their Comparison group classmates with 35.7% of Pyramid attendees scoring within the 'Abnormal' scoring band of the SDQ. However, at post-intervention this percentage had dropped to 7%, less than the UK SDQ Normative percentage of 10% expected to score in this band within a Community sample.

A similar trend of results was shown in Study Two for both the West London and Salford samples. Baseline scores for Pyramid attendees again showed greater levels of difficulty than their Comparison group classmates. Nonetheless, even greater levels of improvement in Pyramid attendees post-intervention were shown in both their Total Difficulties scores and four of the five sub-scale domains. Decreases in Pyramid attendee Total Difficulty, Emotional, Hyperactivity and Peer difficulties scores all achieved statistical significance as did the increases shown in Pro-social behaviour. In contrast,

Comparison group children's scores showed slight increases in Total Difficulties, Conduct and Hyperactivity none of which achieved significance and an increase in Emotional Difficulties that was statistically significant ($p<.05$).

Levels of improvement measured by movement between SDQ scoring bands were also greater for the Pyramid attendee group. This was evidenced by the larger proportion of Pyramid attendees moving from the 'Abnormal' scoring band (12.5%) compared to the Comparison group children (2%) and the resultant post-intervention banding percentages of the Pyramid attendees being closer to those of the SDQ UK normative percentages (Goodman, 1999).

However, the improvements shown in both these studies related to the impact on Pyramid attendees measured immediately post-intervention. Whilst it is important to establish that preventative interventions meet proximal goals it is also necessary to ensure that any gains made in the short-term are shown to be enduring (Durlak & Wells, 1997; NICE, 2008). In order to address the question of whether improvements shown in the short-term could be maintained in the longer-term, Study Three followed up the first cohort of Study Two children twelve months post-intervention. In common with two prior studies into the longer-term impact of attending Pyramid Clubs (Cooper, 2000; Fitzherbert, 1985), evidence of preservation of gains was shown, with Pyramid attendees maintaining at twelve-month follow-up, improvements shown in both Total Difficulty scores and other SDQ sub-scale domains immediately post-intervention. Conversely, Comparison group children's scores showed signs of a steady increase in both Total Difficulty scores and the other SDQ sub-scales from baseline to post-intervention and to the twelve-month follow-up. These increased levels of difficulty demonstrated by the Comparison group children identify that there is a need to monitor children's emotional health and wellbeing at school with a view to providing early, appropriate levels of support in all cases where need is indicated (Layard & Dunn, 2009).

The focus group study provided a necessary triangulation of these studies through the use of thematic analysis to interpret the attendees' self-reported experiences of attending Pyramid Clubs. This was important, not only from the methodological perspective of the

research but also because it provided an opportunity for the views of the service-users to be expressed (Hennessy, 1999).

7.3. Impact of the intervention upon Emotional competency:

A significant outcome of this research is the marked improvement shown in all three of the quantitative studies in relation to Pyramid attendee emotional difficulties and the self-reported improvements revealed by attendees in the focus group study. A considerable body of research has shown that the success of social functioning in middle childhood is related to the ability to self-regulate emotion (e.g. Eisenberg, Fabes, Murphy, Karbon, Smith & Mazk, 1996; Eisenberg, Fabes, Shephard, Murphy, Guthrie, Jones, Friedman, Poulin & Mazk, 1997). Additionally, children who are shown to have strong emotional regulatory control are more likely to receive favourable peer-ratings and be viewed as socially competent by their teacher (Eisenberg et al, 1996). Thus the improvements made in the Pyramid attendee Emotional difficulty scores demonstrate that post-intervention these children had acquired a greater level of emotional control suggesting that this would facilitate their ability to effectively initiate and maintain interaction with both peers and adults (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major & Queenan, 2003). Importantly, these gains were shown to have been maintained and, in the case of the 'SDQ Alone' Pyramid attendee group, further improvements at the twelve-month follow-up time-point were evident. This continued improvement demonstrates a potential enhancement effect of the intervention, wherein children's rehearsal and use of coping strategies learned during the intervention perpetuates the increase in their socio-emotional competency and concurs with the findings of previous research into the longer- term effect of the Pyramid intervention (Cooper 2000; Fitzherbert, 1985).

Poor levels of emotional regulation and a tendency toward high levels of dispositional negative emotionality have also been shown to be related to neuroticism and the risk of future development of internalised disorders such as anxiety and depression (Clark, Watson & Mineka, 1994). Children with high levels of negative emotionality were shown to spend more time in solitary play indicating, at the very least, peer indifference and at worst peer rejection (Fabes, Hanish, Martin & Eisenberg, 2002). The Pyramid model selection criteria focuses upon the domains of the SDQ that indicate difficulties in Peer

relationships and self-regulation of Emotion and targets children who are demonstrably behaviourally inhibited (Pyramid, 2007). Therefore improvements shown in these SDQ domains by the present research are fundamental in demonstrating the efficacy of the intervention. Furthermore, the focus group study provides clear indications that children's self–reported improvements acknowledged a reduction in identified risk factors for behaviourally inhibited children such as anxiety and fearfulness and increases in protective factors such as confidence demonstrated by their increased participation in class. This is an important improvement as it has been recognised in the research literature that a tendency toward the type of internalised emotional disorders (such as anxiety and depression) that these children are at risk of developing (Caspi, Elder & Bem, 1988) have been associated with poor, subsequent academic achievement (Schwartz, Gorman, Nakamoto & Toblin, 2005). Prior research into the effect of the Pyramid intervention on the improvement of depressive symptomology (Skinner, 1996) revealed post-intervention decreases in Pyramid attendee self-reported depressive symptoms. However, Skinner's study was somewhat limited by a small sample size and the lack of a Comparison group. Therefore the current research extends and strengthens these findings through the use of a more robust methodology and the use of a far larger sample.

7.4. Impact of the intervention upon Peer relationships:

Peer acceptance and social support become increasingly important during the course of middle childhood as children deal with the academic and social challenges of school-life (Schwartz et al, 2008). Children who are quiet and behaviourally inhibited find it harder to participate in both these domains and are more likely to report social dissatisfaction and feelings of loneliness (Fordham & Stevenson-Hinde, 1999) therefore it is essential that these children receive appropriate and timely support in order to prevent the development of serious disorder (Caspi, Elder & Bem, 1988).

Support for the notion that Pyramid attendees were interacting more successfully with their peers post-intervention is provided by a similar trend of improvements in Peer difficulty scores to those shown for Emotional difficulties and concur with both Davies' findings (Davies, 1999) and the a priori predictions made at the start of this research. In

the first study, improvements in the Peer domain were shown to be equivalent for both Pyramid attendee and Comparison group children and this might be seen as indicative of changes due to typical maturation over time. However, improvements shown and maintained in the second and third study suggest that improvements in the Pyramid attendee's socio-emotional skills, evidenced by their lowered scores in the Emotion and Peer domains of the SDQ, had a beneficial effect on peer interaction across the cohort as a whole (King & Kirschenbaum, 1990). Additional support for this notion is provided by the fact that this was the one SDQ domain in which the Comparison group showed improvement or maintenance of improvement across all three time-points. Furthermore, a similar pattern of results was noted in the Conduct domain. This finding was of particular interest, as Pyramid attendees are not selected for the intervention in relation to high levels of Conduct difficulties. However, scores for both groups at baseline were higher than those of the SDQ UK normative means (Goodman, 1997) and both groups' scores showed decreases post-intervention. Once again this suggests that improvements in the Pyramid attendee group were being extended across the year group in domains primarily concerned with peer or adult interaction. These findings concur with the model of social competence posited by Dodge, Pettit, McClaskey & Brown (1986) in which it is proposed that, as children's socio-emotional skills increase, so does their ability to process social-information cues correctly, thus increasing their chances of peer acceptance and successful interaction with both their peers and others (Dodge et al, 1986).

7.5. Need for universal assessment of socio-emotional development:

The evidence presented in this thesis provides clear indication that school-based interventions can have a significant and positive impact on the emotional health and wellbeing of the children that take part. It also indicates that there is a need for the regular universal assessment of the socio-emotional development of children in school. Layard and Dunn (2009), suggest that this type of assessment could take place in primary schools at the entry to Key Stage One (aged five) and at the end of Key Stage Two (aged eleven) and in secondary schools at the end of Key Stage Three (aged fourteen). It is the recommendation of this thesis that children are also screened at the beginning of Key Stage Two (aged eight). This is also a key transition point, (Galton, Gray & Ruddock,

2003), whereby children move from the 'Early years' environment to the more formally structured junior school environment with many children moving to a new school site and sharing playground facilities with older children (Pyramid, 2007). At this stage, many children struggle to adjust to the significant changes in environment and learning (Galton, Gray & Ruddock, 2003). It is at this transition point the Pyramid Year 3 is designed to be delivered in order to support and facilitate adjustment in children who have been identified as socially and emotionally vulnerable (Pyramid, 2007).

The initial two stages of the Pyramid intervention (the selection component) can be said to provide a universal intervention as the entire Year group are screened using the Strengths and Difficulties Questionnaire to identify socio-emotional and behavioural need. Additionally, the multi-agency meeting provides a forum for involved teachers and other professionals to discuss the progress of the cohort and refer children whose Strengths and Difficulties Questionnaire scores identify them in need of intervention to either a Pyramid club or another appropriate programme. In the present research, all the Comparison children, identified at baseline and subsequently discussed at the multi-agency meeting were not considered in need of intervention but by twelve-month follow-up 26% of them were scoring within the 'Abnormal' band. Goodman, Ford, Simmons, Gatward & Meltzer (2000) acknowledge that within a screened community population there is the risk of false positives and/or negatives particularly in the instance that one informant-rater is used. However, for this sample, consistent increases were shown at short-term and longer-term post-intervention follow-up for the Comparison group children. These ratings were carried out by two teachers for the same cohort, the Year 3 teacher at short-term follow-up and the Year 4 teacher at longer-term follow-up. Inter-rater correlations comparing there ratings were shown to be moderate to strong in all SDQ domains. Therefore, it can be construed from these results that there exists a need, certainly within the current sample, for the continued monitoring of children's emotional development. This will ensure timely and appropriate intervention is provided when required. Furthermore early intervention will prevent the development of future disorder so that children can reach their full potential both socio-emotionally and academically.

7.6. Limitations of the current research:

A limitation of evaluating existing services within a community population is that some experimental rigour may be sacrificed in the interests of limiting interference and these sacrifices must be weighed against gains made in terms of the ecological validity of the study (Cowen, 1994). Whilst the results of the current research can be shown to extend and strengthen the existing evidence base for the efficacy and suitability of the Pyramid Year 3 intervention, several limitations were identified that should be taken into consideration when reviewing these findings.

Firstly, whilst the SDQ appears to provide a suitable selection measure with sub-scale domains that are relevant to the socio-emotional outcomes the Pyramid Year 3 intervention aims to improve (e.g. Emotional and Peer difficulties and Pro-Social behaviour), the banding of the scores is likely to result in data that is not normally distributed particularly within a community sample. Goodman (1997) proposes that within such a population 80% of children will be rated as 'Normal' (scoring within a range of 0-11), 10% 'Borderline' (scoring within a range of 12-15) and 10% 'Abnormal' this indicates that the distribution of the data is likely to be positively skewed. In Studies One to Three this was indeed the case and the decision was made to transform the data so that parametric tests could be used thus providing greater power to the statistical analysis. Furthermore, Goodman and his colleagues (2000) maintain that the SDQ is more sensitive when two or more informant-raters are used. Therefore, the reliance upon the observations of teacher-informant-raters only in Studies One to Three might be regarded as a further limitation. This was partly due to unsuccessful previous attempts to engage with parents and because the children were too young to reliably complete the self-report version of the SDQ aimed at children aged between 11 and 16 years (Goodman, Meltzer & Bailey, 1998). However, previous studies have argued that informant-raters are very often 'domain specific' and as a result poor levels of correlation have been observed between teacher and parent ratings for both the SDQ (Mathai, Anderson & Bourne, 2002) and other measures (Eiser & Morse, 2002; Verrips, Stuifbergen, den Ouden, Bonsel,

Gemke, Paneth & Verloove-Vanhorick, 2001). To counteract this, a mixed methods approach was used in order to triangulate the data collected, with the views of the Pyramid attendees elicited through a series of semi-structured focus groups (Study Four).

There is a recognised scarcity of suitable measures of socio-emotional and behavioural health status for use in community and school-based intervention (NICE, 2008). The Child Behaviour Checklist (CBCL) (Achenbach, 1991) might have provided an acceptable alternative to the SDQ in the current research. Research has shown that in a screening capacity both measures discriminate equally well between children from a higher risk clinical sample and children from a low risk community sample (Goodman & Scott, 1999). Both are well-validated, widely used and have been shown to be cross-culturally relevant (Achenbach, Becker, Döpfner, Heiervang, Roessner, Steinhausen & Rothenberfer, 2008). The SDQ has the advantage of being considerably shorter (25 items to the 44 of the CBCL) and therefore takes less time to complete, giving it greater respondent appeal (Goodman & Scott, 1999). Furthermore, whilst the SDQ does not provide the degree of diagnostic sensitivity a clinical interview would (Goodman & Scott, 1999) for the purposes of screening a community sample it has been shown to be proficient (Goodman, Ford, Simmons, Gatward & Meltzer, 2000).

A randomised controlled design is considered to be the 'gold standard', as the randomised selection of participants precludes threats to both internal and external validity (Sherman, Gottfredson, MacKenzie, Eck, Reuter & Bushway, 1997). The Pyramid intervention is selective therefore a randomised controlled trial would have been inappropriate and this might be considered a limitation to the design of the current research. A system of 'waiting list control' (Frederickson, Warren & Turner, 2005) was also considered unsuitable as due to the limitations of funding only one Pyramid club could be run per school per academic year and as there were sufficient places in each club for all the children selected as suitable for intervention it was considered unethical not to provide them. However, the use of a non-problem comparison group provided the opportunity not only to test the efficacy of the intervention component on the Pyramid attendee children but also to observe and rate the value of the universal screening component (the first and second stages of the Pyramid model) and the suitability of the

SDQ as a screening measure of socio-emotional health and wellbeing within the population used in the current research.

Finally, in Studies One and Two a higher proportion of Asian children than other ethnicities observed across the sample prompted the concern that this might provide an unintentional bias, i.e. ethnicity might act as a co-variant or moderator in the evaluation of the Pyramid intervention. Atzaba-Poria and Pike (2007) have identified that minority group Asian children are more likely to exhibit internalising problems than their White British peers. Furthermore, in a study of Asian British and White British children in middle childhood (aged 7-9 years), Asian children were shown to be at higher risk of emotional disorder but only from internalising problems (Atsaba-Poria, Pike & Barrett, 2004). Therefore, it was considered a possibility that in the current study more Asian children would have been selected as suitable to attend Pyramid because of a tendency toward internalising disorder and that the improvement in Asian Pyramid attendees might distort the results. To investigate this, further separate analyses were run in all three studies. No significant interactions between ethnicity and intervention group were revealed indicating that the intervention was working with parity across the four ethnic groups identified. These results provide early evidence of the universality and suitability of the Pyramid Year 3 intervention across the four groups of ethnic origin, (White, Black, Asian and Mixed/Other), identified in this sample and as such can be viewed as a strength of the present research studies that warrants further investigation.

Similar analyses were run in respect of gender, however, some evidence of gender effects were observed with females across the sample of all three studies showing lower levels of difficulties at baseline and both post-intervention follow-up time-points. Moreover, in both Studies Two and Three, female Pyramid attendees showed greater levels of improvements than their male counterparts. These results concur with national statistics wherein girls are currently shown to be outperforming boys within education from as early as Key Stage One (age 6-7 years) (www.statistics.gov.uk accessed April, 2008). However, the higher baseline scores for boys might be considered attributable to gender-stereotyping by teacher-raters (Keiley, Bates, Dodge and Pettit, 2000). Previous research has shown that teachers are more likely to attribute high levels of externalising behaviour to boys and this might result in them rating girls' behaviour either more favourably or

attributing them with more internalised types of behaviour (Keiley, Bates, Dodge and Pettit, 2000) . Existing research indicates that internalised emotional disorders are more prevalent in young girls than in boys (Flouri, Buchanan & Bream, 2000) therefore, in respect of the Pyramid intervention selection process, this might explain why more girls than boys were considered as suitable for inclusion in the intervention not only as shown in the samples for the current research but also within the statistics for Pyramid nationally (Pettitt & Kwast, 2004).

In summary, whilst the present research was somewhat limited by the factors discussed it has nevertheless contributed to and strengthened the existing evidence base concerning the efficacy of the Pyramid Year 3 intervention. Furthermore, it has also added to the evidence base of interventions that are aimed at improving the socio-emotional competency of children in school, particularly those who have a tendency toward more internalised emotional disorder an area acknowledged both within the research literature (Arnold & Doctoroff, 2003) and national guidance (NICE, 2008) as being scant. Many of the studies described previously in the first chapter of this thesis have small sample sizes (e.g. 'Circle of Friends', Frederickson, Warren & Turner, 2005 n=20; 'PATHS' curriculum model, Jaycox, Reivich, Gilham & Seligman, 1994 n=73; UK pilot of 'Incredible Years Dinosaur Social Skills' programme, Hutchings, Lane Owen & Gwyn, 2004 n=11; U.K. trial of 'Friends for Life', Stallard, Simpson, Anderson, Hibbert & Osborn, 2007 n=107). Whilst it is acknowledged that most of these studies described preliminary research into the interventions either in North America or here in the United Kingdom, the current research also provides preliminary investigation of the impact of the Pyramid Year 3 intervention. However, the scale of the current research is of a greater magnitude, with 471 children screened for socio-emotional difficulties and 145 children participating in the intervention over the three year research programme period.

7.7. Implications for this research upon the Pyramid model:

The Pyramid Year 3 intervention programme, as described in Chapter Two of this thesis, is manualised and has been accredited by the Council for Awards in Children's Care and Education (CACHE). It is regularly updated to reflect current policy and practice. The

results of the research presented in this thesis thus far have implications for the future implementation of the Pyramid model and these recommendations are outlined in this section as follows:

7.7.1. The selection component (Stages One and Two)

A principle aim of this research was to investigate the selection component (Stages One and Two) of the Pyramid Model to discern whether it provided any value-added to the impact of the intervention in so far as it might have a further favourable impact on the outcome scores of the children selected in this way. The Pyramid model suggests that how children are selected for the intervention contributes to the benefits of attending (Pyramid, 2007). Furthermore, the children who are selected might also gain from the perception that they have been given an opportunity over others, as well as the obvious advantage of being able to extend their repertoire of socio-emotional and friendship skills (Save the Children Fund, 2003, Pyramid, 2007). The present research has shown this to be a significant component of the model and it effectively represents a universal intervention.

A priori predictions made at the start of this programme of research asserted, that children selected using this two-part method, would show greater levels of improvement post-intervention than children selected as Pyramid attendees on the basis of their SDQ scores alone. Results in Study Two confirmed this to be the case with the high levels of improvement shown for the Pyramid attendee groups being driven by the results of the children selected using the traditional, two-stage Pyramid selection method. Pyramid attendees who were chosen by SDQ alone showed levels of improvement that were comparatively modest.

Conversely in Study Three, slight increases in both Total Difficulty scores and the Emotional Difficulties sub-scale at twelve-month follow-up were shown for the children who were selected using the traditional two-stage process, albeit neither achieved statistical significance. In contrast, children in the SDQ alone selection group showed signs of further improvement. This finding is particularly important as it indicates that there might be an 'enhancement effect', wherein children that have learnt behavioural strategies and coping mechanisms during the intervention begin to apply them to

problems they later face (Cowen, 1994). This effect has been shown principally in interventions that are underpinned by Cognitive Behavioural Theory (Barrett & Turner, 2001; Rutter &Taylor, 2002). Stallard et al. (2007) report continued improvement at a three-month post-intervention follow-up in their evaluation of the 'Friends for Life' programme which uses cognitive-behavioural therapeutic methods to counteract anxious though processes. Similarly continued, long-term improvements were shown in an evaluation of the Penn Prevention programme combined with evidence that the children who were identified at baseline with the highest level of need showed the greatest level of improvement at longer-term follow-up (Jaycox et al, 1994). From the evidence presented and the results of the current research two important conclusions can be drawn. Firstly, that the behavioural constructs that underpin the Pyramid model such as Social Learning Theory (Bandura,1977) appear to affect similar behavioural changes and engender socio-emotional coping strategies as seen in the programmes that use cognitive-behavioural methods. Secondly, that for the children who have been identified as having the most need (i.e. Pyramid attendee children whose baseline SDQ scores place them in the higher risk bands), a greater level of improvement is shown evidenced by the higher percentage of decrease in these higher scoring bands at both post-intervention follow-up time- points. Nonetheless, in terms of the multi-agency meeting element of the selection process, the results of these two studies appear to provide opposing evidence. This might be attributable to individual differences in the children who took part or to the skills of the Volunteer Club Leaders and these are both areas that warrant further investigation through future research. Alternatively, it could be the case that the multi-agency meeting component of the selection process provides an opportunity for the adult stakeholders to intervene in the formation of the Pyramid peer group in a detrimental way. The opportunity to select children through discussion as well as based on their level of need identified by their scores in the relevant SDQ domains might lead to an unintentional bias in the selection process. This issue indicates that further research is needed into the implementation quality of the intervention (Kam et al 2004).

Therefore it is the recommendation of this Thesis, that the research carried out in respect of the selection component of the Pyramid intervention be replicated and consideration should be given as to whether selection for Pyramid should be based purely upon the

socio-emotional needs of the children identified by their SDQ scores. However, the evidence presented supports the value of the multi-agency meeting not just to the Pyramid intervention model but also in respect of the role it might play in a model for Emotional Health and Wellbeing promotion in primary schools which will be discussed in the final section (*7.9*) of this chapter.

7.7.2. Implementation fidelity:

The research literature indicates that one of the key components of effective intervention is implementation fidelity (Mihalic, Fagan, Irwin, Ballard & Elliot, 2002). Unless interventions are delivered faithfully and as originally intended then what is delivered may not have the desired outcomes or indeed be the programme (Kam et al, 2004). The Pyramid intervention manual is comprehensively and regularly updated regarding changes in policy to ensure good practice. As previously described in Chapter Two, *(Section, 2.5 refers)* the Pyramid intervention can be mapped onto current national policy and practice. Hughes (2008) identifies that the Pyramid intervention model addresses five of the nine standards of the National Service Framework for children (www.everychildmatters.gov.uk, accessed March, 2009) and three of the core themes of the National Healthy Schools Standard (www.wiredforhealth.gov.uk , accessed March, 2009). Additionally, the two stage selection component of the Pyramid selection process comprising whole cohort screening for need combined with a multi-agency meeting places the intervention at the crux of the recent national move toward policies of early preventative practice (DCSF, 2008; Layard & Dunn, 2009). Whilst the intervention manual complies with current policy and standards of best practice (Pyramid, 2007, Hughes, 2008) there remains a need to ensure that what is actually being delivered in each Pyramid project faithfully replicates the original programme materials.

The issue of implementation quality and fidelity can be defined as the degree of fit between the original programme and how it is applied in service settings (Mihalic et al, 2002). They have outlined five factors that indicate implementation quality; Adherence, i.e. the programme is delivered according to the manual; Exposure, i.e. participants receive the identified intervention 'dosage' i.e. number of sessions attended (set at 70% for the current research); Quality of delivery, i.e. the programme is delivered by well

trained leaders; Participant engagement, i.e. how well participants engage in activities and finally, Programme Differentiation i.e. all the identified components of the programme are present (e.g. circle time, sharing of food etc). In the present research, three of the five factors can be shown to have been fully addressed (See Chapter Three, *section3.3.2)*. However, in respect of the quality of delivery and adherence to the programme by Club leaders it would have been helpful to have an additional prescribed method in which to measure these objectives. One approach that has recently been piloted by the Incredible Years programme in Wales (Eames, Daley, Hutchings, Hughes, Jones, Martin & Bywater, 2008) entails the construction of an observational tool that could be used by trained, independent observers to evaluate the fidelity of the Club Leader training programme as it is delivered within service settings. This would ensure the homogeneity of the training process thus increasing the quality and fidelity of implementation of the intervention and as a result further the likelihood of successful participant outcomes (Hutchings, Gardner & Lane, 2004). It is the recommendation of the present research that such a tool is constructed to address the implementation fidelity of the Pyramid intervention Club Leader training programme.

7.8. Implications of this research for current policy and practice:

The changes in national policy driven by the 'Every Child Matters' agenda and the subsequent legislative basis provided by the Children's Act of 2004 have resulted in significant reform in children's Services . In order to address the five identified outcomes; be healthy, stay safe, enjoy and achieve, make a positive contribution and achieve economic well-being, an integrated and strategic approach to the planning, commissioning and delivery of services has been adopted by educators, health-care professionals and local authorities (Ealing Primary Care Trust, 2006).

It is in this climate of change and increased drive for accountability in the mental health and educational provision for children that the current research commenced. Its principal aim being to evaluate a school-based preventive intervention provided by Pyramid in partnership with other agencies such as local education authorities (Pyramid 2007) and thus add to the evidence base in this area.

As previously discussed, the Pyramid Year 3 intervention model maps well to current policy and practice (Hughes, 2008) and this is important as evidence of the efficacy of school-based interventions such as Pyramid is influential in terms of determining future national and local policy. To date much has been achieved, with a clear move toward a preventative focus within government policy and practice (DCSF, 2008). The promotion of child emotional health and wellbeing is at the forefront of government initiatives such as 'Healthy Schools' and 'Targeting Mental Health in Schools' (TaMHS). A recent Ofsted consultation to establish indicators of school's contribution to child wellbeing indicates that schools are expected to assume responsibility for the emotional health and wellbeing of children as well as for their academic achievement (DCSF, 2008).

However, the recent Child and Adolescent Mental Health Service review highlights the fact that service-users (parents and children) still report gaps in service provision and poor signposting to those services and this suggests that some children and young people in need are not receiving appropriate or timely support (DCSF,2008). This view is supported by recent guidance from the National Institute of Health and Clinical Excellence (NICE 2008) which highlighted gaps in both the evidence base and provision in terms of rigorously evaluated interventions. Evidence is provided for the shortfalls in existing provision in schools by the increased difficulties shown by the comparison group children across the three time-points (baseline, post-intervention and twelve-month follow-up) of the present research. This indicates that a more pro-active preventative approach is needed in terms of the identification of children who are beginning to experience socio-emotional and behavioural difficulties.

In Chapter Two of this thesis a model of the levels of emotional and behavioural needs was described and this is reproduced in Figure 7.1. In agreement with the NICE guidance (NICE, 2008) this thesis recognises that the emotional health and wellbeing of children is fundamental to their ability to thrive and succeed in all areas of their life. Once children are of school age they spend an increasing proportion of their day within the school domain, therefore it is essential that their socio-emotional health status is monitored, as regularly as their academic achievement, in order that they can achieve their full potential socially and emotionally as well as academically. Furthermore, epidemiological research in the UK has shown that children and young people are more likely to contact school-

based services in relation to socio-emotional and mental health issues (Ford, Goodman & Meltzer, 2003; Salmon & Kirby, 2007).

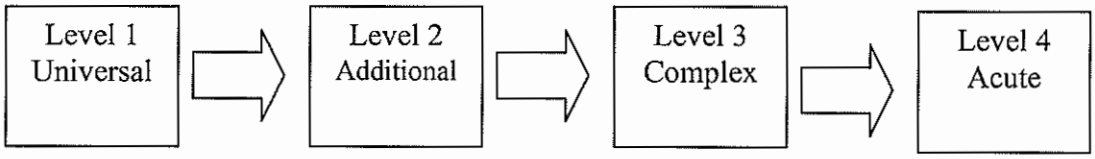
The current universal provision for the promotion of socio-emotional wellbeing in schools is provided through the Social Emotional Aspects of Learning (SEAL) programme. SEAL was developed as a curriculum resource to help the development of a whole school ethos in terms of the promotion of social emotional and behavioural skills in primary schools. It comprises of five socio-emotional aspects of learning; self-awareness, management of feelings, motivation, empathy and social skills. Resources are provided to ensure integration of the programme throughout the school, using whole school and year group assemblies, class circle time and Personal Social and Health Education (PSHE) lesson time to embed the principles into the ethos of the school (DfES, 2005). Whilst recent guidance from the National Institute of Health and Clinical Excellence recognises that the universal provision of SEAL in primary schools should be the main focus, it also acknowledges the needs of some children for additional targeted intervention at an early stage (NICE, 2008).

Previously in this chapter, it was proposed, that there exists a need for the universal assessment of socio-emotional development at certain key time-points within a child's school career (see Layard and Dunn, 2009). Since the introduction of the National Curriculum (1995), children's academic development has been frequently reviewed through attainment tests leading to a climate of 'performance orientation' for both children and teachers (Robson, Cohen & McGuiness, 1999). The introduction of universal assessment and monitoring of social and emotional development would go some way to redress the balance in recognising the importance of socio-emotional health and well-being in enabling children to fulfil their potential in life socially, emotionally and academically.

To achieve this goal, this thesis recommends the development of a model for the monitoring and promotion of the socio-emotional development of primary school children, in which children will be screened using the SDQ at key points within their school career. This system of monitoring will, dependant upon which 'level of need' is

identified *(see Figure 7.1),* ensure that the correct level of support is received and if necessary onward referral to an appropriate targeted intervention.

Figure 7.1. Levels of emotional and behavioural need:



Children and young people who **make good overall progress.** They receive appropriate Universal services and any extra small needs are dealt by referral to a time limited enhanced intervention. **Example:** School nurse, whole-school ethos SEAL[1]	Children and young people considered **at risk** of poor outcomes that would benefit from extra help from services to achieve their potential. This may apply to between 20-30% of children during their childhood. **Example:** B.E.S.T.[2] Year 3 Pyramid Clubs	Children and young people whose **needs** are **complex and enduring.** More than one service is normally involved with a lead professional in a statutory role. **Example**: CAMHS[3] Tier 3 provision	Children and young people who temporarily or permanently may be looked after or in youth custody or prison. This also includes chronically or severely ill children receiving in-patient care. **Example**: CAMHS[3] Tier 4 provision

[1] *S.E.A.L: Social and Emotional Aspects of Learning*
[2] *B.E.S.T: Behaviour and Education Support Team*
[3] *C.A.M.H.S. Child and Adolescent Mental Health Service*

7.8.1. Suitability of the SDQ as a screening tool for community populations:

The SDQ as previously described in this thesis *(Chapter 3, section 3.4)* is a brief questionnaire that can be completed by parents, teachers and older children (aged 11-16). It is currently widely used in both the educational and health domains and it has been shown both in the present research and others (e.g. Davies, 1999; Hutchings, Lane, Owen & Glyn, 2004) to provide a suitable measure of child socio-emotional and behavioural health status and as a comparable screening instrument to the longer-established Child Behaviour Checklist, (Achenbach, 1991; Warnick, Bracken & Kasl, 2007).

However, whilst it is essential to ensure that children who have additional socio-emotional and/ or mental health needs reach the appropriate help it also needs to be considered what the effects of widespread school-based screening would be upon an increase of referrals to existing Child and Adolescent Mental Health Services (Goodman, Ford, Simmons, Gatward & Meltzer, 2000). Therefore it is necessary to ensure that a suitable administrative structure and provision of interventions is in place. This structure would emphasise intervention at the 'targeted' stage of primary intervention with the view of intervening early and curtailing the future development of serious disorder. This would hopefully increase provision at the stage where children are initially in need of additional support and thus reduce levels of referrals to CAMHS at a later stage where the need for intervention has become acute.

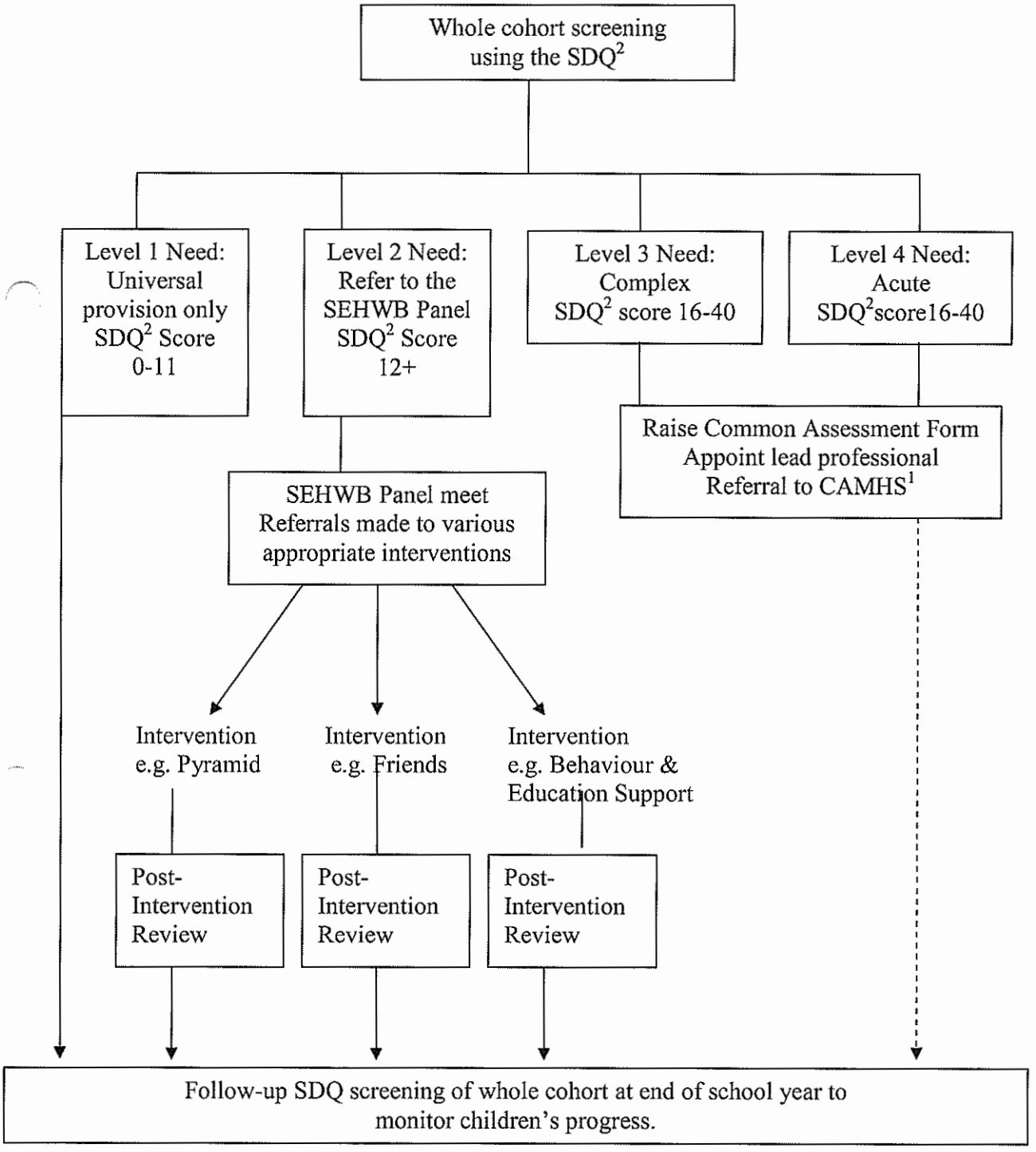
The research presented in this thesis thus far has identified, both in its review of the research literature, national policy and guidance and in the results of the four studies undertaken that there exists a need for a 'systems-led' approach to the promotion and continued assessment of the socio-emotional development of all primary school-aged children. At the centre of this approach would be a model for the assessment and continued monitoring of children during the course of their primary school career. This model will be described and discussed in the final section of this thesis.

7.9. Future Direction:

7.9.1. Towards a model of integrated socio-emotional health and well-being provision for primary schools:

In preventative science, person-centred interventions, such as the Pyramid Year 3 intervention, are used to change behaviour in individuals directly and ecological (systems-led models) are used to change environments and influence the behaviour of the target population indirectly. To ensure such person-centred interventions are accessed by those that need them most there is a need for them to sit within an ecological model of service delivery. Therefore this section will discuss the development of a conceptual model to monitor the socio-emotional development of children within the primary school setting. A diagram of this conceptual model is shown in Figure 7.2.

Fig 7.2 Conceptual model for whole year group cohort monitoring for Socio-Emotional Health and Wellbeing (SEHWB) development in Primary Schools:



CAMHS¹: Child & Adolescent Health Service; SDQ²: Strengths & Difficulties Questionnaire

The results of the present research have provided substantive evidence that a need exists to adopt a preventative approach to the socio-emotional needs of children. Over three academic years the socio-emotional health status of 471 Year 3 children was screened and monitored and 145 of these children received the Pyramid Year 3 intervention. Whilst robust levels of improvement in socio-emotional difficulties were shown for the children receiving the intervention, results for the Comparison group children showed a continued increase in socio-emotional difficulties over the data collection period.

The notion of a universal screening of children's socio-emotional health status has been identified within the recent research literature (Layard & Dunn, 2009) and through the recognised increased prevalence of psycho-social disorders in children and young people within the U.K. (Meltzer, Gatward, Goodman & Ford,2003). Additionally, recent guidance by NICE (NICE, 2008) and a review of CAMHS (DCSF, 2008) identify that there are gaps both in the extant evidence base and service provision. All of these factors indicate that earlier and increased provision is required at the second, targeted, stage of need *(refer to Figure 7.1)* to pre-empt development of future disorder.

7.9.2. A Socio-emotional health and wellbeing code of practice:

Since 2002 schools have supported pupils identified to have Special Educational Needs (SEN) using the SEN Code of Practice (www.directgov.uk/specialeducational needs). This three stage code of practice was previously described in Chapter 3 *(section 3.3.4.2)* therefore a brief overview is given here:

> **Stage One: School Action:** Individual education plans are prepared to support children who have been identified as needing additional support in their learning.
>
> **Stage Two: School Action Plus:** As Stage One but with the addition of support from outside agencies such as Primary Behaviour Service or Speech Therapy.
>
> **Stage Three: Statement:** Referral to further specialist help based on the assessment and recommendation of an Educational psychologist.

Within the school the organisation of SEN provision is provided by the Special Educational Needs Co-ordinator (SENCO) who liaises with class teachers and involved

outside agencies. Children's progress is monitored and discussed at regular SEN-plan meetings at which teachers and other professionals concerned e.g. Educational Psychologist and Educational Social Workers attend. Based on this process the recommendation of this thesis is that a similar model of promoting, monitoring and supporting need could be provided in relation to the socio-emotional health and well-being of primary school children.

Most schools currently have staff members that co-ordinate Healthy Schools and Personal Social and Health Education (PSHE) provision therefore the co-ordination and monitoring of pupil socio-emotional health and wellbeing (SEHWB) could be an extension of one of these roles. The relevant stages would be derived from the levels of emotional and behavioural need defined in Figure 7.1.

Level One Need: Children who are making overall good progress with no extra needs identified other than those provided for universally e.g. whole school SEAL ethos with all schools striving to achieve this.

Level Two Needs: Children identified as having additional needs and considered at risk of poor outcomes therefore referral to appropriate targeted intervention dependent upon their needs e.g. 'Pyramid', Behaviour and Education support team, 'Friends for Life'.

Level Three Needs: Children identified as having complex needs with one or more agencies involved. A common assessment form (CAF) will have been completed and possibly the appointment of a lead professional (*Chapter Two, section 2.5.2 refers)* and referral to the Child and Adolescent Mental Health Service.

Level Four Needs: Children, who have complex and acute need, may be in either temporary or permanent care, a CAF will have been completed and probably they will be receiving ongoing treatment from CAMHS.

To ascertain levels of need, the first two stages of the Pyramid intervention model would be replicated with whole year group cohort screening taking place at several key points during the children's school career and the results discussed by a Socio-Emotional Health and Wellbeing panel convened by the school's Socio-Emotional Health and Wellbeing Co-ordinator (SEHWBCO). As previously stated, Layard & Dunn (2009) suggest

screening at entry to Key Stage One (age 5years), and at the end of Key Stage Two (age 11 years) this thesis also recommends an interim screening at aged 8 years (the start of Key Stage 2). Children in these year groups would be screened using a recognised, validated measure of emotional health and wellbeing such as the Strengths and Difficulties Questionnaire (Goodman, 1997), ideally by teacher and parent completed forms. Screening would take place at two identified time-points during the relevant academic years. Firstly to establish a baseline and secondly to monitor status at least two terms later. A Socio-Emotional Health and Wellbeing (SEHWB) panel headed by the SEHWB Co-ordinator would meet post-screening to discuss the children whose SDQ scores indicated action at Level Two or above (the green and turquoise sections of Figure 7.2). Children whose scores indicate acute need and who are already known to have complex socio-emotional and possibly special educational needs would follow the route of the Common Assessment Framework *(Chapter 2, section 2.5.2 refers,)*. Although it is likely that at this level of need they will already be referred to a clinician or specialist service, and this is indicated in the model by the dashed line, they may still continue to be monitored as part of the whole cohort screening process. Children whose scores placed them within the yellow section of the model (Universal needs only) would similarly be continued to be monitored at the prescribed ages and stages previously defined with no further action unless their socio-emotional health status is shown to change.

Children whose scores place them in the green section of the model would be identified as having additional socio-emotional needs that might indicate future risk of poor outcomes. As this is a preventative model it is at this second 'targeted' stage that the most action is required as at this stage of need there is early evidence of incipient disorder (Caplan, 1964). Children would be referred to an appropriate intervention by the SEHWB panel. Post-intervention reviews would take place to monitor the children's progress and the results of these would be fed back to the SEHWB panel. At the end of the school year or another agreed follow-up time-point all the children would be screened again using the SDQ. This process would be completed for all the year groups identified earlier in this section.

7.9.3. Potential limitations of this model:

The proposal of this model raises questions that require further consideration. Firstly, would the introduction of a universal screening programme provide a burden to services that are already overstretched (Goodman et al., 2000)? It is essential to ensure that there is an existing structure both financial and in terms of ensuring effective treatments are available. The recent introduction of the Targeting Mental Health in schools scheme indicates that government is willing to invest in preventative intervention on both a local and national level (DCSF). Secondly, do schools provide the most appropriate location to place the model? Recent research literature has suggested that schools will be integral as key entry points to mental health services for children and young people (Ford, Hamilton, Meltzer & Goodman, 2007; Salmon & Kirby, 2007). Furthermore, it has been recommended by the NICE guidance on the promotion of emotional health and well-being in primary schools that teachers should be trained to recognise early indications that children are vulnerable to development of future disorder (NICE, 2008). Thirdly, is it ethical to screen children universally particularly if there is the risk of 'false positive' results (i.e. an SDQ score that indicates difficulties of a clinical level that subsequently is not confirmed by clinical diagnosis) which might cause worry or stigma? Goodman et al., (2000) reported the incidence of 397 'false positives' from a total sample of 5510 children an incidence of 7.2%. However, the risk of this can be addressed through subsequent repeated assessment using the SDQ to monitor the situation or more detailed assessment to address anxiety or concern (Goodman et al., 2000). Finally, the ethical perspective of such universal screening needs to be addressed. The work of Alderson (1993) within the field of children's rights in respective of consenting to medical treatment highlights the need to consider the child's ability to make a rational choice about what is in their own best interests (Alderson, 1993). There are clear ethical guidelines laid down by the British Psychological Society as to what constitutes consent therefore in the instance of the proposed model it is suggested that schools obtain written parental consent for screening when the child first enters school. However, it should be noted that children are consistently screened in terms of their academic development at school and formal parental consent for this is not required until the child reaches the stage

where assessment by an Educational Psychologist (Stage Three of the SEN code of practice) is indicated, although parents are constantly updated on their child's progress and supplied with copies of the Individual Education Plan where applicable. It is of course in the best interests of the child that there exists a strong and mutually supportive relationship between home and school (Bronfenbrenner, 2005).

7.9.2. Conclusion:

The research presented in this thesis described a pragmatic evaluation of a preventative school-based intervention (Pyramid Year 3 intervention) in a service setting over a three year period. The results clearly demonstrate a positive impact upon quiet behaviourally-inhibited children who were recognised as experiencing socio-emotional difficulties and for whom it has been identified that there is currently limited provision (Arnold & Doctoroff, 2003). Importantly, across the three quantitative studies improvements shown in the Pyramid attendee children were of a greater magnitude than those shown by their Comparison group classmates and there was evidence of both preservation and enhancement of these improvements shown at a twelve-month post-intervention follow-up. However, these findings could have been further enhanced by the inclusion of parent-ratings of the measure used (Strengths and Difficulties Questionnaire, Goodman, 1997) and this is a consideration for future research. Instead, triangulation of these results was facilitated through the thematic analysis of focus groups which revealed that not only did the children recognise improvements in themselves post-intervention but also identified that their experience of the intervention met the intended ethos and aims of the Pyramid intervention model. These findings extend and strengthen those of prior evaluations of Pyramid (e.g. Cooper, 2000; Davies, 1999; Fitzherbert, 1985; Headlam-Wells, 2000; Skinner, 1996) through the use of a larger sample and a more robust methodology.

The results from the quantitative studies provided further evidence of the suitability of the Strengths and Difficulties Questionnaire (Goodman, 1997; Goodman et al, 2000; Warnick, Bracken & Kasl, 2007) as a screening measure for use with community populations such as those described in these studies. More significantly, they highlight the need to screen year group cohorts universally with the SDQ to ensure that children

who are experiencing socio-emotional and or behavioural difficulties are identified as early as possible so that the development of more serious disorder can be curtailed. In response to this finding, this thesis has concluded with the proposal of a novel conceptual model for the monitoring of socio-emotional health and wellbeing in primary schools with the aim of providing timely and appropriate intervention thus alleviating the burden of late-referrals to existing Child and Adolescent Mental Health services.

In summary, the research presented in this thesis has confirmed the need for the delivery of timely, evidence-based intervention in schools such as the Pyramid Year 3 intervention. It suggests this through the adoption of a novel, integrated, multi-agency model of assessment of need and delivery proposed in this thesis, with the aim of limiting socio-emotional disorder and promoting the achievement of potential. In doing so it provides a small, but significant step, to filling existing gaps in the provision for socio-emotionally vulnerable children.

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Appendices

Appendix One: Pyramid Club Leader Training Manual Module summary:

Module One: Introduction to Pyramid and other support agencies:

Aims:

- To introduce Club Leaders to both the local Pyramid project and Pyramid nationally.
- To identify other national and local organisations involved in supporting children.
- To introduce the Pyramid model and Pyramid Clubs

Contents:

- Pyramid nationally and locally
- Pyramid model and how it works
- Selection criteria of Pyramid attendees
- Over view of Goodman's Strengths and Difficulties Questionnaire (Goodman 1997)
- Other support organisations for children
- Working with parents and carers

Module Two: Children who may need support in their social and emotional development:

Aims:

- To identify what is meant by social and emotional skills
- To identify what is meant by self-esteem and resilience
- To enable Club Leaders to understand why social and emotional development is important for children's learning
- To identify risk and resilience factors relating to social and emotional development
- To explore issues around discrimination and its effect on self esteem.
- To identify ways of making Pyramid clubs more inclusive

Appendix One: Cont.

Contents:

- What are social and emotional skills?
- Maslow's hierarchy of needs
- Self-esteem
- Risk and resilience in the child, the family and the community
- Discrimination and its effect on self-esteem and promoting inclusion

Module Three: Strategies for supporting children and managing behaviour:

Aims:

- To develop strategies to help build children's socio-emotional skills
- To enable Club Leaders to facilitate discussion on feelings with children
- To identify key components of managing different types of behaviour within a group
- To enable Club Leaders to develop strategies to manage behaviour
- To identify the key components of a successful club for promoting children's social and emotional development
- To enable club leaders to understand the importance of planning and links with observation of children, their strengths and needs.
- Importance of collaborative and individual Club Leader supervision
- Enable club leaders to plan fun, varied engaging sessions with children

Contents:

- How Pyramid Clubs support self-esteem and build friendship skills
- Ten strategies to build self-esteem, resilience and friendship skills
- Creating a supportive environment and verbal and non-verbal communication
- Positive talking
- Expressing feelings appropriately
- Coping with challenging behaviour
- Club planning

Module Four: Health, safety and child protection:

Aims:

- To raise awareness of child protection issues and provide guidance on where to go for further help
- To ensure that Club Leaders are aware of their responsibilities for health and safety within a Club
- To provide guidance and checklists for carrying out risk assessments and taking action to minimise it.
- To ensure that participants have a basic awareness of medical issues in relation to children at clubs and know where to go further support or information

Contents:

- Safeguarding children in Pyramid clubs
- Basic rules for health and safety
- Risk assessment
- Other health and safety issues in Pyramid clubs
- Indicators of illness and what to do about them

Appendix Two: Strengths & Difficulties Questionnaire (Age 4-16)

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 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	☐	☐	☐

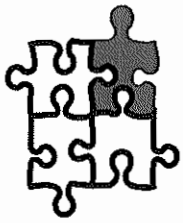
Signature ..... Date .....

Parent Teacher Other (please specify:)

Thank you very much for your help

Appendix 3: Head Teacher Consent Form

Ealing Pyramid Project
Co-ordinator: Maddie Ohl
London Borough of Ealing
1st Floor, Perceval House
14-16 Uxbridge Road
London W5, 2HL
Tel: 07908 651282 Email: m.ohl@ealing.gov.uk



Participating School Consent Form

Title of Project: Year 3 Pyramid Evaluation Academic Year 2005/6

Name of lead Investigator: Maddie Ohl

Please Initial Box

1. I confirm that on behalf of ..... school I have read and understand the information sheet supplied for the above study and have been given the opportunity to ask questions. ☐
2. I understand that the school's participation is voluntary and can be withdrawn at any time without giving a reason. ☐
3. I agree for my school to take part in the above study. ☐

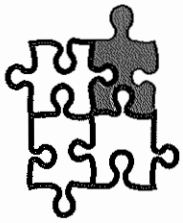
Name of Participant School's Representative: Date: Signature:

Position in School: Head Teacher / SENCO (delete as applicable)

Researcher: Date: Signature:

Appendix Four: Participant Information sheet:

Ealing Pyramid Project
Co-ordinator: Maddie Ohl
London Borough of Ealing
2nd Floor, Perceval House
14-16 Uxbridge Road
London W5, 2HL
Tel: 07908 651282 Email: m.ohl@ealing.gov.uk



Participant & Parental Information Sheet

Your child's Primary school .....has agreed to take part in an evaluation of Year Three children. For the evaluation to take place we need to get parental and pupil permission and it is very important that you understand what is being done, why it is being done and how it is being done. Please take time to read this sheet with your Year Three child, if you or they have any further questions please do not hesitate to get in contact with any of the Evaluators (contact details are given at the foot of the page).

1 What is the purpose of the study?

Pyramid is a National charity that runs projects to support children at times of transition in Primary School (Year 3 and Year 6). The Year 3 Pyramid project has been running in Ealing for many years, however, it is still important to find out how effective it is. This project is being run in collaboration with local primary and secondary schools within three Pyramid Schemes (two in London and one in Greater Manchester) and Thames Valley University.

2 Why has my child's class been chosen?

Your child's class has been chosen because they are in Year 3

of a participating primary school.

3 Do they have to take part?

It is up to you and your child as to whether you take part. If you decide to you will be asked to keep this sheet for reference and asked to sign a parental permission slip supplied by your school.

4 What will my child be asked to do if they take part?

Both you and the Year 3 teachers will be asked to fill out the two attached questionnaires for your child. As a result some children will have the opportunity to attend an After-School Pyramid club once a week for ten weeks. The clubs consist of fun activities to encourage children who may seem quiet and lacking in confidence to get the most out of school both in the classroom and in the playground. The clubs are free to schools and children however the project is reliant on external funding therefore we need to evaluate how effective the clubs are in order to apply for funding for future clubs.

4 Confidentiality

In the interests of anonymity none of the children taking part will be identified in any way and neither will the schools. The children will be allocated a 'participant number' and all data will be processed using that number alone. You are free to withdraw your child or indeed their data at any time during the study without giving any reason.

5 What will happen to the results of the Study?

The results of the study will be analysed and used to inform Pyramid of the effectiveness of their Clubs this is important to ensure future funding for this type of project. Parts of the study may be submitted to academic/educational journals for possible publication.

6 **Who has reviewed the Study?**

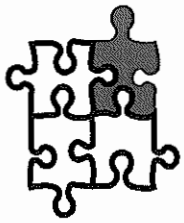
This study has been reviewed by the Faculty of Health and Human Sciences Research Review Committee of Thames Valley University.

Contacts for Further Information:

If you have any further queries regarding this project please contact the Lead Project Co-ordinator: Maddie Ohl : 07908 651282

Appendix 5: Opt-Out Parental Consent Form:

Ealing Pyramid Project
Co-ordinator: Maddie Ohl
London Borough of Ealing
2nd Floor, N.E., Perceval House
14-16 Uxbridge Road
London W5, 2HL
Tel: 07908 651282 Email: m.ohl@ealing.gov.uk



Pyramid Year 3 Club Project

Parental Consent Form

Title of Project: Year Three Pyramid Club Evaluation Academic Year 2007/08

Name of Co-ordinator:

Please Initial Box

4. I confirm that on behalf of my child…….. I have read and understand the information sheet supplied for the above study and have been given the opportunity to ask questions. ☐

5. I DO NOT agree for my child to take part in the above study. ☐

Name of Child: Class:

Signed……..Parent/Guardian*
*Please delete as appropriate

Appendix 6: Pyramid Attendee Consent form

Dear Parent/Carer,

Enclosed please find information about the Pyramid Club scheme. I am pleased to confirm that four of its club leaders are preparing to set up an activity group (Pyramid Club for a small number of our Year 3 children). They plan to do a variety of creative activities with them. I am delighted that we are able to offer this opportunity and wish it was available for a larger number of children.

The club will meet directly after school on Wednesdays, once a week for ten weeks. Sessions will last for an hour and a half and the programme will begin on _____. You will be expected to collect your child when the club finishes at 5p**.m.**

To ensure continuity in delivery of the programme the scheme will be evaluated by Maddie Ohl who is the Ealing Pyramid Co-ordinator the evaluation will run under the guidelines of the ethics board of Thames Valley University.

I do hope you will give permission for _____ to join the group and to be included in the evaluation and ask that you let me know by returning the slip attached. If you would like to hear more about this opportunity, please contact me.

To make sure our records are up to date, would you please also confirm your address, telephone number and the name, address and telephone number of a neighbour/relative whom we could contact in an emergency.

At the first session of this club you are invited to meet Maddie, the Pyramid Club Project Co-ordinator and the volunteers running the club and ask any questions that you may have before the club starts.

Please return the permission slip to the school office by..... If we do not receive the permission slip from you by this date, we will assume your child does not want to participate and will offer the pace to another child.

Yours sincerely,

Class Teachers Name

I do/do not give my permission for ..... to attend Pyramid After-School club starting..... I confirm I will collect .....at 5pm. I do/ do not consent to .....being included in any evaluation of the Pyramid Project in ..... primary school.
Signed.....Parent/Guardian

Appendix 7: Specimen post-intervention report to participant schools:

Short Term Evaluation of the progress of Children that took part in the Year 3 Pyramid Clubs at XXXX: Academic Year 2007/8

Statistical Evaluation:

The above was carried out using the Teacher Report Strengths and Difficulties Questionnaire both before the club in order to screen the Year 3 cohort for selection of attendees and to establish a baseline and then afterwards to monitor short- term progress.

The Teacher Report Strengths and Difficulties questionnaire (SDQ) is a 25- item measure devised for use in schools and the NHS. It can be used in both Community and Clinical samples and can therefore be used to identify clinical 'caseness' as well as milder emotional and behavioural difficulties. The 25 items are divided into five subscales, four of these, dependent on the individual child's score, can be described as either a strength or difficulty, these are Emotion, Conduct, Hyperactivity and Peer Interaction the fifth sub-scale Pro-Social behaviour can be wholly described as a strength. The SDQ has a Total Difficulty score (TDS) range of 0- 40 and this can be arranged into three bands; Normal (0-12) Borderline (12-15) and Abnormal (16-40). In a community sample such as the primary school setting at XXX it would be expected to find, on screening, that roughly 80% of the cohort would score within the Normal band, 10% as Borderline and 10% as Abnormal.

For the Year 3 Cohort in Academic Year 2007 –2008, 47 fully completed pre and post club questionnaires were received. 8 children were then selected and took part in an after-school Pyramid club. In the Pre-Club SDQ screening; of these 8 children, 3 scored in the 'Abnormal' range, 1 in the 'Borderline' range and 4 in the 'Normal' Range. Of the Control classmates, 7 scored in the 'Abnormal Range', 4 in the 'Borderline 'Range' and 28 in the 'Normal Range'. In comparison to the Community 'Norms' of the SDQ described above the Gifford cohort scored much higher in the 'Abnormal' (21%) and equivalent in the 'Borderline' (10%) ranges and lower (69%) in the Normal range before the clubs took place.

For Pyramid Attendees, at the post club evaluation, 2 of the children scoring in the 'Abnormal' range pre club had moved to the 'Normal' scoring range and 1 had moved to the 'Borderline' Range, the child who scored 'Borderline' had moved to the 'Normal' range. All the children scoring normally pre club remained in that range.
Of the 'Control' children, 5 children in the 'Abnormal' range moved to the 'Normal ' range and 2 remained in the 'Abnormal ' range, of the four in 'Borderline' 3 moved to 'Normal' and 1 moved to 'Abnormal' more worryingly 3 moved from the 'Normal' to Abnormal range. The five 'control' children still in the 'Abnormal' range at the post-club evaluation remain a cause for concern and their names are listed below:

This part of the report has been removed to protect participant confidentiality

Overall, these decreases in TDS bring the sample more in line with the SDQ Community percentage Norms (outlined as above) for the UK.

In terms of SDQ sub scales, Pyramid children improved at a statistically significant rate beyond the improvements shown by their Control classmates. Total Difficulty scores of the SDQ decreased for both groups but whilst Pyramid Children's scores in Emotional

and Peer difficulties decreased those of their 'Control' classmates stayed the same as at pre-club screening.

There was no Qualitative feed back received from school staff.

Year 3 Cohort 2006/2007 Year 4 Follow-Up:

In terms of maintaining progress made last year the Pyramid Attendees SDQ scores had risen compared to their post club scores last spring. However in terms of their scores compared to their classmates that did not attend their level of difficulty appeared to have stabilised whilst their classmates had increased.

Children whose scores indicated that they are still a cause for concern are listed below:

This part of the report has been removed to protect participant confidentiality

Appendix 8: Focus Group Protocol/Script:

Introduction to Focus Group Participants

Hello Everyone! Thank you for meeting with us today. My name is Maddie and this is..... As you know, we are going to ask you all some questions about the Pyramid Club that you recently attended. We are here to collect information from you that will form a written report. We are not here to find out anything personal about you, just about your experiences. Please feel free to say what you think. We will be recording the conversation with this recorder so that we can remember what was said. We will not reveal your name or personal details, just what was said. This session will last for about ½ hr. Do you have any questions?

(Tape Recorder on)

<u>Ground Rules</u>

Before we begin, we need to set some rules so that everyone gets to join in. As we are using a recorder, we need to be able to hear everyone properly. Therefore, when one person is talking, everyone else will listen. If you want to say something, hold it until the other person has finished speaking, then speak.

As everyone will be giving their own views, we might not all agree. However, we will respect each other's comments by listening to one another.

Please don't use each other's name when the tape is running please call people by their number shown on the sticky labels you have all been given.

We will try and give everyone in the group an opportunity to join in the discussions.

What is said within the group remains in the group.

Any questions?

Appendix 8 Cont/

Focus Group Questions

Children introduce themselves by their number:

Q1. Tell me a bit about what you did in Pyramid Club.

Q2. What was the best thing about it?

Q3. Why is this important to you?

Q4. How has it helped you?

Q5. Has taking part changed how you feel about things?

Q6. Have your family/friends/school noticed any change in you?

Q7.If you had a magic wand and you could change something about Pyramid, what would you change?