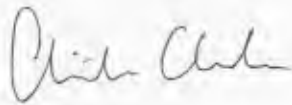


**An Evaluation of a Brief School-Based
Cognitive Behavioural Therapy
Programme for Children with ASD**

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**I hereby declare that, except where explicit attribution is made,
the work presented in this thesis is my own.**



Signed

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Abstract

Autistic Spectrum Disorder (ASD) is characterised by difficulties with social interactions, communication and rigid / stereotyped behaviours, with a prevalence of around 1% within the population. Research has shown that children with ASD also have heightened feelings of anxiety compared to typically developing peers, particularly with social anxiety.

Cognitive Behavioural Therapy (CBT) has empirical evidence that demonstrates its efficacy in supporting children with ASD to manage their anxiety. However, these studies have only shown improvements in the children's anxiety using standardised questionnaires. As such, it is difficult to infer whether the gains made using CBT are long-term, or whether it leads to a qualitative improvement in children's interactions with their community. Typically, CBT is typically delivered by Child and Adolescent Mental Health Services, which can be inaccessible to some children and their families.

This study employed a mixed methods approach to understand the effectiveness of a six week, group administered, secondary school-based CBT programme. 28 children took part in the research, with 14 in the treatment-as-usual group and 14 in the experimental group. All children completed the Wechsler Abbreviated Scale of Intelligence, the Social Responsiveness Scale, Spence Children's Anxiety Scale - parent and child versions (SCAS-P/C), the Coping Scale for Children and Youth (CSCY). Qualitative data was also collected through parent and child interviews using a semi-structured technique. Post-intervention data consisted of the SCAS-P/C and the CSCY and further parent and child interviews. Follow-up measures were taken six to eight weeks after post-intervention using the SCAS-Parent and child versions and the CSCY.

Results suggest children who took part in the intervention had reduced levels of anxiety compared to the TaU group, both at post – intervention and follow-up. However, these improvements were not at

a clinically significant level. Interview data, analysed using Thematic Analysis, provided unique insight into the process of cognitive change, the nature of anxiety in children with ASD and highlighted potential barriers to change for these children. Furthermore, the parents identified a lack of post diagnostic support and the view of their child's constantly changing profile of needs.

The results are related to their implications for the professional educational psychologist, who is considered to be well placed to respond to the identified needs of this group and to implement CBT programmes in schools. Methodological issues and weaknesses are discussed as well as implications for further study.

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Chapter 1: Introduction

1.1 Chapter Introduction:

This chapter aims to provide the reader with the context in which the research was undertaken, a brief outline of the research and the theoretical perspectives used. Finally, it will provide the reader with the relevance this research holds for the Educational Psychology profession.

1.2 Research Context:

This research was undertaken as part fulfillment of the Professional Doctorate in Educational, Child and Adolescent Psychology. During the Doctorate I have undertaken a post as a Trainee Educational Psychologist at a local authority in the Southeast of England. I was commissioned to carry out this research by the employing local authority based on a negotiation at the beginning of the second year of study on the Doctorate course. It was during this placement, which consists of years two and three of a three-year doctorate, that this research was conducted. The research topic was chosen due to personal and professional interests in the area of enquiry.

I have worked with children with a diagnosis of Autistic Spectrum Disorder (ASD) for the majority of my career. I worked in an Autism provision which was attached to a mainstream primary school. During this time I became interested in the difficulties children with a diagnosis of ASD had with social interactions and communication. At this primary school I worked with children who were in Key Stage one and two of the National Curriculum. The children were taught in small classes of between six and eight children and, where possible, the children were taught in a mainstream educational environment. Some of these children attended mainstream classes for all of their lessons, with the provision being used as a safe base which the children could go to when they were experiencing difficulty. Other

children attended the provision on a full-time basis due to their difficulties with social interactions, communication and rigid behaviours. Since starting the Doctorate in Education, Child and Adolescent Psychology at the Institute of Education, I have extended my knowledge of working with children with ASD to incorporate those in the secondary phase of their education and those progressing into adulthood. It was while undertaking the Doctorate that I noticed many of the children with ASD who I worked with in the secondary phase of their education were experiencing anxiety when they were asked to interact with their peers in an unstructured environment. I noticed that these sensations often seemed to have an effect on the child's ability to interact with their peers. It was because of this experience that I began researching the use of Cognitive Behavioural Therapies (CBT) as a way of helping children with ASD manage their anxiety. However, during this research I became aware that there was no research on the effectiveness of CBT being used within educational environments, and the research that had been done was limited in its application in schools and the educational environment. Therefore, both professional experience and a personal interest in the area led to me negotiating with the Local Authority to evaluate a CBT programme for children with ASD, in fulfillment of the requirements of the Doctorate in Educational, Child and Adolescent Psychology at the Institute of Education.

1.3 Study Rationale:

There is evidence to suggest that a person who receives a diagnosis of ASD in childhood can experience variable outcomes in adulthood. For example, studies by Lotter (1974) found that of a cohort of 29 children with a diagnosis of autism, 63% had an outcome in young adult life which was rated as either poor or very poor. Gillberg and Steffenburg (1987) found that from a cohort of 23 people 48% of those had outcomes in adulthood which could be rated as fair, with the remaining outcomes for adults rated as either poor or very poor. While both of these studies offer a different conceptualisation of what constitutes a 'good' or 'poor' outcome, they both offer important

insights into the outcomes of children with a diagnosis of ASD. Studies which have tried to predict the outcomes for children with ASD in adulthood are few in number. Those which have been done (e.g. Howlin, Goode and Rutter, 2004) suggest that an IQ score above 70 predicts better outcomes, but this is highly variable.

While children with higher scores on cognitive ability tests tend to have better outcomes in terms of employment and living an independent life, many studies suggest children with a diagnosis of ASD continue to have difficulties with social relationships well into adulthood. For example, Tantum (1984) conducted a longitudinal study of the outcomes of children with a diagnosis of ASD. The findings suggest that in adulthood most still had difficulties with social interactions at the age of 24. Mawhood, Howlin and Rutter (2000) found that children with a diagnosis of ASD continue to show difficulties with communication and social relationships and independence, with over half of those in the study being socially isolated. This suggests that in order to improve the outcomes of children with ASD there needs to be a way to support them in managing their social interactions in adulthood and to give them confidence to engage with their community.

The evidence suggests that children with a diagnosis of ASD have compromised outcomes throughout their life span. The difficulty children with ASD have with social interactions can have consequences for their engagement with the community, which would suggest that this is the skill which needs to be targeted. However, the setbacks which a child with ASD may experience in their interactions with peers, may affect their confidence and motivation, which could manifest as anxiety, to interact with their community in general. There is evidence based on children's and parents' responses to questionnaires that CBT can help people with ASD manage and control feelings of anxiety. What these questionnaires do not do is help understand whether these gains are maintained in the medium- to long-term, or whether they lead to

improved future outcomes for children, which is often implied rather than proven. This research aims to help understand the effects a brief school-based Cognitive Behavioural Therapy programme will have on children with ASD's ability to manage their anxiety. However, this research will extend the previous knowledge in this area by using a mixed methodological approach to build on the current evidence-base by interviewing parents and children who took part in the intervention to help understand facilitators and barriers to managing anxiety.

1.4 Organisation of Thesis:

Following this introductory chapter, this thesis will follow a structure to help the reader understand why and how this research was undertaken.

Chapter two, the literature review, will provide the reader with a review of the reading I undertook as part of this research. Specifically, it will address the issues of current definitions and the diagnosis of ASD, together with an overview of the current outcomes of children with ASD. This thesis will then concentrate on the anxiety which is experienced by children with ASD, with a critique of the current models which help explain why children with ASD have heightened scores on a range of anxiety measures. I will then explore how CBT have been shown to be an effective treatment in helping children with ASD to manage their anxiety, and will provide a critique of the current research in this area. The chapter will conclude with the main research question this thesis aims to address.

Chapter three will provide the reader with details of the wider reading I did on the different approaches to research methodology. It will provide the reader with how I understood the different epistemological stances which are available to researchers when they investigate a phenomenon. In particular, I will concentrate on the pragmatic approach to research where the researcher can use a mixture of methodologies from historically different research

paradigms to investigate their research question, known as the mixed methodological approach. The chapter will then discuss how the main research question was addressed using different approaches by breaking down the main research question into sub-research questions. The chapter will then provide an overview of the CBT programme which was used in this study, a detail of the different measures employed to answer the main research question and how the data will be analysed.

Chapter four, the results sections, will detail the data which was collected. Firstly, the chapter will look at the characterization scores which were collected to see if there are any differences between the groups which may affect the interpretation of the results. The chapter will then go on to look at between group differences for the parent and child outcome measures which were collected. As well as between group differences, this chapter will also look at within participant changes in anxiety to see whether or not this was clinically significant. The last section will look at the semi-structured interview from both the children and parents and the themes and sub-themes which emerged.

Chapter five, the discussion, will firstly look at the sub-research questions and how the data which was collected was used to answer them. Then the sub-research questions will be used to help understand the main research question this thesis aims to address and its relevance to the current literature. The chapter will then focus on the relevance of the research question to the educational psychology profession. The chapter will then discuss the methodological strengths and weaknesses of the current study and future research directions.

Chapter 2: Literature Review

2.1 Chapter Introduction:

This chapter provides an overview of the research literature which informed the development of my research questions.

Throughout this thesis the term Autistic Spectrum Disorder (ASD) will be used to describe the range of conditions which fall under the term Pervasive Developmental Disorder in the Diagnostic and Statistical Manual version four (DSM-IV). ASD is an umbrella term for a range of diagnoses such as Asperger's syndrome (AS), Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS), Autism, atypical autism, to name a few. The different terms used to describe children with ASD can often lead to ambiguity and confusion in understanding the difficulties these children may have. Therefore, to retain consistency throughout this thesis all diagnosis which may fit under the ASD umbrella, such as AS and PDD-NOS, and will be used to describe these children

In particular, the literature review examines the current understanding of the effectiveness of Cognitive Behavioural Therapy in treating anxiety in young people and adolescents with ASD. In order to address this issue, I will first discuss how ASD is diagnosed in children and its prevalence within the community. Then I will discuss anxiety management interventions which have been used with children with ASD in the past, and whether or not these have been effective. Next, I will discuss anxiety in children with ASD and potential reasons why this phenomenon has been observed. Then I will provide a critical overview of interventions which have been used to help children manage their anxiety. Based on this critical overview I will then provide the reader with a justification of the research questions that this thesis addresses and the methodological approach which will be used to address them.

2.2 Literature Review:

This literature review is based on a systematic review of previous research in the area of anxiety in children with Autistic Spectrum Disorder. Searches were made of journal databases so that the most recent research within the area was included in this literature review. Several databases were consulted including EBSCO (which searches the databases MedLine, PsycARTICLES, PsycARTICLES and PsycINFO), ERIC and the Web of Knowledge. These databases were searched as it would allow me to conduct a systematic review of all the literature which has been published around the area of interest. Keywords were used within the search criteria to ensure that only relevant research was consulted during the review. For journals which included articles on children with ASD the following keywords were inserted within the search box: *ASD, Asperger, autism, Pervasive Developmental Disorder*. To include articles about Cognitive Behavioural Therapy the following keywords were inserted: *Cognitive Behavioural Therapy, CBT, behavioural therapy, cognitive therapy, cognitive behavioural approaches*. Further keywords inserted included: *anxiety, social anxiety, generalized anxiety*.

In addition, searches of relevant hard-copy journals at the Institute of Education and the University of London's Senate House Library were made. This was to ensure that the most recent and relevant research was included in the literature review. While databases can provide a catalogue from many journals there can sometimes be a delay between the article being released and its inclusion onto online databases.

2.3 ASD and Diagnosis:

Autistic Spectrum Disorder is classified as a Pervasive Developmental Disorder in the Diagnostic and Statistical Manual

version 4, text revised (DSM-IV-TR: APA, 2000)¹ in which a person has difficulties with social interactions, communication and stereotyped or rigid behaviours and interests, also known as the triad of impairments (see Appendix 1). Although ASD is regarded as a neurodevelopmental disorder (Sparks, Freidman, Shaw, *et al.*, 2002; Frith, 2003), there are, as yet, no neurological assessments which have been shown to reliably assess and diagnose autism; therefore, the diagnosis of ASD is based on behavioural assessments which look at a child's social interaction, communication, behaviours and developmental history in a controlled or naturalistic environment. Standardised assessments, such as the Social Responsiveness Scale (SRS: Constantino and Gruber, 2005), the Autism Diagnostic Observation Schedule (ADOS: Lord, Rutter, Dilavore, *et al.*, 2002) and the Autism Diagnostic Interview – Revised (ADI-R: Le Couteur, Lord and Rutter, 2003), can be used to assess the likelihood of the presence of ASD.

Although the DSM-IV-TR provides clinicians with a definition of ASD, the presentation of difficulties in children with ASD is heterogenous, which has led to different terms being used to describe individuals' respective difficulties. Autism is used to describe those who have difficulties with repetitive/stereotyped behaviours, communication and social interaction. Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS), also known as atypical autism, is used to describe children who have difficulties in social interaction and communication relative to their stereotyped behaviours. Asperger's syndrome is used to describe children with rigid and stereotyped behaviours and difficulties with social interactions, but who have relatively intact communication skills and cognitive functioning. The different diagnoses used to describe children with ASD can, however, sometimes lead to inconsistency between clinicians and diagnoses. For example, William, Atkins and Soles

¹ It is recognized by myself that the Diagnostic and Statistical Manual version five (DSM-5) is undergoing trials. This may result in changes in the way ASD is diagnosed. However, to retain consistency with research in this area this thesis will define ASD within the DSM-IV

(2009) looked at 79 evaluations of 29 children who were being assessed for ASD, using measures such as the ADOS and the ADI-R, in either health or educational settings. While the authors noted there was agreement with regards to a diagnosis of ASD between the different settings, there was only 45% agreement between the clinicians as to the type of ASD (autism, PDD-NOS or Asperger's syndrome), which suggests the differences between these conditions may not be clearly defined and applied in a clinical setting. The authors also found differences in assessment tools used by the clinicians, with some clinicians preferring to use informal interviews or observations, and some using standardised assessment tools. However, the choice to use informal interviews and observations may have been because many children in this study came from bilingual families or families whose main language was not English, and, as such, standardised English language assessment may not have been appropriate.

The difficulties children with ASD have with social interactions, communication and rigid behaviours would suggest some may need extra provision to support their needs. This specialist provision could be used to support their communication skills or their ability to interact with their peers, and could be delivered in either specialist or mainstream educational settings. However, the difficulty in diagnosing the type of ASD could lead to the child not receiving the provision appropriate for their needs. For example, a child wrongly diagnosed with Asperger's syndrome may receive support to develop their communication skills, when in reality developing their social interaction skills may be more appropriate. However, to provide this support there needs to be an understanding of the prevalence of ASD within the community. This would not only ensure that children are receiving the support they need, but that there are sufficient resources to meet this need.

2.4 Prevalence of ASD in the Population:

The UK does not currently hold a national database of children with a diagnosis of ASD. Due to the expense of conducting a nationwide survey, epidemiological studies have been conducted in small geographical locations, such as local educational authorities or primary care trusts.

In one such study, Baird, Smirnov, Pickles, *et al.* (2006) studied the prevalence of ASD within the South Thames area of the UK. A stratified sample of children who either had a diagnosis of ASD or were at risk of undetected ASD, identified through health registers and special educational needs registers, received further assessment using standardised observations and parent interviews of autistic behaviours. The results suggested that 116.1 per 10,000 (C.I. 90.4-141.8), or one percent, of children could meet the criteria for a diagnosis of ASD. A further large scale study by Baron-Cohen, Scott, Alison, *et al.* (2009) invited both mainstream and specialist educational provisions in Cambridgeshire, a large county in England, to provide a count of the number of children with a diagnosis of ASD on the special educational needs register; the authors also sent out questionnaires to all parents of children aged five to nine. A total of 11,700 questionnaires were sent out to parents of children whose schools agreed to take part in the study, with 3,370 being returned. Based on the responses to the questionnaire, children who met the cutoff score and a third of the children whose scores were borderline were invited for a more detailed assessment using the ADI-R and the ADOS. Based on known cases of children diagnosed with ASD and those who were at risk, but did not have a diagnosis of ASD, the researchers concluded that one percent of children aged five to nine may meet the criteria for a diagnosis of ASD.

Overall, both studies, which used large populations and were based on standardised assessments, suggest a prevalence of autism of around one percent. While those studies both used relatively large sample sizes, it is possible that their results may not reflect the

prevalence of ASD in the general population. Both studies relied on caregivers to volunteer their time and commitment to the study, which in itself can lead to bias in the results. Because of biases in data collection both studies suggest their results should only be used to estimate the minimum prevalence of ASD within the population. For example, a whole population study in South Korea by Kim, Leventhal, Koh, *et al.* (2011) found a prevalence of 2.64% of children who met the criteria for a diagnosis of ASD; however, this study has yet to be replicated in the UK, which means it is difficult to make cross-cultural comparisons.

Overall, the epidemiological research on ASD suggests a significant proportion of children could be at risk of difficulties with social interactions and communications. As such, educational authorities need to ensure that there is a sufficient amount of provision and that this provision is shown to develop the social interactions and communication skills of children with ASD.

2.5 Educational Provision for Children with a Diagnosis of ASD:

The National Curriculum, a standard teaching framework for teachers in England and Wales, sets out targets for each child to achieve. The English National Curriculum targets for pupils in Key stage 3, who are aged between 11 and 14, state that they should have the skills to be '*...clear, coherent and accurate in spoken and written communication*' and '*adaptable in a widening range of familiar and unfamiliar contexts within the classroom and beyond*' (Qualifications and Curriculum Authority: QCA, 2007: p62). Overall, these targets suggest communication and social interactions with peers and teaching staff form an integral part of the educational experience, and some children with ASD may need additional support to engage with these aspects of the National Curriculum.

The Special Educational Needs Code of Practice (Department for Education and Skills, 2001) provides a framework to schools for meeting the needs of children with special educational needs. The

code states that children who are in need of extra support from the school should be placed on School Action and records kept of the child's progress. For children whose school may need the support of other professionals, such as Speech and Language Therapists and Occupational Therapists, these children are placed on the School Action Plus Register. If the child is still not making progress, then the school or parent may request an assessment of the child's special educational needs which may lead to a Statement of Special Educational Needs (SSEN). The SSEN is a document which sets out the child's area(s) of need, how these can be met and with what resources. Records of children at School Action Plus or with a SSEN from the Department of Education Statistics (DES: DES, 2009) suggest that out of a school aged population of 8,068,150, there were 36,800 children receiving support for their ASD in their educational provision, which equates to 0.46% of the school-aged population. Although this figure does not include children who receive support at School Action, or those children with ASD who receive support for their Speech, Language and Communication Needs, it does suggest that some children with ASD receive support through either a Statement of Special Educational Needs or School Action Plus; this figure is, however, below epidemiological studies by Baird, Smirnoff, Pickles, *et al.* (2006) and Baron-Cohen, Scott, Alison, *et al.* (2009).

Ashburner, Ziviani and Rodger (2010) developed a study to see whether or not the educational provision for children with ASD who were in mainstream classes was sufficient to meet their needs. They compared the achievement of 28 children with a diagnosis of ASD to 51 age- and gender-matched peers. Using the Kaufman Brief Intelligence Test (Kaufman and Kaufman, 1990) to compare educational attainment between the groups, their results found that 52% of children with ASD were underachieving compared to eight percent of their typically developing peers. Their results also found that children with ASD were showing higher levels of emotional and behavioural difficulties, measured using the Strengths and Difficulties

Questionnaire (Goodman, 1997), in the classroom than their non-ASD peers. These differences were found despite the children with ASD in the study receiving support from a range of professional services such as Speech and Language Therapists and Occupational Therapists. The authors suggest that either some children with ASD do not receive the support they need, or that alternative or additional provision is required to help them reach their educational potential.

Social skills training is one such intervention which is used to help children with ASD develop skills in social interactions. Social skills training uses behavioural therapy techniques to help children learn and acquire social skills. Both verbal and non-verbal forms of social interaction are taught to the children by breaking these down into small parts which can be taught through role-play. Although social skills training is used widely in schools, Bellini, Peters, Benner and Hopf (2007) conducted a meta-analysis of 55 studies of social skills training which included a total of 157 children. Overall, the authors' meta-analysis suggested that social skills training for children with ASD was not effective at helping them to engage and maintain reciprocal friendships with their peers.

As well as children being at risk of educational underachievement, both Osler and Osler (2002) and Humphrey (2008) suggest that children with ASD are at significant risk of school and social exclusion. Children with ASD are often at risk of exclusion from school because teaching staff are often unaware of the difficulties they have with social interactions and communication. Because publicly funded schools in the UK are required to follow the National Curriculum, which places an emphasis on communication and social interactions, this may make some parts of the educational experience difficult for children with ASD to engage with. Both Osler and Osler (2002) and Humphrey (2008) suggest that children with ASD may find the school environment daunting, which, in some circumstances, can lead to behaviours which are deemed challenging by staff. In

response to these challenging behaviours, schools might resort to a temporary exclusion of the child without taking into consideration their difficulties. In order to support these children in school, the authors suggest that school staff should receive training in the difficulties children with ASD have with social interactions and communication, and that the children should receive support so they can better understand and control their behaviours.

While not all children with a diagnosis of ASD need extra support to meet their needs, there is evidence to suggest that the current level of support may not be enough to meet the needs of those children with ASD who need it. Not only are some children with ASD at risk of educationally underachieving compared to their peers when cognitive ability scores are used to make comparisons, but this underachievement is still found when the children with ASD are receiving support from various professional services. School based interventions, such as social skills training, also have questionable outcomes for children with ASD. If the current provision which is available to children with ASD is not currently meeting their needs then this would suggest that alternative forms should be considered. Deciding which intervention should be used, however, should take into account the difficulties children with ASD have, especially in regards to their difficulties with social interaction and communication. As such, interventions which are used with children with ASD should provide a clear rationale as to what they are attempting to address and how they can show that the children have made improvements.

2.6 Anxiety in Children with a Diagnosis of ASD:

Anxiety is a sensation in which a person can become consumed by thoughts and feelings about something they are planning to do. Some academics believe it is an essential feeling which helps individuals prepare for novel situations (Barlow, 2002). As such, anxiety can be an adaptive response to situations which are new to a person, with sensations which are likened to "*a vague, unpleasant emotional state with qualities of apprehension, dread, distress and*

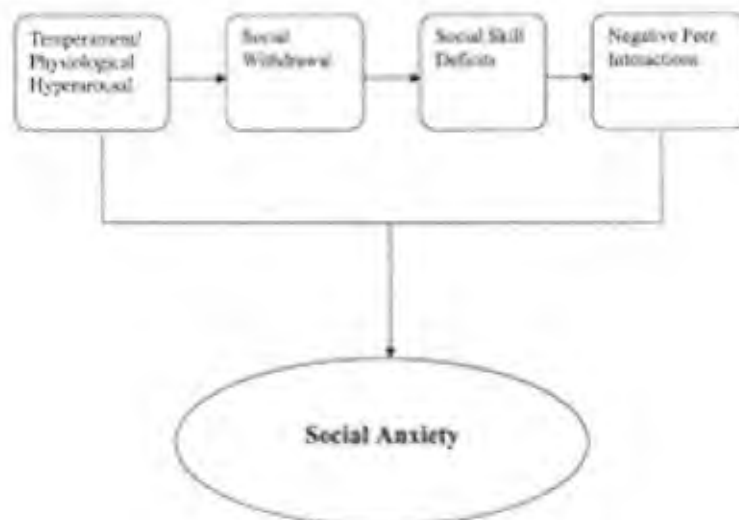
uneasiness" (Reber, Allen and Reber, 2009). An epidemiological study of children's mental health carried out by the Office of National Statistics (Meltzer, Gatward, Goodman, *et al.*, 2000) used the Strength and Difficulties Questionnaire (Goodman, 1997) and a structured diagnostic interview to understand the prevalence of mental health difficulties in children in the UK. In total 10,405 parents were interviewed and 9,347 children. Using these assessments the authors found that 5.1% of boys aged between 11 and 15 met the clinical cut-off for elevated levels of anxiety, with 5.6% of the general school-aged population.

Anxiety can affect any person in differing amounts and there are suggestions anxiety may develop from early childhood experiences. Chorpita and Barlow (1998) suggested that anxiety might develop in children as a result of early childhood experiences and their ability to have a sense of control over their environment. Chorpita and Barlow (*ibid.*) cite attachment theory (Bowlby, 1969, 1973, 1980), in which a child is reliant on a caregiver for sustenance and safety, and control theories, such as those by Dweck and Leggett (1988). Based on these perspectives, Chorpita and Barlow suggest that anxiety in children arises from the sense of control they have over the environment. This sense of control, however, can be understood through attachment theory. The authors suggest that the child is dependent on the caregiver to provide a safe environment for the child to explore. Novel experiences, which the child may feel they have no control over, may require the caregiver's intervention in order to help the child develop the strategies to successfully manage this experience. If the caregiver is unavailable then the child may not develop the skills necessary to manage their environment and therefore have no control over it which can produce sensations of anxiety.

Although Chorpita and Barlow's (1998) developmental model of anxiety provides an account of how anxiety develops in childhood, it may be more difficult to generalise these findings to children with

ASD. The emphasis the authors place on attachment theory would suggest that children with ASD do not receive nurturance from their caregivers in social situations. This would cause children with ASD to experience anxiety in social situations because they have not been supported enough to develop the skills to engage with others. Csikszentmihalyi (1997) suggests that anxiety may arise due to interactions between the level of challenge a situation has for someone and their skill level. This would suggest that a child with ASD who has difficulty with social interaction would have low skills in this area and, because of this, may find the experiences challenging. Thus, using Csikszentmihalyi's model would suggest that children with ASD would perceive situations which require social interactions as both challenging and something in which they have a low skill level, which would produce sensations of anxiety.

Figure1: Bellini's (2006) model of the development of anxiety in children with ASD



Bellini (2006) suggested that the heightened anxiety that children with autism experience could be explained through a developmental model. Bellini suggests anxiety in children with ASD is caused by several factors which have an effect on the child's overall anxiety levels. Bellini suggested the child's temperament and their physiological hyperarousal leads to social withdrawal, which in turn leads to social skills deficits leading on to negative peer interactions;

these factors lead to the child experiencing anxiety in social situations (see Figure 1). To test this model, Bellini asked 41 children with autism to complete three scales: the Social Skills Rating System (Gresham and Elliott, 1990), the Social Anxiety Scale for Adolescents (La Greca and Stone, 1993) and the Multidimensional Anxiety Scale for Children (March, 1999). Bellini used multiple regression analysis with assertiveness and empathy subscales from the Social Skills Rating System and physical symptoms subscale from the Multidimensional Anxiety Scale for Children as the predictor variable. The total score from the Social Anxiety Scale was used as the outcome variable. Analysis suggests that the three predictor variables accounted for a significant amount ($R^2=.341$) of the variance in the total Social Anxiety Scale. Based on these results Bellini concluded that the results support the developmental pathway model of social anxiety in children with autism. However, it is important to note that Bellini only took data at one time point using several different questionnaires and used these as a basis of multiple regression analysis. As such, Bellini's conclusion that "The present study also supports the proposed developmental pathways model" (Bellini, 2006, p.143) may not be supported. Instead, Bellini's results are more suggestive of a maintenance pathway of social anxiety in children with autism. By taking measurements from children at different ages and incorporating this data into the model, Bellini's developmental model of social anxiety in children with autism may have been better supported.

Csikszentmihalyi's (1997) model suggests that children with ASD are more likely to experience anxiety, especially social anxiety, because of their awareness of their skill level and because they find such experiences challenging. There have been several studies which have attempted to examine anxiety in children with ASD. For example, Kussikko, Pollock-Wurman, Jussila, *et al.* (2008) examined social anxiety in children with High Functioning Autism (HFA) and Asperger's syndrome (AS) by comparing their results from a series of questionnaires to those of a community sample of children with no

diagnosis of ASD. The children with HFA were recruited from a hospital register and the control group were recruited from local schools. The children with HFA and AS completed the Social Phobia and Anxiety Inventory for Children (SPAI-C: Beidel, *et al.*, 1998) and the Social Anxiety Scale for Children revised (La Greca and Stone, 1993) in a health setting while the control group completed the same questionnaires in their classroom. Comparing the two groups' data suggested that children with HFA and AS had higher scores for social anxiety compared to the community sample. The authors also split the experimental group into two age groups (those who were 12 and above and those who were below 12) and found that the children over 12 had significantly higher social anxiety scores (57.1% made the clinical cutoff compared to 30% of the younger children). Overall, the authors suggest that children with AS and HFA are at significant risk of social anxiety difficulties, and that the older the children get, and the more social demands are made of them, then the higher their anxiety scores become. Although this study showed some significant findings, these may have been confounded because the experimental and control groups completed the questionnaires in different environments. For example, if the control group were asked to complete the questionnaires in a clinical setting this may have resulted in higher scores because the environment may be unusual for them providing them with sensations of anxiety. Conversely, if the HFA/AS children were asked to complete the questionnaire in the school their scores may have been higher because they would be more aware of their social anxieties. Although this research provides some useful guidance about the nature of social phobias in children with HFA/AS, it would have been helpful to control for context variables to determine if these influence scores.

Gillott, Furniss and Walter (2001) compared 15 children with HFA, 15 children with Specific Language Impairment (SLI) and 15 normally developing peers aged between eight and 12. Using the Spence Children's Anxiety Scale (SCAS: Spence, 1997) and the Social Worries Questionnaire (SWQ, Spence 1995) as a comparison

measure, their results found significant differences between the children with HFA and their normally developing peers for anxiety, with children with HFA scoring higher. The authors, however, found no significant difference between children with a SLI and normally developing peers on measures of anxiety. For social worries, as measured using the SWQ, analysis found a significant difference between children with HFA and children with SLI, with children with HFA scoring higher on scales for social worries. The authors' results also showed significant differences between children with HFA and their normally developing peers, but no difference between children with SLI and typically developing peers. Although this paper provides some evidence to support their conclusions that children with HFA are more prone to anxiety than their typically developing peers and children with SLI, there were some limitations to the research. The children with HFA and SLI were all diagnosed at a clinic which used various techniques, such as observation, cognitive abilities assessments and parent interviews. However, none of this data is reported in the study which makes it possible that some of the differences between the groups may have been caused by variances in cognitive abilities, severity of autism or the severity of the SLI between the groups in the study.

Kim, Szatmari, Bryson, et al. (2000) conducted a six year follow-up study of 59 children with AS and HFA and compared them to a community sample of 1,751 children. The children completed a series of questionnaires and tests when they were between four and six. The Ontario Child Health Study questionnaire, a revised version of the Child Behaviour Checklist, was completed by the parents after six years. Overall, their results suggest that children with AS and HFA were at greater risk of developing anxiety and depressive symptoms. Overall, this study was one of the first long term follow-up studies of the mental health of children with autism. As such, the conclusions suggest that children with autism are of increased risk of developing anxiety and depressive symptoms as they get older.

Anxiety is a normal experience which can help people cope with unknown or novel situations. However, for some people these sensations of anxiety may become overwhelming and could be called a disorder. Some models of anxiety, such as those by Chorpita and Barlow (1998), suggest anxiety may develop in children because their caregivers may not have provided them with a safe environment to be exposed to new and novel situations. Such theories, however, place a lot of emphasis on parents' roles in the development of anxiety in children. Another reason for high levels of anxiety in children with a diagnosis of ASD could be due to the skill level and challenge that a situation presents to an individual. Using this model would suggest children with ASD would experience heightened sensations of anxiety because of the difficulties they have with social interactions. It is not possible to draw conclusions as to why children with ASD score higher on anxiety scores compared to their typically developing peers because there have been no longitudinal studies which have looked into this aspect yet. Several studies have shown, however, that children with ASD have higher scores on various measures of anxiety, specifically social anxiety, compared to non-ASD peers. There is some evidence to suggest that anxiety is not caused by the verbal communication difficulties of children with ASD; if it were then Gillott, Furniss and Walker's (2001) study would have found anxiety in children with specific language impairments in line with children with ASD; therefore, social interactions seem to be the main cause of anxiety in children with ASD. The fact that as children with ASD get older their levels of social anxiety increase provides further support for Csikszentmihalyi's (1997) model. This might be because as children with ASD get older and engage in more social interactions they come to realise social situations are challenging which can cause sensations of anxiety. Although it seems that children with ASD are more anxious in social situations because of their deficits with social interactions, these studies do not explain why children with ASD have difficulties with social interaction.

2.7 Social Deficits in Children with a Diagnosis of ASD:

Studies have shown that children with ASD consistently score higher than children without ASD on various measures of anxiety, especially for social anxiety. Current models of the development of anxiety in children do not fully explain why children with ASD have higher scores for anxiety, with some researchers arguing that difficulties with social interaction may have a strong influence. However, there is some debate as to why children with ASD have difficulties with social interaction.

Baron-Cohen, Leslie and Frith (1985) thought that while many children with autism have cognitive delay this in itself does not provide a reason why children with autism have difficulties with social interactions. For example, they state that children with Down's syndrome have similar cognitive abilities but have relatively intact social interaction skills. Baron-Cohen, Leslie and Frith suggest that the reason children have difficulties with social interactions is due to a lack of theory of mind, which they define as '[t]he ability to make inferences about what other people believe to be the case in a given situation [which] allows one to predict what they will do.' (*ibid.* p.39). The authors used the Sally Anne Test to study the children's Theory of Mind. The Sally Anne Test involved a child watching a scenario where a doll, called Sally, places a marble in a basket. When Sally leaves the room Anne comes in and removes the marble and places it in another location. When Sally returns to the room, the child, who has observed all these actions happening, is asked where Sally will look for the marble. The correct answer would be in the basket as Sally would have no knowledge that Anne placed the marble in an alternative location. The test was done with 20 children with a diagnosis of autism, 14 children with Down's syndrome and 27 typically developing peers. Of the typically developing peers, 23 out of 27 gave the correct answer: that Sally would look in the basket for her marble, while 12 out of 14 children with Down's syndrome also gave the correct answer. However, for children with autism, four out of 20 children gave the correct answer. The authors suggest that this

test shows that children with autism find it difficult to understand the psychological state of another person, “We wish to explain this failure as an inability to represent mental states. As a result of this the autistic subjects are unable to impute beliefs to others and are thus at a grave disadvantage when having to predict the behaviour of other people” (p. 43).

Weak central coherence has also been suggested to play a role in children with autism’s difficulty with social interactions. O’Connor and Kirk (2008) suggests children with autism do not have a deficit in social interactions, but rather a different way of processing information. They cite evidence from cognitive abilities tests, where children with autism generally perform better on block design tasks compared to typically developing peers, and neurological studies, which have found children with autism process faces differently compared to typically developing peers. The authors suggest children with autism do not process information at a global level. Instead, children with autism process information on narrowly perceived areas of the environment. For example, children with autism, when they engage in social interactions, do not process all the contextual information such as body language, tone of voice or the environment, to help them interpret the intentions of another person. Instead, children with autism may concentrate on one specific stimuli, such as the words used, to interpret the intentions of another person. If children with autism do not process information at a global level they are missing important contextual cues in interpreting the intentions of another person. As such, they find it difficult to understand and interact with the environment because they do not process at a wider level.

A critical interpretation of the current models of social communication deficits in children with a diagnosis of ASD is the neurodiversity hypothesis. The neurodiversity hypothesis believes that different neurological development, such as that seen in children with Attention Deficit and Hyperactivity Disorder (ADHD), Dyslexia and

ASD, is a part of the natural differences between individuals (Jaarsma and Welin, 2011). The neurodiversity hypothesis was originally proposed by Singer (1999) who argued that diagnoses such as ASD, ADHD and Dyslexia should be accepted within society and not seen as something which needs to be remedied. They argue that those who have these diagnoses have a right to be consulted on interventions which aim to ameliorate their difficulties. Martin (2009) describes how interview data from adults diagnosed as having ASD report the strangeness of social interactions which typically developing people are obsessed with. Martin (*ibid.*) describes how those with a diagnosis with ASD have their own characteristic strengths which need to be taken into account when understanding their behaviour. As such, the neurodiversity hypothesis believes that it is difficult to understand the difficulties of people with ASD because of the heterogeneity of their strengths and difficulties and should, therefore, be treated as individuals, like typically developing people, rather than being characterised as having a specific cognitive difficulty.

There is consistent evidence in the literature to suggest that children with ASD experience higher levels of anxiety than their typically developing peers. Models which have attempted to understand the development of anxiety in children do not take into account children with ASD's atypical development. One position is that children with ASD have difficulties with social interaction which will make them anxious in situations which require this skill. Therefore, some authors suggest anxiety is caused by the difficulties these children have with social interaction, caused by deficits in Theory of Mind tasks, weak central coherence, or both. Children with ASD who are higher functioning, and might be more likely to attend mainstream school, seem to be more aware of these difficulties which results in higher levels of anxiety. These higher sensations of anxiety may, in turn, increase the chances of social withdrawal and social exclusion in children with ASD who are in mainstream education. The emphasis placed in the National Curriculum on communication and social

interaction could put children with ASD at an increased risk of educational underachievement, even with the additional support which might be provided to them through School Action, School Action Plus or a Statements of Special Educational Needs. There are even suggestions (e.g. Wood, Drahota, Sze, *et al.*, 2009) that current programmes, such as social skills training, are not currently showing improvements in the areas they intend to address. As such, in order to help children with ASD engage with the National Curriculum, become more socially active, and achieve better outcomes in adulthood, alternative forms of support should be investigated for children with ASD. However, in addressing these needs careful consideration needs to be given by professionals working with children with ASD to their individual strengths and characteristics, and not to the broad definition in the difficulties children with ASD have.

2.8 Cognitive Behavioural Therapy:

Cognitive Behavioural Therapy (CBT) is a therapeutic intervention which aims to engage a person in appraising their cognitions about a stimuli based on behavioural and cognitive theories (Graham, 2005). CBT draws on cognitive theories, such as those by Beck, Rush, Shaw, *et al.* (1979) who suggest depression is caused by emotional reactions caused by internal cognitions about a stimuli, and behavioural techniques, such as those of Lindsley, Skinner and Salomen (1953), of systematic desensitisation, social skills training and exposure and response prevention. Lazarus (1958) is regarded as the first to incorporate both methods into his work, a precursor to the modern framework which is now known as Cognitive Behavioural Therapy (CBT). Although CBT is supposed to be an integration of both cognitive and behavioural approaches, therapists often prefer one psychological perspective over the other (Graham, 2005). As such, CBT can often be used to describe a wide range of therapeutic interventions.

Although primarily designed to treat adults with depression, CBT has now been developed for a wide range of disorders, such as anxiety, Obsessive Compulsive Disorder and Post-Traumatic Stress Disorder with adults. However, there is currently a large body of evidence to suggest it is a useful therapeutic tool for children as well (see Roth and Fonagy, 2002 for a review). However, when using CBT with children, care must be given to the developmental stage of the child. For example, O'Conner and Creswell (2005: p. 42-43) suggest that developmental models are not applied in a consistent fashion when using CBT with children by arguing that:

“There are surprisingly few guidelines concerning what modifications need to be made for younger versus older children or what assessments should be carried out to determine the appropriateness of such modifications.”

They argue that developmental models, such as social information processing models, attachment theory and theory of mind are not taken into consideration in many CBT manuals designed for children and adolescents.

One of the main concerns addressed in the literature regards the fact that children who come to sessions usually are not there of their own volition (Friedberg and McClure, 2002). Children who are asked to attend therapeutic interventions, such as CBT, are often there at the request of teachers, parents or other professionals. Although Friedberg and McClure (*ibid.*) make a note of this in their text, they do not provide guidance or examples of how to ensure children are willing to engage in the therapeutic process. Stallard (2005) suggests Motivational Interviewing as a technique which can be used to engage children in the process of change. Motivational Interviewing is based on a stage approach to help the child to understand their behaviours and to make them want to change them. Motivational Interviewing aims to help the child understand that they are responsible for their own behaviours by moving them from the pre-

contemplative stage, where the child perceives the fault to lie with other people, to the contemplative stage, where the child acknowledges that they must change before other people will change (McNamara, 2009). Only after the child has reached the contemplation stage will they be ready to engage with the process of CBT. Once the child is ready to engage in the therapeutic process, formulations can be developed which are used to identify the onset and maintenance of difficult behaviours (Stallard, 2005). These formulations aim to make the link between the thoughts and feelings of the child, which will encourage self-monitoring. Socratic questioning, which requires systematic questioning, inductive reasoning and constructing universal definitions (Graham, 2005), aims to test these formulations by looking at the evidence which supports them and seeking alternative explanations. CBT has achieved clinically significant outcomes for various childhood disorders (see Roth and Fonagy, 2002; Ishikawa, Isa, Hirofumi and Yuji, 2007; Weisz, McCarty and Valeri, 2006 for reviews).

For CBT to be an effective treatment for children with ASD to manage their anxiety, it is important to consider the children's social interaction and communication skills. CBT is regarded as a talking therapy in which the client must engage with the clinician in appraising their thoughts, feelings and emotions using Socratic questioning. However, children with ASD may find it difficult to appraise their thoughts, feelings and emotions. The difficulties which a child with ASD has with social interaction and communication may make it difficult for them to interact and engage with the therapeutic process. Their difficulty in interpreting social situations may also mean they find it hard to find solutions or seek alternative explanations in situations which cause sensations of anxiety. Another barrier to the engagement of children with ASD in a CBT therapeutic process is the difficulty they may have with their reasoning skills.

Attwood (2004) suggests that CBT interventions can be used with children with ASD if adaptations are made. Attwood suggests that

comic strip conversations can be used during the therapeutic process with children with ASD to help them understand social situations and alternative viewpoints. A comic strip conversation can be used to describe a social situation, for example, which may provoke sensations of anxiety and provide ways to overcome it or to think about it differently. Another technique suggested by Attwood is a Box Full of Feelings in which a child can keep imaginary or tangible objects which may help them feel relaxed in anxiety provoking situations. As CBT requires a person to have reasoning skills, Minshew, Meyer and Goldstein (2002) used a variety of reasoning tasks which suggested varied, rather than absent, reasoning skills in children with ASD. This would suggest children with ASD could engage, and benefit from, CBT.

CBT was initially developed to be delivered individually to children with case formulations used to target specific behaviours in the therapeutic process. However, the CBT model can be delivered to children through manualised treatment plans. These manualised treatment plans lend themselves to being delivered to groups of children who may have the same difficulties, which can make CBT a cost effective and evidence based intervention to use. A further advantage of manualised treatments are that they can be delivered by adults who have not received extensive training in the CBT therapeutic model (although adults who deliver the intervention should be supervised and receive some form of training from a professional with knowledge of the CBT therapeutic process). By providing the adults who have regular contact with the children who are causing concern with the CBT model could permit it to be implemented within the child's wider eco-system. In addition, manualised treatments, which can be delivered to groups of children, lends itself to empirical means of evaluation due to the higher number of children who can be included in the study using less resources compared to individual child therapeutic sessions. While there are considerable advantages to using manualised CBT treatment plans with children there are also disadvantages. Firstly,

the nature of delivering manualised CBT interventions means that only more general behaviours, such as anxiety or anger, can be targeted rather than specific behaviours, such as exam anxiety or anger in specific contexts. Secondly, it may be difficult to alter the treatment plan to cater towards specific interests and omit dislikes, which could make the difference between therapeutic success and failure.

There are suggestions that children with ASD may not be able to engage in a CBT therapeutic process either because of their reasoning skills or because of the difficulties they have with communication. Conversely, it has been suggested that children with ASD do have the reasoning skills necessary to engage in the therapeutic process, but through adapting the CBT process to take into account the difficulties that children with ASD have with communication may make it a suitable intervention to use. It is important, therefore, to consider whether or not CBT interventions which have been tailored to the needs of children and adolescents with ASD have been shown to be beneficial.

2.9 Cognitive Behavioural Therapy with Children with Children with a Diagnosis of ASD:

There have been several studies which have generally supported the use of CBT as an effective treatment for children with anxiety (Velting, Setzer and Albano, 2004; Ishikawa, Isa, Hirofumi and Yuji, 2007; Compton, March, Brent, *et al.*, 2004). However, these studies cannot be generalised to children with autism. For example, O'Connor and Kirk (2008) hypothesised that children with autism process stimuli in a different way compared to their peers, based on the weak central coherence theory. As such, it is important to look at studies which have evaluated CBT with children with ASD (see Table 1 for a list of studies included in this literature review).

Chalfrant, Rapee and Carroll (2007) hypothesised that CBT would be a valid intervention for children with ASD. They thought CBT would

be an effective intervention because children with anxiety difficulties show the same weak central coherence difficulties as children with autism. The authors aimed to examine whether or not children with autism would benefit from a CBT programme to help them with their anxiety. The study consisted of 47 children (28 in the experimental group and 19 in the control group) all of whom had a diagnosis of autism from a clinic. Anxiety was measured using the Anxiety Disorder Interview Schedule (ADIS), which showed social problems as the most commonly cited difficulty in this group of children. The revised Anxiety Scale, the Spence Children's Anxiety Scale, the Children's Automatic Thoughts Scale and the Strength and Difficulties Questionnaire were all given to children pre-intervention and at 12 week follow-up. The CBT intervention was specifically adapted for children with a diagnosis of ASD and consisted of nine weekly sessions, which were about recognising feelings and role playing scenarios, and three monthly booster sessions; in total, the CBT intervention lasted for six months. Comparing pre- and post-measures the results found that a significant number of children no longer met the DSM-IV criteria for anxiety. Their results suggested that 20 out of 28 children in the experimental group no longer met the criteria for an anxiety disorder, compared to zero out of 19 in the control group. These findings were consistent between the parents and teachers and for self-reports of anxiety and internalising difficulties. Overall, the authors conclude that the results show that CBT treatments, if properly adjusted, are an effective treatment for children with autism who have difficulties with their anxiety.

Sofronoff, Attwood and Hinton (2005) studied the effectiveness of a six week manual based CBT programme designed specifically for children with ASD by Attwood (2004) called Exploring Feelings: Cognitive Behavioural Therapy to Manage Anxiety. They recruited 71 children via radio and newspaper advertising and by linking with the Asperger's Syndrome Support Network in Australia. Diagnosis of Asperger's syndrome was confirmed using the Childhood Asperger's Syndrome Test (Scott, Baron-Cohen,

Bolton, *et al.*, 2002). Anxiety was confirmed via a phone interview by asking parents to operationalise the anxiety. The participants were randomly split into one of three groups: waitlist control group, CBT with child only and CBT with child and parents. Using the parent version of the Spence Children's Anxiety Scale as an outcome measure, the authors' results suggest both the children who received the CBT on their own and those whose parents attended sessions about the programme performed better than a control group.

Sze and Wood (2007) used a case-study to examine the effectiveness of a CBT programme on a young girl who was eight years old. They adapted the Building Confidence Family Cognitive Behavioural Therapy Programme (Wood and McLeod, 2008) for children with Asperger's by introducing concepts such as skills training (for example, catastrophising, cognitive restructuring and emotional recognition) and developing a treatment plan (which incorporates small steps children can make and in vivo scenarios and practice) and skills application and training (exposure therapy and social skills training). Using the Anxiety Diagnostic Interview Schedule child and parent version found that the child no longer met the criteria for social anxiety, general anxiety and obsessive compulsive disorder.

White, Ollendick, Scahill, *et al.* (2009) examined the effectiveness of a manual based CBT programme. Four children with ASD were recruited to take part in the study, each of whose diagnosis was confirmed using the Autism Diagnostic Observation Schedule (ADOS: Lord, Rutter, DiLavore, *et al.*, 2002). Using the Anxiety Disorder Interview Schedule (ADIS: Silverman and Albano, 1996) each participant was found to have between one and three anxiety disorders. The CBT intervention used in the study was the Multi-Component Integrated Treatment (White, Albano, Johnson, *et al.*, 2010). Using the Child and Adolescent Symptom Inventory (CASI:

Sukhodolsky *et al.*, 2008), an anxiety scale which has been standardised on children with autism, the Multidimensional Anxiety Scale for Children (MASC: March, 1999), the Social Responsiveness Scale (SRS: Constantino and Gruber, 2005) and the ADIS as outcome measures, the authors suggested that CBT was an effective tool to help children with autism manage their anxiety. Using the Reliable Change Index (Jacobsen and Traux, 1991) to measure significant clinical changes found inconsistent results between the CASI and the MASC, with three children showing improvements with the CASI and one not showing significant results, a finding which directly contradicted the findings from the MASC, where one child improved significantly and the other three children did not. The authors suggest this may be because the CASI has been standardised on a population of children with autism, while the MASC has not. The authors suggest that children's social motivation, as measured by the SRS, improved for all the children. This, however, was not reported in the results section and it seemed that clinical significance on the SRS was assessed using two distinct quantifying techniques, which may increase the incidence of a Type 1 Error, known as a false positive. It is also important to note that none of the children received the same type of therapeutic input. Each child's anxieties were addressed in different ways, making direct comparisons between the children difficult.

Wood, Drahota, Sze, *et al.* (2009) thought that current interventions for children with autism which aimed to address their difficulties with social interactions, such as social skills training, have not shown any benefit. Instead, the authors suggest CBT may be the most effective intervention to help children with their social interactions. To test this hypothesis the authors used the Building Confidence CBT programme (Wood and McLeod, 2008) with 19 children with autism; the diagnosis was confirmed using ADI-R and the ADOS. The Social Responsiveness Scale was used as an outcome measure. Overall, there were 17 children in the experimental condition and 23 in the

Table 1: Table of current CBT trials for anxiety used with children with a diagnosis of ASD

Study	Design*	Participants**	Outcome measures***	CBT Programme (Duration)	Conclusions
Chalfant, Rapee and Carroll (2007)	RCT	Tot 47 (28 exp. 19 Con). MA 10.8 (1.35)	SCAS, CATS, SDQ-P/C/T	Cool Kids CBT programme (12 weekly group sessions)	1) 20/28 ch in exp grp no longer meet criteria for anxiety diff 2) Reductions in anxiety from teacher, child and parent reports 1) Children presented as population of anxious children 2) Parents found the intervention useful 3) parent component increased outcomes of intervention
Sofronoff, Attwood and Hinton (2005)	RCT	Tot 71 (23 exp child only (MA 10.6(.9)), 23 Con (MA 10.8 (1.0), 25 exp child and parent groups(MA 10.5 (1.3))	SCAS-P	Think Good Feel Good (6 weekly two hour sessions)	1) CBT is a valid intervention to help children with ASD manage their anxiety
Size and Wood (2007)	CS	Tot 1. Age 8	ADIS	Building Confidence CBT Programme (16 weekly session lasting 90 minutes with 30 minutes with child and 60 with parents)	1) Programme effective in reducing anxiety in 3 out of 4 children 2) Difference between reported anxiety between the scales
White, Ollendick, Scammell, et al. (2009)	MCT	4 (Ages: 14, 14, 12, 12)	ADIS, CASI, MASC, SRS	Multi-Component Integrated Treatment Individual programme (11-13 individual sessions, with 5 group sessions running concurrently, over 11 weeks with each session lasting 50-75 minutes)	1) Manual based CBT programmes are valid intervention of children with ASD
Wood, Drahota, Size, et al. (2009)	RCT	Tot 40 (17 exp. 23 Con) Mean Age 9.2 (1.5)	ADIS - C/P, MASC, CGI	Building Confidence CBT Programme (16 weekly session lasting 90 minutes with 30 minutes with child and 60 with parents)	

* Randomised controlled trial (RCT); case study (CS); multiple case study (MCT)

** Total Participant (Tot), Mean age and Standard deviation (MA(SD)); Control Group (Con); Experimental Group (Exp)

*** Spence Children's Anxiety Scale - Parent/Child (SCAS-P/C); Children's Automatic Thoughts (CATS); Strength and Difficulties Questionnaire - PARENT/CHILD/TEACHER (SDQ-P/C/T); Anxiety Diagnostic Interview Schedule (ADIS); Child and Adolescent Symptom Inventory (CASI); Multidimensional Anxiety Scale for Children (MASC); Social Responsiveness Scale (SRS); Clinical Global Impressions (CGI)

control condition. Analysis of the SRS data suggested that parental scores of their children's social communication, social motivation and social awareness improved for the experimental group, but not for the control group. Using regression analysis the authors found that as anxiety scores decreased over time then so did some autism symptoms and vice versa. The authors, based on these results suggest that CBT is an effective intervention to reduce autistic symptoms, such as social communication difficulties. The authors also suggest that improvements in anxiety also bring about improvements in autism symptoms, making the assumption that anxiety and ASD are interconnected.

There is currently a good body of evidence which suggests CBT may be an effective treatment for children with ASD to help them manage their anxiety. However, all the evidence so far collected is from an empiricist perspective. As yet, few qualitative studies have looked at the effects of CBT on children with ASD. Another criticism is that no studies show how a reduction in anxiety leads to improved outcomes for children with ASD. Further, few studies have looked to see if the children's gains are managed and maintained in the long-term.

2.10 Children within the Eco-system

Evidence suggests that children with a diagnosis of ASD who take part in a CBT programme have reduced levels of anxiety as measured using standardised questionnaires. However, none of these studies have addressed whether these gains continue in the long-term, improve the children's immediate and long-term outcomes, or help them engage with and interact with their immediate community. During the literature search, no research seems to have been conducted which may support the use of CBT as a way to improve the outcomes of children with ASD, apart from by implication.

Bronfenbrenner (1979) argued that research studies which are conducted in natural environments offer a better basis in which to

evaluate their outcomes and their usefulness to the child's interaction with the community. This interaction, Bronfenbrenner suggested, could be defined within clusters of increasing scope. For example, Bronfenbrenner used the term microsystem to describe the child's immediate environment, such as their family or their classroom, with the interaction between these microsystems called the mesosystem. The exosystem refers to larger extensions of the child's microsystem, such as the school setting or the child's community. The macrosystem refers to policies, such as those from central government, which have an influence on the child. Through this model, Bronfenbrenner attempted to show that the child's development needs to be considered from a holistic perspective. Bronfenbrenner argued that children's development is influenced by all these factors, from central government who may introduce the policy, the school who implement it, the teacher who has the training to deliver on the policy, to the family who may support the policy in the home environment, as well as child variables.

Using the framework outlined by Bronfenbrenner to help understand the implications CBT has on children with ASD suggests that so far the outcomes have concentrated only on the immediate child. Currently, no evidence has been published which suggests that children with ASD who take part in a CBT programme are likely to have improved outcomes interacting with their immediate family, class, school structure or community.

2.11 The Current Study and Research Question:

The triad of impairments in children with ASD suggest that they may need extra educational provision over what a school would normally provide to children. However, this literature review cites evidence which suggests the current provision for children with ASD may not be effective. Through their schools, children with ASD may have access to professionals who can deliver interventions which may target the difficulties that children with ASD have with speech and language, or they may have interventions which aim to help them

understand social situations. In order to help children with ASD reach their educational potential, it is important, therefore, to consider alternative provisions which children with ASD may access.

Many studies have shown that children with ASD have heightened sensations of anxiety compared to typically developing peers, although the reasons for these sensations of anxiety are complex and remain unclear. Some authors have hypothesised that anxiety in children may be caused by an interaction through different styles of parenting and the sense of control children with ASD have over their environment. Other authors have suggested that the reason for these heightened sensations of anxiety may be due to the difficulty children with ASD have with social interactions. The difficulty children with ASD have with social interactions makes them aware of the low skill level they have in this area, which causes them to experience sensations of anxiety. However, interventions which have been used to address the social interaction skills of children with ASD, such as social skills training, have been shown not to be an effective intervention.

Cognitive Behavioural Therapy (CBT) has so far been shown to be an effective treatment for anxiety difficulties in children. With some adaptations there are suggestions that CBT may be effective for children with ASD to help address their anxiety. Within the UK, however, CBT is most often delivered through Child and Adolescent Mental Health Services (CAMHS) whose locations can sometimes be inaccessible for families. CAMHS services are often delivered through Primary Care Trusts or Hospital Trusts who set up CAMHS at either the hospital or at a satellite location. The locations may need to cover a large catchment and, as such, may not be suitably located for all the families within that catchment area. Schools, on the other hand, are located within the heart of many communities and could be a suitable location in which to deliver the CBT interventions. However, as yet, there have not been any published studies of the effectiveness of CBT interventions which have been delivered in a

school context, or whether this leads to improved outcomes for children with ASD.

Therefore, I investigated a school based CBT programme delivered to a group of children with a diagnosis of ASD to help address their anxiety. The key research question I addressed was divided into several sub-questions, which will be detailed later in Chapter three. As such, the key research question that I aimed to investigate was:

- Will a brief school-based cognitive behavioural therapy programme help children with ASD manage their anxiety, and will this be generalised to the child's environment?

Chapter 3: Methodology

3.1 Chapter Introduction:

This chapter sets out the methodology which was used in order to address the research question and begins with an introduction to the epistemological stance of the research. To do this, the chapter will first consider the different paradigms that are available to researchers and the influence they have on the type of research that may be undertaken. It will then consider the experimental methodology and the limitations of this methodology in real world settings, such as schools. The chapter will then provide details of the measures which were collected from the participants to help answer the research question. It will then discuss the Cognitive Behavioural Therapy (CBT) programme which was used with the children with ASD; specifically, how the intervention was adapted to fit into the school routines. As this research involved the use of a psychoeducational tool, which requires knowledge of the process and theory to deliver the intervention, the chapter will discuss the qualifications and experiences of the person (the author) who delivered the intervention to the children. Lastly, it will set out timeframes in which the data was collected, and provide details as to how the data was analysed.

3.2 Methodology:

3.2.1 Epistemological Stance

Historically, there have been two distinct research communities within behavioural research (Teddlie and Tashakkori, 2009). These different communities have used different research paradigms² in

² A research paradigm is defined by Patton (1990) as a world view which can be used to breakdown the complexity of the world. According to Guba and Lincoln (1994) this worldview can be understood through two perspectives: positivist and naturalist. The positivist perspective understands reality as single, tangible and fragmented which can be measured context free. The naturalists perspective, however, understand reality as constructed by individuals resulting in multiple realities, with the researcher adding their own reality to the topic of interest.

which to address research questions. This section will discuss how the different paradigms were kept separate from one another which means many researchers and/or institutions favouring one paradigm over another, which has an influence over how a researcher investigates a psychological phenomenon. However, there has been an emergence of a contemporary research perspective which bridges the divide between the paradigms.

The postpositivist paradigm argues that reality exists and psychological phenomena can be studied like the natural world, and that the researcher can discover the reality through scientific methods. The scientific method involves detailed observation and measures, understanding cause and effect relationships, and narrowing the research to focus on specific variables (Cresswell and Plano Clark, 2011). The positivist paradigm suggests that the researcher needs to be independent from the research in a 'value-free environment' (Teddlie and Tashakkori, 2009: p.5). As such, the positivist paradigm suggests social research should be value free from the researcher where differences and change can be evidenced through statistical analysis.

The constructivism research paradigm, on the other hand, believes that 'researchers individually and collectively construct the meaning of the phenomena under investigation' (Teddlie and Tashakkori, 2009: p.6). The constructivist paradigm argues that research is not conducted in a value-free environment. Instead, the researcher and the phenomena they are researching is driven by their curiosity and interests, which can be understood through the narrative which is used to describe the event. As such, the constructivism paradigm suggests that phenomena, and the understanding of the phenomena, are understood through the subjective views of the participants who have experienced the phenomena (Creswell and Plano Clark, 2011).

Guba and Lincoln (1994) developed a paradigm contrast table which argues that the different paradigms (postpositivist and constructivist)

are essentially different from one another and, therefore, incompatible with one another (see Table 2). The delineated paradigms led to the '*incompatibility thesis*' (Teddlie and Tashakkori, 2009: p. 15) which stated that both paradigms are not mutually compatible with one another. This led to some research institutions and universities favouring one paradigm over another, which, in turn, affected the way students were educated in research methodologies. Teddlie and Tashakkori (*ibid*) argue that a new paradigm, referred to as pragmatism³, bridges the historical divide between positivist and constructivist research methodologies. The authors suggest that the research question should guide the paradigm(s) which is used, not the researcher's preferred paradigm to construct the research question. Therefore, research can incorporate either the positivist or constructivist perspective depending on what questions the research aims to address. They suggest that pragmatism bridges the gap between qualitative and quantitative approaches. As such, this means that research can be conducted which incorporates both paradigms. Pragmatism refers to the belief that a researcher's experiences and interests play an important role in the decision to conduct research on specific areas or topics. This personal interest and belief determines the research paradigm(s) which can be used to conduct the research, thus pragmatists believe that research is context-, rather than philosophically-, driven.

Based on Teddlie and Tashakkori's (2009) proposal that pragmatism bridges the historical gap between quantitative and qualitative methods, they further argue that the two historically dichotomous paradigms are compatible with one another (see Figure 2). This means that researchers can choose multiple methodologies to research their chosen topic or phenomenon. They believe pragmatism not only allows researchers to mix the different

³ Pragmatism within mixed methodology research can be broadly defined as focusing on the consequences of research where the importance is within the research questions, rather than on the methodology used. It rejects the 'one over the other' method to research and focuses on what works and realises the researcher plays a large role in the interpretation of results.

paradigms, but also allows researchers to place a particular emphasis on one paradigm if it is felt necessary to the research question(s).

Table 2: Lincoln and Guba (1994) Paradigm Contrast Table (cited in Teddlie and Tashakorri, 2009: p. 86)

Dimension of Contrast	Constructivist (Naturalist) Paradigm	Positivist Paradigm
<i>Epistemology</i> : the relationship of the knower and the known; the nature of knowledge and its justification	Knower and known are interactive, inseparable	Knower and known are independent, a dualism
<i>Axiology</i> : the role of values and enquiry	Inquiry is value bound	Inquiry is value free.
<i>Ontology</i> : the nature of reality, being, and the truth	Reality is multiple, constructed, and holistic	Reality is single, tangible, and fragmentable.
The possibility of causal linkages	All entities are in a state of mutual, simultaneous shaping so that it is impossible to distinguish causes from effect.	There are real causes, temporally precedent to or simultaneous with their effects
The possibility of generalisations	Only time- and context-bound working hypotheses (ideographic statements) are possible.	Time- and context-free generalisations (nomothetic statements) are possible.

Figure 2: Mixed methodological paradigm table constructed by Teddlie and Tashakorri (2009)

Q U A N	QUAN-qual		QUAL-quant	Q U A L
	qual-QUAN		quant-QUAL	
		QUAN-QUAL		
		QUAL-QUAN		

The incompatibility thesis, which suggested that the postpositivist and constructivist paradigms were incompatible and therefore could not be integrated, was based on the different research methodologies which could be used to investigate a phenomenon. However, contemporary ideas suggest that it is the research questions which should determine which paradigm is used, known as the pragmatic paradigm. This means that researchers no longer need

to incorporate a 'worldview' when they decide on how to investigate phenomena, and instead allows different paradigms to be incorporated into the research process.

One of the main questions in designing mixed methodological studies is the research question. Creswell and Plano Clark (2007) argue there are two ways this can be achieved. The first is to develop an overarching research question of the intended topic. This question can then be broken into sub-questions which can be both qualitative and quantitative in nature. This would allow the overarching research question to incorporate both qualitative and quantitative research into a true mixed methodological research project. Another way mentioned by Creswell and Plano Clark (*ibid.*) is to develop separate research questions and then provide a rationale for integrating the findings from them. On this basis it seems likely that the research questions which are posed are important factors in deciding how a mixed methodology research project progresses.

3.2.2 Experimental Methodology

The aims of this research are to understand whether a Cognitive Behavioural Therapy programme can reduce the sensations of anxiety in children with ASD. In order to show this I needed to pay careful attention to the experimental design. I therefore had to consider which design would be most useful in showing the effects of the intervention. Historically, the experimental methodology aims to investigate phenomena by comparing one group to another. For example, a researcher wishing to investigate the effects of medication on symptoms may need two distinct groups: one group who receives the medication and another group who does not. Then any changes in the group who receive the medication could be attributed to that medication. However, the allocation of participants, which could be done due to concerns about the individual's health, may have an effect on the results.

Campbell and Boruch (1975) and Rubin (2007) suggest randomisation of participants between experimental and control groups reduces confounding effects which may account for the observed difference. For example, they suggest that selection bias and differences between the participants can account for a large degree of the variance which may have significant effects in many studies. To counteract this they suggest the participants should be randomised between the different groups to reduce any confounding effects. By reducing the confounding effects the causal inference which can be drawn from the data is strengthened. This suggests that the research design, which includes randomisation, is the most important consideration when designing evaluation studies.

While many authors recognise the strength of the experimental design where randomisation occurs there are also inherent weaknesses which must be addressed with this design. For example, studies which can use randomisation are often laboratory-based studies, which, while addressing internal validity⁴, may lack external validity⁵. The external validity of experimental research is affected because it takes place in an environment, especially in special educational research, in which the intervention may not be delivered (Gersten, Baker, and Lloyd, 2000). As such, it is difficult to infer whether or not the intervention would have an effect in individuals' natural environments. However, there is a difficulty in using randomisation in environments such as schools where the number of participants may be restricted. For example, it may be difficult to

⁴ Internal validity can be defined as the confidence given to the inferences made to the data. To demonstrate internal validity, thus showing the causal effects of your research, the measures must be shown to measure what they purport to measure. Thus, to show internal validity measures need to show that maturation, regression to the mean or selection biases, to name a few, are not responsible for the observed changes.

⁵ External validity relates to the generalisability of research. Thus, it may be difficult to generalise a programme run in a clinic to the real world. To show external validity studies need to show that they have included the target population, have a fairly large sample size, can be replicated in other settings and show ecological validity.

allocate participants on a random basis if there are only enough for one group to be run in a particular school.

Cluster randomisation of schools offers a way to reduce the bias in allocation of pupils. Cluster randomisation, where schools are allocated to either experimental or treatment-as-usual group, means the children with ASD in each school can be placed in one particular group without the need to run two small groups in schools. Therefore, cluster randomisation allows groups of children to be allocated when individual allocations are not possible. However, disadvantages include needing a greater number of participants in order to obtain the confidence to make inferences about the data compared to individually allocated interventions (Edwards, Braunholts, Lilfor, *et al.*, 1999).

Based on the reading of experimental methodology, careful attention was paid to the design of the present study. The aims of this research were to address whether or not a school-based Cognitive Behavioural Therapy programme could help children with ASD to manage their feelings of anxiety. Due to the low number of children with ASD in the population (approximately 1%; see chapter 2) it was not possible to use individual randomisation between the intervention group and a treatment as usual (TaU) group in schools. Therefore, to show whether or not a brief school-based Cognitive Behavioural Approach helps children with ASD to manage their anxiety, a cluster randomised trial was implemented. This will allow me to have an experimental and TaU condition, thus showing the effects the intervention will have on children with ASD's anxiety levels.

3.2.3 Conclusion

The pragmatic approach suggests that the research questions should determine which epistemological paradigm is incorporated into the research. The previous research on the subject of the effects of CBT helping children with ASD to manage their feelings of anxiety has predominantly been within a positivism paradigm. For example, ASD

is defined in the DSM-IV as difficulties with social interactions, communication and repetitive and stereotyped behaviours (see Appendix 1). This definition has been used in previous research to identify children who should take part in the studies. This would suggest that a positivism paradigm could be used to understand the difficulties children with ASD have. Further, difficulties with anxiety have been defined by the DSM-IV, which provides researchers with a clear definition of the phenomenon. Therefore, this suggests a positivist stance is best suited to this research. However, it is important to understand that ASD can be a subjective definition as well. For example, research by Williams, Atkins and Soles (2009) found that even with a clear definition of ASD there is ambiguity in terms such as Asperger Syndrome and Pervasive Developmental Disorder – Not Otherwise Specified, which suggests that the subdivisions of ASD could be socially constructed by the clinical practitioners who make the diagnosis. This reasoning can also be applied to the feelings of anxiety that people may have. It should also be understood that feelings of anxiety can be different between people; for example, individuals in a group of people may not have the same levels of anxiety to an expected frightening experience, suggesting that it can be constructed by people depending on their past experiences.

Cresswell and Plano Clark (2007) highlight two ways of developing a mixed methods research project. The first is to have an overarching research question which is then divided into qualitative and quantitative sub-research questions. The other option is to have separate qualitative and quantitative research questions with a rationale for integrating them together. On the basis of the literature search carried out in my preparation for this project I developed an overarching research question. However, in order to develop a more detailed understanding of the phenomenon under investigation I constructed several sub-research questions which can be answered from either a qualitative or quantitative approach. Thus, my main research question 'Will a brief school-based cognitive behavioural

therapy programme help children with ASD manage their anxiety, and will this be generalised to the child's environment?' will be answered using sub-research questions which can be answered from either a quantitative or qualitative research paradigm.

Quantitative sub-research questions:

- Sub RQ1: Will children who took part in a brief school-based CBT programme report less anxiety as measured through a standardised anxiety scale than a control group after the intervention has ended and will this be maintained at six- to eight-week follow-up?
- Sub RQ2: Will parents whose children took part in a brief school-based CBT programme report less anxiety in their children as measured using a standardised anxiety scale than a control group after the intervention has ended and will this be maintained at six- to eight-week follow-up?
- Sub RQ3: Will children who take part in a brief school-based CBT programme develop coping behaviours measured using a standardised coping behaviours questionnaire as a result of taking part in the intervention and will these behaviours be maintained at six- to eight-week follow-up?

Qualitative sub-research question:

- Sub RQ4: Do parents of children with ASD have confidence and knowledge in managing their children's anxiety within the community?
- Sub RQ5: Are parents aware of their children trying to manage their feelings within their environment?
- Sub RQ6: What, from the parents' perspective, may act as barriers to children with ASD managing their anxiety?
- Sub RQ7: What are parent's perceptions of interventions which are used to support children with ASD?
- Sub RQ8: How do young people with ASD benefit from the use of CBT to develop emotional awareness and manage their anxiety?
- Sub RQ9: What, according to children with ASD, are important factors in the therapeutic environment?

3.3 Participants:

Participants were recruited via schools. An email was sent to all Special Educational Needs Coordinators (SENCo) within the author's work locality (see Appendix 2: a total of six secondary schools were emailed). Of these secondary schools one did not respond and five expressed an interest in the project. Initial phone conversations were held with the Special Educational Needs Coordinators to discuss the project in further detail and face-to-face appointments were made. Initial discussions were held with the SENCos which provided details about the project and the measures which would be collected. Children were identified through conversations with the schools. A description of anxiety was provided to the SENCo which was used to identify children with ASD who may have heightened anxiety. No screening tools were employed to identify children who may have heightened anxiety, which meant that children were identified based on the concerns of the school at the time the research project started. It was at this meeting that a request was made to visually inspect the multi-disciplinary assessment which confirmed a diagnosis of Autistic Spectrum Disorder (ASD). Children were chosen on the basis of a diagnosis of ASD and who attended a mainstream school, and was not limited to children with High Functioning Autism. The nature of the local authority where the study took place, where children with high levels of needs may be placed in specialist provisions, meant many of the children who took part in this study could be considered high functioning autistic children. One school was discounted from the project due to no children having a diagnosis of ASD and other arrangements were made for the children who were causing concern. All SENCos agreed to send details on the project along with consent forms to parents with pre-measures (see Appendix 3).

To increase the number of children who could take part in the research, Educational Psychologists who worked in other districts of the local authority were contacted. In total, two districts expressed

that schools in their area would be interested in taking part in the study. One district was discounted as the school already had a similar project running. Another district had two schools that expressed an interest. Initial meetings were held with the schools. Based on these meetings the SENCos agreed to hand consent forms and pre-measures to the parents who were identified; and multi-disciplinary assessments were visually checked to ensure all children had a diagnosis of ASD.

Table 3: Allocation of schools, consent forms sent out, consent forms returned and number of participants who complete CBT intervention

		No of consents sent	No of consents received	Participants who completed CBT
Experimental Group	School A	6	4	14
	School B	4	4	
	School C	9	6	
TaU Group	School D	8	5	14
	School E	4	4	
	School F	6	5	
Total		37	28	28

Table 4: Demographic data of children who consented and completed the intervention

		Experimental Group	TaU Group
Age*		12.64 (.85)	12.86 (.7)
SEN**	SA	3	1
	SA+	9	12
	SSEN	2	1
Ethnicity**	White British	13	14
	Chinese	1	0
Year Group**	Yr 7	8	8
	Yr 8	4	3
	Yr 9	2	3
Gender**	Male	14	14
	Female	0	0

*p = .475 (n.s.) **assumption of chi-square violated (more than 25% of values below 5) therefore not calculated

Table 5: Demographic data of schools who took part in the intervention

	Designation	On roll	SEN (%)**	Ethnicity [^]	FSM ^{^^}
School A	Non-selective	1025	18.25	91.2	7.9
School B	Non-selective	859	17.2	92	9.8
School C	Non-selective	1125	24.2	85.2	12.4
School D	Non-selective	993*	15.2	88.29	9.8
School E	Selective	589	6.25	95	1.2
School F	Non-selective	1325	19.3	88	5.5

* Federated Academy with two other schools. Total on roll is 3526
 ** Includes School Action, School Action Plus, and children with a Statement of Special Educational Needs
[^] % of children who are classified as white British
^{^^} FSM = Free School Meals as a % of school roll number

Of the schools that agreed to take part, meetings were arranged to visit the school and meet with the children individually. During this meeting discussions were held with the child to explain the projects and its aims and objectives; in addition, anxiety was operationalised to the children by discussing, in an open and transparent manner, what anxiety is and how it may affect them. This allowed the children to consider whether or not the intervention was suitable to meet their own needs and concerns. The children were asked to give verbal consent that they were willing to take part in this project. After verbal consent had been obtained, the children were told about their right to withdraw at any time, the children were also told about how data would be stored and how the data would be used. Once the children repeated back key elements of the discussion, they were asked to complete pre-measures. Table 3 shows the details of the participants who took part in the project, including ages, gender, ethnicity, special educational needs and year group. All the children in the study received support for their difficulties from their respective schools. This support was often delivered to groups of children across different year groups. As such, there was a level of familiarity

between the children for each school group. This meant that group dynamics may have been embedded before the intervention was started.

Once all consent forms and parent pre-measures were returned, the schools were randomly⁶ allocated to either the experimental (those who received the intervention) or the TaU group (those who did not receive the intervention until after the data collection period ended). Table 4 shows the schools, the consent forms sent out to parents and those which were returned. Overall, 76% of all consent forms sent out were returned. Table 5 shows the demographic data of the schools that took part in this study, such as proportion of children receiving free school meals, percentage of SEN and the ethnicity of the pupils.

3.4 Cognitive Behavioural Therapy Programme:

3.4.1 The Intervention

This study used an adapted version of Attwood's (2004) Exploring Feelings: Cognitive Behavioural Therapy to Manage Anxiety. This programme, which is delivered in six weekly sessions each lasting approximately one hour, is designed to be used with children with a diagnosis of ASD who have difficulties in managing their anxiety. Because this intervention has been specifically designed for children with autism it consists of aspects which are regarded as good practice to use with children with ASD, such as comic strip conversations and visually presented material.

Before data collection commenced, a pilot group was set up in order to trial the intervention beforehand.

3.4.2 Pilot Study

The intervention which was run as part of this project was piloted before data collection started. The aims of the pilot phase were to:

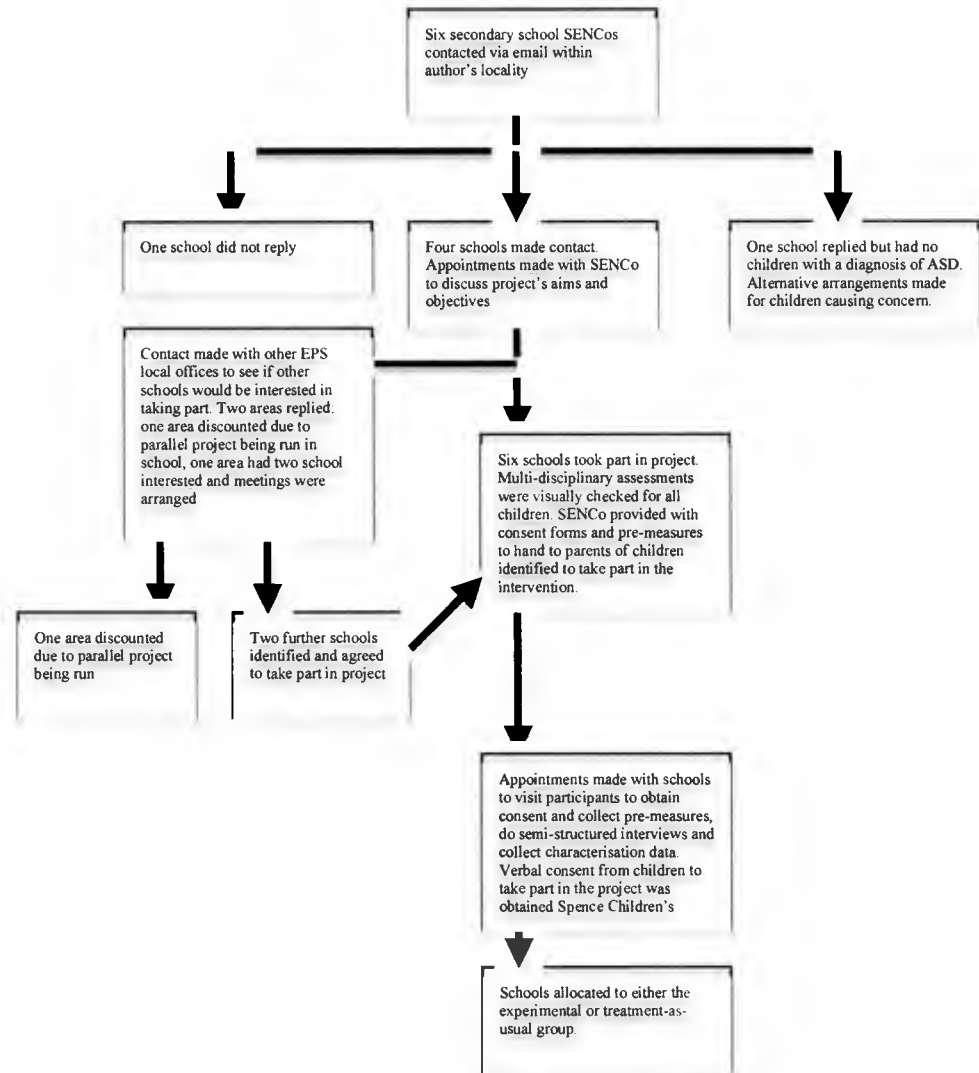
⁶ Each school was assigned a number from one to six. The first three numbers drawn out of a random number generator (www.random.org) were assigned to the experimental group.

- a) ensure that the timings of the intervention would be compatible with the school's timetable;
- b) to ensure that the author (the individual delivering the intervention) was fluent in its use with a group of children;
- c) to ensure that the programme could be delivered within a school setting.

The pilot study was run with one group of three children in a secondary school not attached to this project. The pilot group was run during January/February 2011. At the end of the pilot study a focus group was run with the children who took part in which discussions were held about elements which they found helpful and parts which they felt could be changed. Notes were taken on a flip-chart which enabled all members of the group to see the main discussion points.

Based on the pilot and the subsequent focus group, the following adjustments were made to the programme. Some elements of written work were omitted and replaced with visual tasks. For example, instead of talking or writing about changes in bodily states when children were anxious, a life sized outline of the human body was drawn on paper. The children were then asked to show on the outline how they know they felt anxious, such as changes in heart rate and breathing, for example. The same process was used to help the children understand when they knew they were in a relaxed state. Additional changes included asking the children to draw what makes their superhero anxious, rather than writing about it, and they were also asked to draw things which make them feel relaxed. A large thermometer was drawn as a group, rather than individually, to show environmental contexts where feelings of anxiety may arise, and how, as a group, they could overcome these feelings.

Figure 3: Flow diagram showing flow of participant recruitment to programme



3.4.3 Overview of Intervention

Based on the pilot study and the focus group, the intervention used the following format:

Session one: This session explored the participants' strengths and special talents. It highlighted things they like about their physical appearance and intellectual qualities. It asked the children how they recognise they are happy through facial expressions and their physiology. The session then explored with the children how they know they are relaxed by their thoughts and physiology, such as heart rate and breathing. The participants were asked to complete homework which asked them to make a note of things they were happy about in their room, with their friends and about their weekends, and to find pictures which make them feel relaxed.

Session two: This session explored the participants' bodily state when they are anxious by asking about their heart rate, breathing, facial muscles and speech. It then asked the participants to think about a hero and a time they have felt anxious, and to also think about times when the participants themselves have felt anxious and to talk about how they coped with these feelings. The participants were asked to think about relaxation techniques.

Session three: This session explored the participants' relaxation techniques. It asked the participants to think about how they would help a friend or family member who was feeling anxious and how this friend and family member could help them. It then explored thinking tools, such as perspective-taking, using their imagination, humour and acting. The session also explored inappropriate tools. The participants were asked to think about times when they have used their relaxation techniques and how well they worked.

Session four: This session recapped session three and talked about how the participants have used their relaxation techniques. It then asked the participants to think of situations which have made them

anxious and to place their level of anxiety on a thermometer and then reflect about what would or might have happened if they had used their relaxation techniques.

Session five: This session asked the participants to write a social story which would help them understand situations which make them feel anxious. It then asked the participants to think about negative thoughts, such as 'I'm a loser,' and calm thoughts, such as 'I am going to show how mature I am.' It then asked the participants to think about thoughts which they can have instead of negative thoughts such as 'everyone hates me.'

Session six: This session asked the participants about which relaxation tools they had found to be the most effective and then to write a social story about a situation and a plan of what they can do. It then asked the participants to think about what thoughts they can use instead of negative thoughts.

3.4.4 Qualifications of Programme Leader

O'Conner and Creswell (2005) suggests that Cognitive Behavioural Approaches should be delivered by those who not only have knowledge and training in these approaches, but also have knowledge and understanding of the population they are using the approach with. Therefore, I will describe the experiences of the researcher who delivered the intervention (the author) to show they are a suitably qualified person to the deliver the intervention with a population of children with ASD.

I have substantial experience of working with children and young people with a diagnosis of ASD. I worked with children with ASD in a provision which was attached to a mainstream school, which catered for children in both Key Stage one and two of the National Curriculum. This experience lasted for over 18 months after which I worked for a Child and Adolescent Mental Health Service. I then started the Doctorate in Professional Educational, Child and

Adolescent Psychology at the Institute of Education. During this period I worked with a number of children with ASD who were in Key Stage 3 and 4. The course also developed an understanding, based on reading around the subject of the difficulties children with ASD have with social interactions, communication and rigid and stereotyped behaviours. Therefore, I brought a wealth of knowledge and practical experience in working with children with ASD.

I have worked for the Child and Adolescent Mental Health Services before starting my DedPsy in a local authority for over one year, with their time being split between research (which constituted .6 fte) and clinical work (which constituted .4 fte). This clinical work involved working with children and young people delivering Cognitive Behavioural Approaches. This was under the supervision of a chartered Clinical Psychologist. This experience was further developed during my training on the Doctorate in Professional Educational, Child and Adolescent Psychology. During this course I received four training sessions on this approach and read widely on the theory and practice of Cognitive and Behavioural Approaches and their use with children and young people. I also engaged in at least two pieces of work of using CBT with young people, under the supervision of tutors with training in the area of using Cognitive Behavioural Approaches. This work was then written up within an evidenced-based framework and put into my professional portfolio.

Overall, the professional experiences of working with children with ASD throughout the age ranges, together with using Cognitive Behavioural Approaches with children in both a supervised academic and professional environment, mean that I have the skills and experiences necessary to run these programmes with a group of children who have ASD.

3.5 Procedure:

This section provides a description of the different measures, scales and data which were collected from the participants.

3.5.1 Characterisation Measures

Characterisation measures were collected once at pre-intervention from the children before the intervention started. Characterisations measures aim to provide the reader with an idea of the children who took part in this research. In particular, the measures aimed to help to understand the level of cognitive abilities in the children who took part in the intervention and their level of social reciprocal behaviour. Both of these measures can be used to help make inferences about the data in terms of its generalisability to other children with ASD.

Wechsler Abbreviated Scale of Intelligence (Harcourt Assessment, 1999)

The Wechsler Abbreviated Scale of Intelligence (WASI) is a brief measure of cognitive ability which consists of vocabulary, block building, similarities and matrices; together these scores provide a full-scale cognitive ability, verbal ability and non-verbal ability. Standardised on 1,100 children aged between six and 16, the WASI shows high reliability coefficients (average reliability ranging from .81 to .96 on all scales for all age ranges). Correlations were made with the Wechsler Intelligence Scale for Children version III (WISC-III; Wechsler, 1991), and for the verbal IQ, performance IQ and the full-scale IQ, correlation coefficients were .88, .84 and .92 respectively. This suggests that the WASI is a good measure of cognitive ability in children.

The WASI provides a good understanding of the cognitive abilities of the children who took part in this study, suggested by its strong correlations with the WISC-III. The verbal reasoning component of the WASI can provide an understanding of the verbal reasoning and understanding skills the children have. In addition, the non-verbal reasoning score provides an indication of the ability of the children to make inferences and cause-and-effect relationships within their environment.

Social Responsiveness Scale (Constantino, 2002)

The DSM-IV defines ASD as qualitative impairments in social interactions, communication and repetitive/stereotyped behaviours. While the DSM-IV provides a framework for identifying ASD in children there are inconsistencies in its diagnosis (Williams, Atkins and Soles, 2009) between clinicians. Therefore, a measure which provides an indication of ASD in children, which will include social functioning, was collected.

The Social Responsiveness Scale (SRS) is a brief 65-item measure which can be completed by parents or the child's caregivers, and teachers, providing scores for the child's social awareness, social cognition, social communication, social motivation, and autistic mannerisms and a single score for autistic social impairment. The factor structure of the SRS supported the three areas which suggest the presence of ASD (social interaction, communication and stereotyped/repetitive behaviours) as a continuous factor, which is consistent with the definition provided by the DSM-IV. The raw scores from each sub-test can be used to calculate T-scores for the individual children. Test-retest reliability coefficients were tested on a sample of 1,900 children aged five to 15; coefficients came out at .88. Constantino, Davis, Todd, *et al.* (2003) compared the SRS against the Autism Diagnostic Interview – Revised, which is regarded as the 'gold standard' (Constantino, 2002: p. 33) in diagnosing ASD in children, and found comparable correlations between them (ranging between .52 and .79). Discriminant validity of the SRS suggests that high scores on the SRS were associated with the diagnosis of ASD, and not other child psychiatric conditions, such as psychotic disorder, mood disorder and Attention Deficit and Hyperactivity Disorder, which further suggest this scale is suitable to discriminate children with ASD. The author of the scale suggests that a T-score of above 75 suggest a clinical presence of ASD.

The SRS, evidenced by its correlation with the ADI-R, seems to be a reliable measure as quantifying the difficulties in children with ASD.

The SRS provides T-scores which can be used to understand the difficulties children with ASD have in areas such as social cognition and social awareness compared to a typical population of children. Both the validity and reliability of the SRS suggest it can be used to determine social functioning of children with autism compared to their peers, and confirm the diagnosis of ASD. As such, the SRS represents a good measure to understand the difficulties the children in this study have with aspects of their social interactions, which is a core feature of children with ASD.

3.5.2 Outcome Measures

Outcome measures are those which help to understand the effectiveness of the intervention. These measures were collected at pre- and post-intervention, which would allow comparisons to be made as to the effectiveness of the intervention helping children with ASD manage their anxiety, and the way they cope with stressors in their environment which could cause anxiety. Various outcome measures were used considered to show the effectiveness of the intervention. Anxiety measures considered included the Multidimensional Anxiety Scale for Children (March, 1999) and the Anxiety Disorder Interview Schedule (Silverman and Albano, 1996). Both of these scales are primarily used for the diagnosis of anxiety in children. As such, if the anxiety scales fall below the threshold for diagnosis at post intervention then this would suggest that CBT has 'cured' anxiety in this group of children. The research questions this thesis aims to address are whether the children who took part in the CBT intervention have reduced levels of anxiety and not whether they meet clinical levels of diagnosis, this meant both the MASC and ADIS were considered inappropriate for this research. The Spence Children's Anxiety Scale (Spence, 1999) is a measure which aims to help understand if children have 'elevated' levels of anxiety, and as such does not diagnose. In addition, this scale has been standardised on both a normal population and a population of children diagnosed with anxiety, with standardised scores being developed. Therefore, the Spence Children's Anxiety Scale was used

because it could show changes in anxiety compared to both a normal and anxiety disordered population and demonstrate changes in anxiety these children may experience as a result of taking part in the intervention.

In addition this study aimed to understand changes which may occur in children's coping behaviours of those who took part in the intervention. Two scales were considered: the Kidscope (Spirito, Stark and Williams, 1988) and the Coping Scale for Children and Youth (Brodzinsky, Elias, Steiger, *et al.*, 1992). While both scales' questions were developed through wider reading on the subject and a conceptualisation of coping behaviours and its sub-categories, for some sub-categories the Kidscope contained only one or two questions, which raised concerns about its psychometric properties. Additionally, confirmatory factor analysis was not used in the analysis to confirm the sub-categories of the Kidscope. With this in mind it was decided to use Coping Scale for Children and Youth due to its better psychometric properties and because it was standardised on the targeted age population of the children taking part in this study. Follow-up measures, which are collected after a period of time after the intervention has finished, were also collected to help understand if any benefits to the intervention were maintained in the short-term. Semi-structured interview data was also used to enrich the quantitative data.

Spence Children's Anxiety Scale (Spence, 1997)

Anxiety is distinguishable from other intense emotions, such as fear, worry or panic, because it does not have to be directed to a particular stimuli (Barlow, 2000). The effects of anxiety can be physical (heart palpitations or nausea), emotional (feelings of apprehension, dread or anticipation), cognitive (thoughts about suspected danger), as well as behavioural (social withdrawal, motor tension or foot tapping). These thoughts and feelings, as well as being maladaptive, can help children to anticipate and be prepared for other people's actions and can be normal reactions to stress. As such, measures of anxiety

should incorporate all the feelings which are associated with anxiety and should be standardised on a community sample to ensure it can identify elevated levels of anxiety in children and adolescents with ASD.

The Spence Children's Anxiety Scale (SCAS; Spence, 1997) is a 44-item questionnaire which can be completed by either the child or parent. The questions were developed by clinical experts in the field who also read around the subject of anxiety. The parent or child is asked to rate questions, such as "I worry about things/My child worries about things" and "I worry about being away from my parents/My child worries about being away from us/me", on a four point scale: never, sometimes, often and always. The score on the questionnaire can then be aggregated into sub-categories of anxiety: panic attack and agoraphobia, separation anxiety, physical injury fears, social phobia, obsessive compulsive, generalised anxiety and a total anxiety score.

The SCAS was validated on a community sample of 4,916 children aged between eight and 15, and uses the DSM-IV (APA, 2000) criteria. Confirmatory Factor Analysis was used to analyse the individual scores. The Confirmatory Factor Analysis confirmed the DSM-IV definition of discrete anxiety disorders in children. The scores are split into separation anxiety, social phobia, obsessive compulsive, panic/agoraphobia, physical injury fears and generalised anxiety. Reliability of the scale was found to be high (.93). The validity of the SCAS was supported through comparisons with the Revised Children's Manifest Anxiety Scale (Reynolds and Richmond, 1978) and was found to be moderately high (.75). Although the reliability and validity of the scale were analysed using community samples, studies have found it is a useful measure for children with ASD (Sofronoff, Attwood and Hinton, 2005).

Overall, the SCAS, which can be completed by both children and their parents, suggests it is a good measure for understanding the

difficulties children may have with anxiety. This would suggest that the SCAS provides an objective and measurable way to identify the changes of anxiety in children who take part in this study.

Coping Scale for Children and Youth (Brodzinsky, Elias, Steiger, et al. 1992)

Coping behaviours are important to individuals' psychological well-being, especially during adolescence, when people become more independent and experiment with new activities without the support of their parents. Being able to cope in these situations is an important part of development. Billing and Moos (1981) identified three types of coping behaviours: active-behavioural strategies, active-cognitive strategies and avoidance strategies. Measures of coping behaviours should take into account the three factors outlined by Billing and Moos, and should be developed on participants who are in the same age group as the children in this study to reflect the gradual development of coping behaviours. Studies have shown that children with ASD are more likely to use active-behavioural strategies, such as behavioural avoidance (Kussikko, Pollock-Wurman, Jussila, et al. 2008), to avoid situations that may provoke sensations of anxiety.

The Coping Scale for Children and Youth (CSCY) was developed to measure coping behaviours in children. The questions on the scale were developed by the authors based on their reading around coping behaviours in children and adults. Once the children had completed the questionnaire, factor analysis was used in order to develop normative categories of coping behaviour in children and young people. The factor analysis suggested there are four sub-categories of coping behaviours: assistance seeking, cognitive-behavioural problem solving, cognitive avoidance, and behavioural avoidance (consistent with Billing and Moss' (1981) conceptualisation of coping behaviours). Test-retest correlations for all four sub-categories fall within the moderately-high to high range (assistance seeking = .80; cognitive-behavioural problem solving = .80; cognitive avoidance = .81; and behavioural avoidance = .73). Validity was tested using the

Kidscope dimensions which showed consistent as expected patterns of correlation. In developing the CSCY, Brodzinsky, Elias, Steiger, *et al.* (1992) used a community sample of children who attended mainstream provision including children with special educational needs.

The CSCY was designed on a conceptual understanding of coping behaviours, and was further confirmed through factor analysis, which suggests that this scale will provide a good understanding of changes in coping behaviour which may occur as a result of the intervention.

Parent and child interviews

In addition to the qualitative measures collected from the participants and their parents, interviews were arranged with selected children from the treatment group and the treatment as usual group. Children were selected based on availability at the time of data collection in order to reduce the amount of time some of the children may have been out of class.

It was decided that a semi-structured interview schedule would be used. Semi-structured interviews are those in which the interview is conducted in a fluid and dynamic way (Cohen, Manion and Morrison, 2000). This may allow for the exploration of emergent themes and concepts. Unlike structured interviews, which are more prescriptive in the questions which are asked, semi-structured interviews initially ask questions about topics of interest which can then be explored more thoroughly. This would allow the themes to be explained by the interviewee in ways which are not permissible in structured interviews.

Based on the research questions, a range of themes to explore through open questions were identified, and these formed the basis for discussion with the participants (both the children who took part in the intervention and their parents) to ensure consistency:

- ASD: this theme aimed to establish if the participants had knowledge of their diagnosis of ASD and to explore how the participants conceptualised ASD and what it meant in terms of the way they engage with others.
- Anxiety: this theme aimed to explore the participants' knowledge of anxiety. In particular, the interviews engaged the participants in talking about how they feel sensations of anxiety and how they manage it. While it is acknowledged that children with ASD feel anxious in social situations, the participants were encouraged to explore feelings of anxiety they may experience in other situations.
- Coping behaviours: this theme aimed to explore with the participants how they coped when they knew they had sensations of anxiety. For example, this theme aimed to explore what actions or behaviours they used in order to help them manage these feelings.
- Cognitive Behavioural Therapy (post interview only for the group who took part in the intervention): this theme aimed to explore how the participants experienced the CBT programme. Specifically, this section aimed to explore what aspects of the intervention the participants found useful, which they feel could be extended or modified further.

Based on the themes which were to be explored a schedule was developed (see Appendix 4). The schedule was used as a prompt to ensure that all the themes were covered in sufficient detail during the interviews. The same schedule was used with parents and children at pre- and post-intervention.

3.6 Data Collection:

This study was comprised of three distinct data gathering stages in order to address the research questions (see Table 5 for a timeline of data collection):

Phase 1:

Pre-measures from all children taking part in the study were collected by the researcher. Parents were asked to complete questionnaires

about the child's anxiety and a questionnaire about the child's interpersonal behaviours, which are characteristic of children with autism. Each child completed a Wechsler Abbreviated Scale of Intelligence to develop characteristic data about their level of cognitive skills. Parents and children were then interviewed using a semi-structured interview technique. Children were also asked to complete a self-rated coping behaviours scale.

Phase 2:

After the CBT intervention had been run, post-measures were collected from the parents and children. Measures collected included questionnaires on anxiety and coping behaviours. Semi-structured interviews were conducted using the same techniques as in phase 1.

Phase 3:

Follow-up parent and child Spence Children's Anxiety Scale, and Coping Scale for Children and Youth was collected approximately six- to eight-weeks after the intervention finished. Data included questionnaires on anxiety and coping behaviours.

Table 6: Gantt chart showing data collection timeline

Week:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
CBT Exp.																										
CBT T&U																										
WASI																										
SCAS (P & C)																										
SRS																										
CSCY																										
Parent Int																										
Child Int																										

3.7 Ethical Considerations:

Consent was obtained from both the parents and children to take part in this study. Parents were asked to sign a consent form together with contact details if they would like more information about the project. Consent from children was gained through verbal consent when each child was met individually to discuss the project and its aims. The participants and parents were informed of their right to withdraw from the project at any time through contact via the school's Special Educational Needs Coordinator, or directly with myself.

All pre-intervention anxiety scales were scored. Discussions were held with the Special Educational Needs Coordinator, the school's link Educational Psychologist and the child's parent for scores which were two standard deviations above the norm. This did not act as an exclusion criterion, but was used to help identify children with ASD who have high scores of anxiety to determine if other provisions should be made available to the child. In addition, scores which were two standard deviations above the norm for the TaU group, who were not due to receive the intervention immediately, were discussed with the school's SENCo to make sure accommodations, such as access to service, could be arranged.

Regular meetings were held with the SENCos of schools who were placed in the TaU group. This was to ensure that regular communication happened between the school and myself. This was important to ensure that the children who were intended to receive the intervention were discussed on a regular basis to ensure no changes in their levels of anxiety and that the groups were maintained so they could receive the intervention after the final data collection period had ended.

3.8 Data Analysis:

3.8.1 Quantitative Analysis

Before the data was analysed the characterisation and outcome measures were inputted into SPSS version 18 for Mac. This was so the kurtosis, skewness and equality of variance could be analysed between the different scales to help determine which statistical tests would be used to test the hypotheses (see Appendix 5). Overall, the data suggests that the scales meet the assumptions underlying the use of parametric test in terms of normality of distribution and equality of variance between the TaU and experimental group.

Data from the Spence Children's Anxiety Scale and the Coping Scale for Children and Youth will be analysed using an Analysis of

Covariance (ANCOVA). The ANCOVA was chosen because it offers a way to partial out the variance in the pre-test score (Dancey and Reidy, 2007). This is preferable to an Analysis of Variance (ANOVA) according to the authors because '*the pretest score will normally be correlated with the change (difference) score (thus the variation in pre-test scores is not removed*' (Dancey and Reidy, *ibid*, p. 439). Therefore, for post intervention, which will help understand changes in anxiety and coping behaviours immediately after the intervention has finished, the pre-test scores will be placed as the covariate, the group (experimental and treatment as usual) will be a fixed factor, with the post-test scores used as the dependant variable. The post-intervention scores will be replaced with follow-up scores to understand if the changes in anxiety were maintained at six- to eight-week follow-up.

3.8.2 Qualitative Analysis

To analyse the interviews a system known as Thematic Analysis was used. Braun and Clarke (2006) argue that Thematic Analysis is a flexible research tool which can be used in both essentialist and constructionist paradigms in psychological research. This would suggest that Thematic Analysis is a good tool to use with a mixed methods research design. Braun and Clarke (*ibid.*) further suggest that it is a method which allows the researcher to identify and report patterns in their data. Further, Thematic Analysis can look at themes in two ways. Firstly, themes can be developed through a bottom-up, or inductive, approach. Secondly, themes can be developed through a top-down, or deductive, approach. The different ways in which Thematic Analysis can be used suggests it is a good tool for both developing theory and exploring previous research in more detail. In this case thematic analysis was used to generate an inductive theoretical perspective working from the specific to more general explanations.

Thematic Analysis is a six-stage process for analysing narrative data. The stages involved are:

- Stage one – This stage involves what Braun and Clarke (2006: p. 87) term ‘familiarizing yourself with your data’, the researcher immersing themselves in their data. This is accomplished through transcribing the data then repeatedly rereading it until a level of familiarisation is developed. During this stage the researcher can begin to take notes which might be useful in later stages.
- Stage two – This stage follows on from stage one, where the researcher may have identified certain areas of the discourse which are interesting and informative. This stage involves the generation of codes which Braun and Clarke (2006: p. 88) explain as ‘identify[ing] a feature of the data (semantic content or latent) that appears interesting to the analyst, and refer[ing] to ‘the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomena.’ This stage of Thematic Analysis is still part of the analysis stage, not the theme stage, which aims to help the researcher construct their data into meaningful parts.
- Stage three – This stage begins once the data has been coded and collated. This stage involves the search for themes among the data. It involves a conceptualisation of the data by using the codes to look for overarching themes. This is also regarded as the stage where the researcher looks for relationships between codes and between the different levels of themes. This stage should end with a collection of themes and sub-themes.
- Stage four – This stage involves the refinement of themes which had been developed in stage three. For example, it may include discarding some themes altogether due to lack of data to support them, or the collapse of two themes into one. During this phase it is important to make sure that there are clear distinctions between the different themes and that the themes are meaningful. This is also where the researcher ensures that the thematic map which has been developed accurately portrays the data in a meaningful way.
- Stage five – This stage begins once a satisfactory thematic map has been developed of the data. During this stage the themes are further

defined and refined. This involves providing a description of what each theme relates to and presenting them in way which identifies the interest in them. This could involve developing a detailed analysis of the themes which aim to provide a concept which each theme is trying to identify, which should be no longer than a sentence.

- Stage six – During this stage the researcher begins the write-up of the themes. The idea of this stage is to tell a complicated story to the reader which is both understandable and logical in its explanation. However, it should go beyond a narrative description and should consist of an analytic narrative which contextualises the themes and finding for the reader.

3.9 Chapter Summary / Conclusion

This chapter has provided an overview of the reading I undertook to decide on how I would investigate the research question. Specifically, this chapter discussed the current debate around research methodologies and the historical dichotomy between positivistic and naturalistic research paradigms. However, I proposed an additional paradigm called pragmatism which bridges this historical divide between positivism and naturalism and allows researchers, including myself, to use both paradigms to research phenomena.

A pragmatic research project evolved by developing an overarching research question based on my literature review. I then divided this research question into sub-research questions which were divided into either a quantitative and qualitative research paradigm. This would allow me to answer the main research question from a truly mixed methodological perspective.

This chapter then discussed the measures which would be collected from the participants (both quantitative and qualitative), how the participants were identified and recruited and the timelines for completing this research. In addition, I provided a brief overview of the CBT programme that was used with the children.

The last section of this chapter described how the data from the scales and measures would be analysed and how the interview data would be analysed.

Chapter 4 - Results

4.1 Chapter Introduction

This chapter will analyse the data in three distinct phases. The first section will look at differences between the two groups for the characterisation and outcome data. The aims of this are to help understand any differences which may exist between the groups for cognitive abilities, social reciprocity and differences in anxiety or coping behaviours which may have an influence on the interpretation of the data. The second section will look at between group differences on the outcome measures. This will help understand whether or not children in the experimental group had reduced anxiety than those in the TaU group, and whether or not there were changes in the children's coping behaviours. The third section will look at changes in anxiety scores within the participants to help understand whether or not changes in anxiety were at the chance level or at a clinically significant level. The fourth section will analyse the qualitative data from the parent and child interviews, which will be used to help understand the barriers to children managing their anxiety.

4.2 Pre-Intervention Comparison of Participant Characteristics

This section aims to explore the characterisation and outcome data between the experimental and TaU groups. By exploring this data an understanding can be developed of any differences - in terms of severity of ASD, differences in cognitive abilities, differences in anxiety between the two groups or differences between coping behaviours between the two groups – between the experimental and TaU groups which may affect how the data is interpreted.

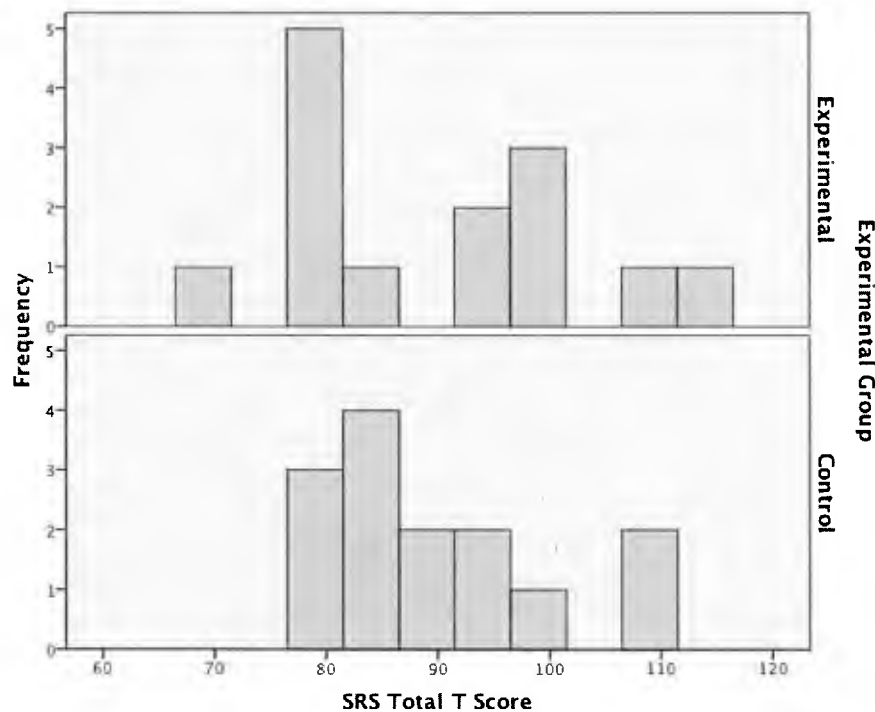
Social Responsiveness Scale

For the SRS the total scores were computed by aggregating all the raw scores from the different sub-scales. T-scores for SRS total raw scores were generated from the manual. Initial analysis of the individual t-scores suggests all children in the TaU condition had a

score of above 75, which suggests that the diagnoses of all children in TaU condition were confirmed. However, one child in the experimental group had a t-score of 69, which was still in the mild to moderate range for difficulties with social reciprocal behaviour, with the remainder having scores above the 75 range.

Histograms were developed showing the t-score count between the two conditions (see Figure 4). Mean SRS total scores for the experimental group (M 88.8; SD 12.5) and the TaU group (M 90; SD 10) further suggest no difference between the two groups, confirmed by an independent samples t-test $t(1,26) = -.283, p = .78$.

Figure 4: Histogram of SRS total t-scores between experimental and TaU groups

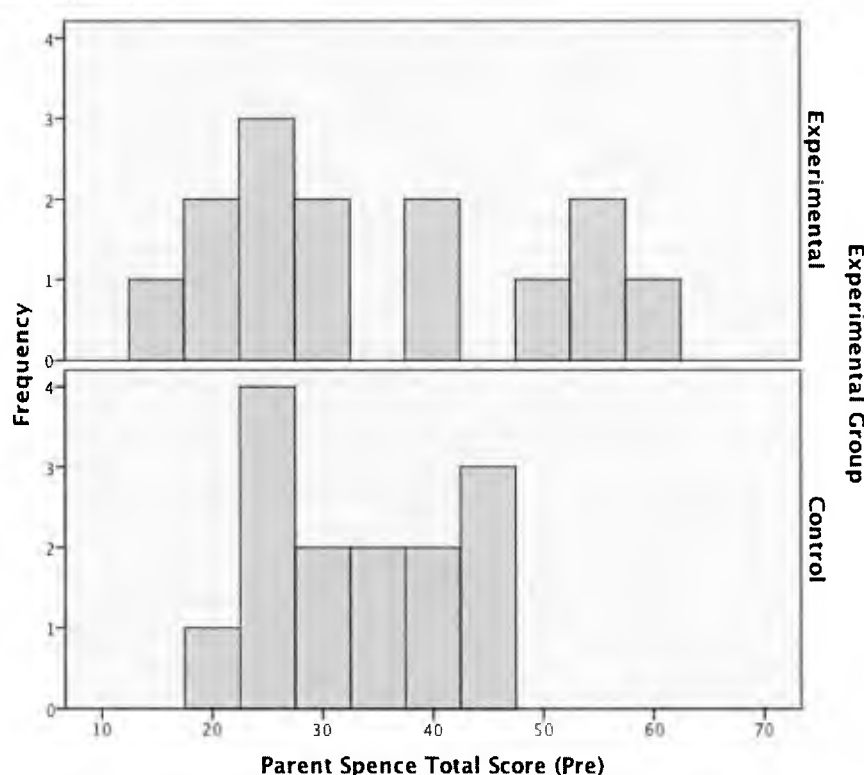


This would suggest that participants had either severe or mild to moderate difficulties with their social reciprocal behaviour, which is consistent with a diagnosis of ASD. Further, the social reciprocal difficulties were not significantly different between the TaU and experimental groups.

Spence Children's Anxiety Scale - Parent Version (SCAS-P)

Total scores were generated from the parents' responses to the anxiety scale. Individual analysis suggests that 26 children were within the elevated range for anxiety difficulties (calculated as one standard deviation, or a total SCAS-P score of above 20, above the normal population from Nauta, Scholing, Rapee, *et al.*, (2004)). Of the two children who had a total SCAS-P score of below 20, both were in the experimental group.

Figure 5: Histogram of SCAS-P scores between experimental and TaU groups



Histograms were developed showing the total scores between the two conditions (see Figure 5). The difference in mean scores between the experimental group (M 34.9; SD 8.5) and the TaU group (M 33.2; SD 15.4), which when compared to the standardisation by Nauta, Scholing, Rapee, *et al.* (2004) is consistent to a population with anxiety difficulties (see Table 6) and further suggests no difference between the two group for SCAS-P total scores, confirmed by an independent samples t-test $t(1,26) = .35, p = .73$.

The analysis of pre-SCAS-P scores suggested that two children in the experimental group did not meet the criteria for elevated anxiety according to SCAS-P total scores. However, the overall scores between the two groups is consistent with previous literature for a population of children with anxiety difficulties. In addition, there was no difference between the two groups for mean SCAS-P anxiety scores.

Table 7: Means and standard deviation for SCAS-P, including normative data for comparative purposes

	This Sample			Nauta, Scholing, Rapee, <i>et al.</i> (2004)	
	Overall Mean (SD)	TaU Mean (SD)	Exp. Mean (SD)	Normative Population Mean (SD)	Anxiety Disorder Mean (SD)
Total Score	34 (12.2)	33.2 (8.5)	34.9 (15.4)	11.8 (8.3)	30.1 (14.9)

Spence Children’s Anxiety Scale - Children’s Version (SCAS-C)

Total scores were generated from the participants’ responses to the questions on the SCAS-C. SCAS-C total scores above 33 are indicative of elevated feelings of anxiety (Spence, 2011). Using this criterion suggests that 13 children did not self-rate their anxiety in the elevated range, seven children in the experimental group and six in the TaU group.

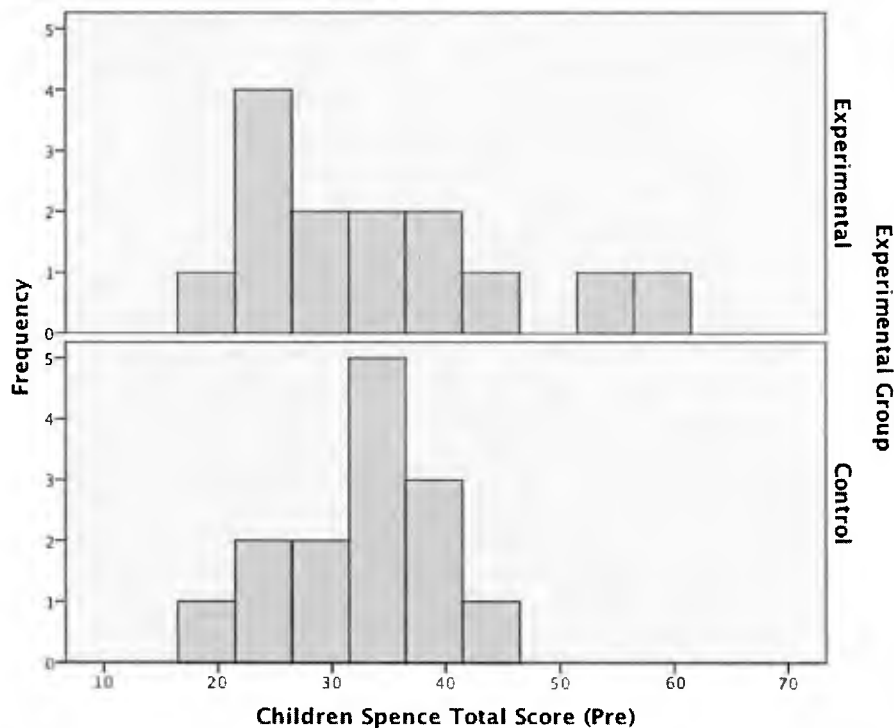
Histograms were developed showing the total scores between the two conditions (see Figure 6). The difference between mean scores for the experimental group (M 33.9; SD 11.4) and the TaU group (M 32.3; SD 7.1) suggests a mean score for both groups which is in the elevated range (see Table 7). An independent samples t-test between the two groups indicated no significant differences between the means $t(1,26) = .38, p = .71$.

The analysis suggested that children’s self-rated anxiety using the SCAS-C was not within the elevated range for 14 of the participants. However, mean scores of the two groups suggested that both groups are within the elevated range for anxiety difficulties. Comparisons made between the two groups suggested the mean scores for the TaU and experimental group are not significantly different from one another.

Table 8: Means and standard deviations for SCAS-C, including normative data for comparison purposes

	This Sample			Spence (online)
	Overall Mean (SD)	TaU Mean (SD)	Exp. Mean (SD)	Normative Sample
Total Score	33.3 (9.3)	32.6 (7.1)	33.9 (11.4)	21.1 (14.8)

Figure 6: Histogram of SCAS-C pre-intervention scores between experimental and TaU groups



Wechsler Abbreviated Scale of Intelligence (WASI)

The children's performance on the WASI tasks were converted into standardised scores (see Table 8).

Histograms were created to compare total, verbal and non-verbal ability scores between the TaU and experimental groups (see Figure 7). The appeared to be no difference in mean scores between the TaU group (M 106.6; SD 13.9) and the experimental group (M 97.7; SD 11.4), which was confirmed through an independent samples t-test $t(1,26) = -1.84, p = .07$; or the non-verbal reasoning score between the TaU group (M 106.9; SD 10.7) and the experimental group (M 104.9; SD 14.5), confirmed through an independent samples t-test $t(1,26) = -.43, p = .67$. However, mean scores between the experimental and TaU group suggested there may be a difference for verbal ability between the TaU group (M 105.7; SD 16.9) and the experimental group (M 90.8; SD 13.3), with the TaU group having a higher verbal reasoning score, which was confirmed with an independent samples t-test $t(1,26) = -2.598, p = .015$.

Table 9: Means, standard deviations and range of scores for experimental and TaU groups and overall total for WASI scores

		Mean	Standard Deviation	Range
Verbal Reasoning	Total	98.3	16.7	71-127
	Exp. Group	90.8	13.3	71-116
	TaU Group	105.7	16.9	72-127
Non-verbal Reasoning	Total	105.9	12.6	79-138
	Exp. Group	104.9	14.5	79-138
	TaU Group	106.9	10.7	91-135
Total Ability Score	Total	102.1	13.3	81-135
	Exp. Group	97.7	11.4	81-121
	TaU Group	106.6	13.9	83-135

Analysis of the WASI suggest the TaU and experimental group are comparable for the non-verbal reasoning score and their total ability score. However, a difference was observed between the TaU and experimental groups for verbal reasoning, with the TaU group having on average a higher score. It was thought this difference may have been present due to one of the schools in the TaU being a selective grammar school. This school could select pupils based on their performance on tests which aim to assess cognitive functioning. This would suggest that the difference in verbal reasoning between the two groups may need to be taken into account when analysing the outcome data.

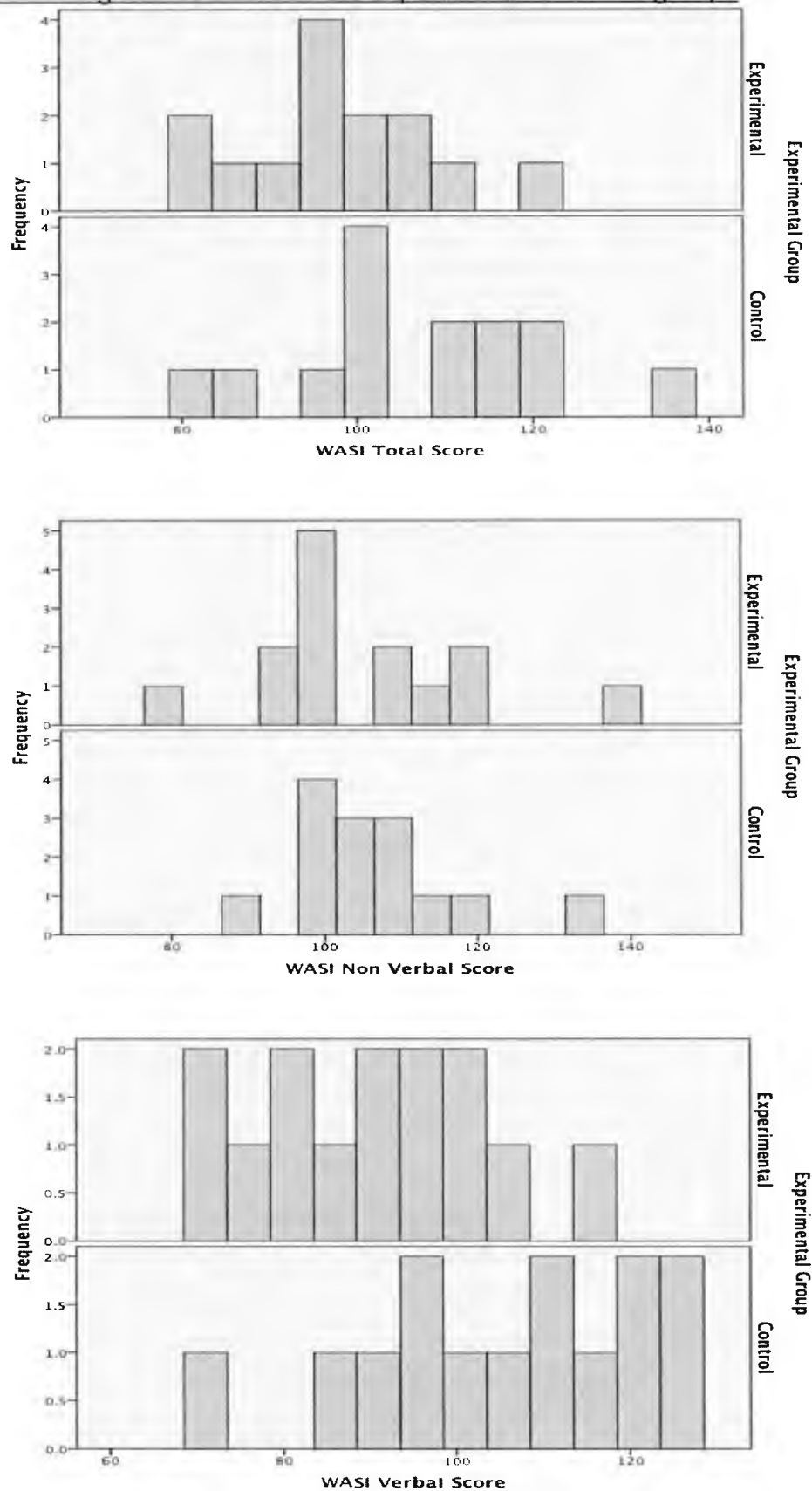
Coping Scale for Children and Youth (CSCY)

The completed CSCY were collected and scored. There is no total score for the CSCY scales. Therefore, each scale within the questionnaire was totaled. Table 9 shows comparisons of the scales to the normative sample collected by Brodzinsky, Elias, Steiger, *et al.* (1992).

A visual inspection of the scales suggest that the participants in this study are more likely to engage in cognitive avoidance, behavioural avoidance strategies and use assistance seeking coping behaviours than the standardisation sample (suggested by a mean score of at least one standard deviation from the normative sample mean). However, there seems to be no difference between the current sample and the normative sample for problem-solving coping behaviours.

Histograms were developed to help understand any differences which may exist between the TaU group and the experimental group on the four scales (see Figure 8). For the Cognitive Avoidance scale, the mean scores for the TaU (M 5.58; SD 3.4) and the experimental group (M 4.86; SD 2.74) did not appear significantly different from one another, which was confirmed with an independent samples t-test $t(1,26) = -.813, p = .42$. For the Behavioural Avoidance scales, mean scores for the TaU group (M 3; SD 2.54) and the experimental

Figure 7: Histograms of WASI total score, non-verbal and verbal reasoning scores between the experimental and TaU groups



group (M 3.79; SD 3.03) did not appear significantly different from one another, which was confirmed with an independent samples t-test $t(1,26) = .734, p = .47$. For the Assistance Seeking scale, the mean scores for the TaU group (M 2.21; SD 1.89) and experimental group (M 2.71; SD 2.46) did not appear to be significantly different from one another, which was confirmed with an independent sample t-test $t(1,26) = .603, p = .55$. For the Problem-Solving scale, mean scores for the TaU group (M 1.29; SD 1.36) and the experimental group (M .93; SD 1.14) did not appear to be significantly different from one another, which was confirmed with an independent samples t-test $t(1,26) = -.745, p = .46$.

Analysis of the four scales of the CSCY suggest that the participants in this study are more likely than the normative sample to engage with behavioural and cognitive avoidance strategies, rather than use problem-solving techniques, as a coping style when they experience a challenging situation. The analysis also suggested that the children in this study are more likely to use assistance seeking behaviours to help manage challenging situations. These coping behaviour styles were found to be consistent between both the TaU and the experimental groups.

Conclusions from Analysis of Characteristic Data

Overall, the base-line data suggests that the children who took part in this project were matched on a range of measures. Analysis of the data suggests that the children did not differ between the groups for severity of autism, for non-verbal or total cognitive ability scores, for self-rated or parent rated anxiety, or for coping behaviours. However, some differences were noted on one scale between the groups at pre-intervention which may have an impact of the analysis.

Figure 8: Histograms of the sub-scales of the CSCY between the experimental and TaU groups

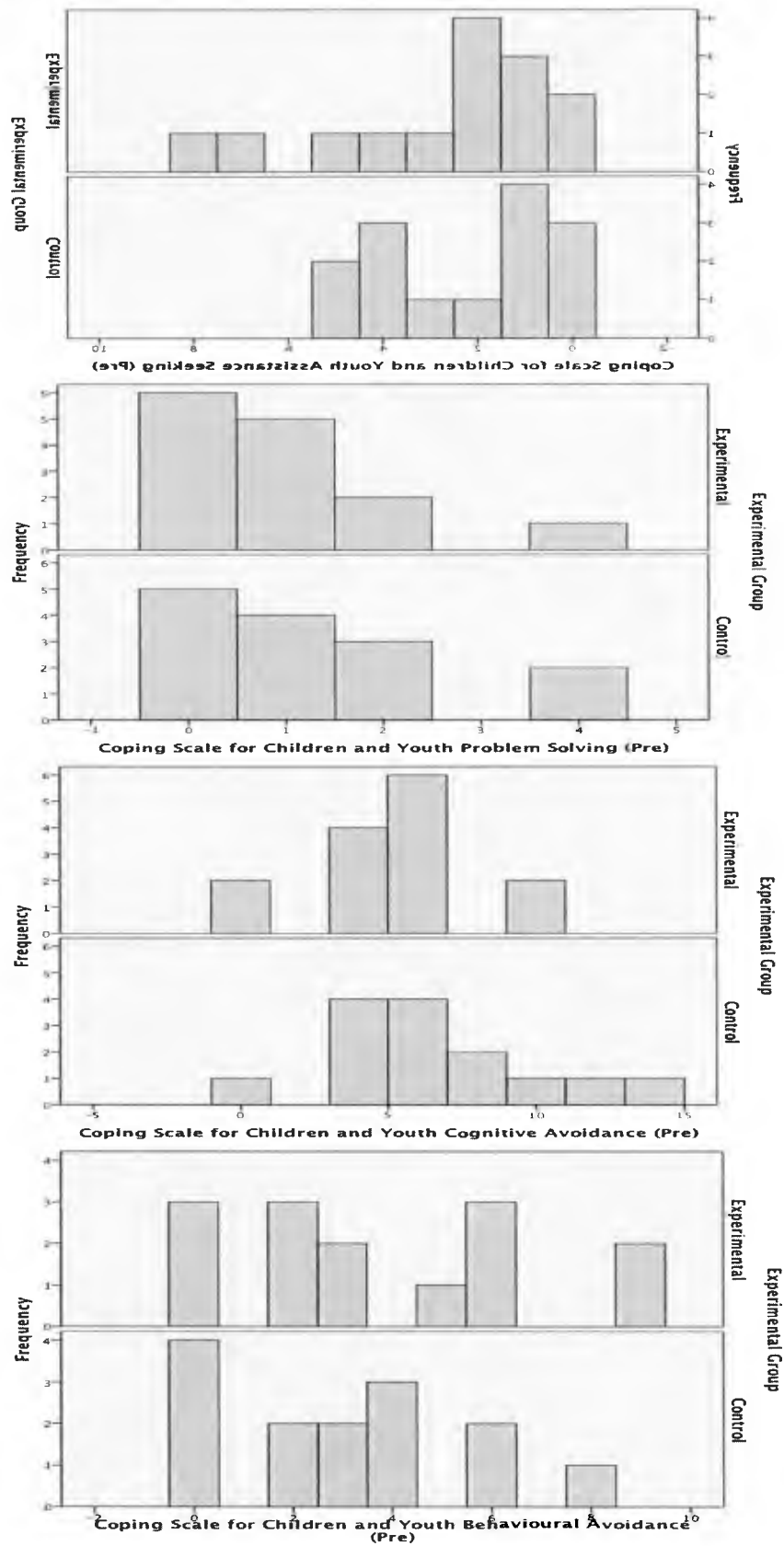


Table 10: Mean and standard deviations for CSCY, with normative sample for comparison purposes

		This Sample		Normative Sample	
		Mean	Stan. Dev.	Mean	Stan. Dev.
Cognitive Avoidance	Total	5.36	3.23	1.03	0.56
	Exp. Group	4.86	2.74		
	TaU Group	5.86	3.4		
Behavioural Avoidance	Total	3.39	2.81	0.74	0.54
	Exp. Group	3.79	3.03		
	TaU Group	3	2.54		
Assistance Seeking	Total	2.46	2.17	1.26	0.7
	Exp. Group	2.71	2.46		
	TaU Group	2.21	1.89		
Problem-Solving	Total	1.11	1.26	1.24	0.68
	Exp. Group	0.93	1.14		
	TaU Group	1.29	1.38		

The groups did differ for verbal reasoning, with the TaU group having higher scores than the experimental group. This was thought to be because one of the schools in the TaU group being a selective grammar school. However, because these children are in the TaU group and not the experimental group it would not affect comparisons between the groups. For example, lower anxiety in the experimental group would not be attributable to the differences in verbal reasoning between the two groups.

In addition to differences between the two groups on verbal reasoning there was also other issues which may affect the inferences which can be drawn from the data. Firstly, one child did not meet the cut-off for the likely presence of ASD, although the scores still suggested difficulties with social reciprocal behaviours in the moderate range. Another factor which may need to be

considered is the anxiety in some of the children. According to self-reports by the children only 14 had anxiety in the elevated range, while parent reports suggest 22 children had anxiety in the elevated range. This discrepancy will need to be taken into account when drawing inferences from the data.

4.3 Between Group Analysis

4.3.1 Between Group Difference on the SCAS-P at Post and Follow-up

A table was developed so that the pre-intervention SCAS-P means could be compared to the post- and follow-up means between the two groups (see Table 10)

Table 11: Pre- and post-intervention and follow-up for SCAS-P total anxiety scores, means and standard deviations

	Pre-Intervention		Post-Intervention		Follow-Up	
	TaU	Exp.	TaU	Exp.	TaU	Exp.
Mean	33.2	34.9	34.1	27.9	34	30.2
Stan. Dev.	8.5	15.4	8.4	9.6	8.9	11.2

Table 10 suggests that the SCAS-P scores for children in the TaU group were consistent between pre- (M 33.2; SD 8.5) and post-intervention (M 34.1; SD 8.4) and follow-up (M 43; SD 8.9). However, it seems that there was a reduction in anxiety scores for the experimental group between pre- (M 34.9; SD 15.4) and post-intervention (M 27.9; SD 9.6). Yet, at follow-up the SCAS-P scores seemed to increase (M 30.2; SD 11.2). This is reflected in elevated scores for anxiety, which is total anxiety scores of above 20, with 12 children in the experimental group and 14 in the TaU group reporting elevated scores of anxiety at pre-intervention, with 10 in the experimental and 14 in the TaU at post-intervention and 11 in the experimental and 14 in the TaU at follow-up (see table 11).

To look at this pattern of data in greater detail error bars were generated to show the means and the 95% confidence intervals of the SCAS-P scores at pre- and post-intervention and at follow-up between the two groups (see Figure 9).

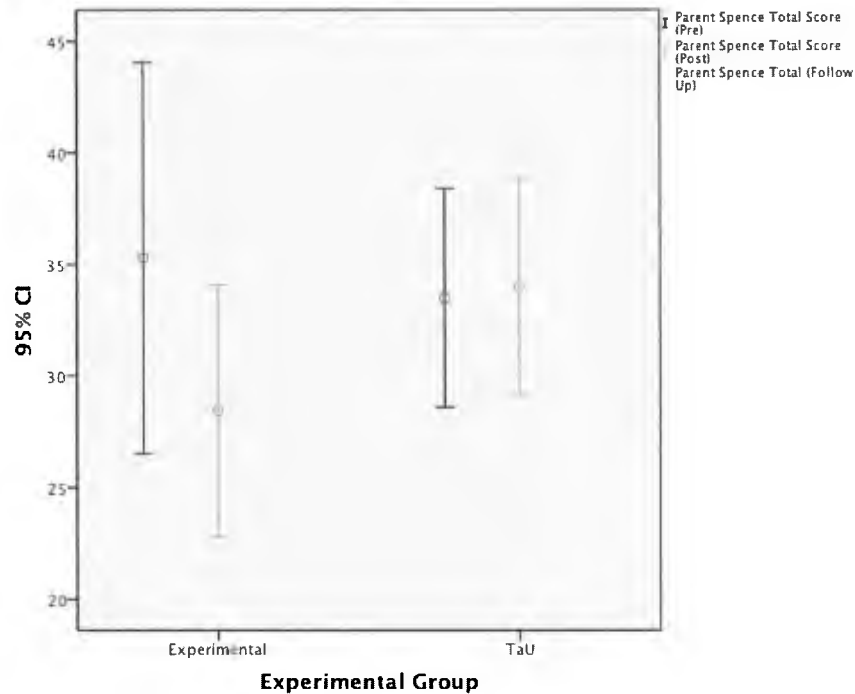
Table 12: Elevated anxiety scores between experimental and TaU at pre- and post-intervention and follow-up.

		Pre-intervention	Post-intervention	Follow-up
Elevated anxiety scores*	Exp. Grp	12	10	11
	TaU	14	14	14

* denoted by total anxiety scores of above 20

Figure 9 shows a visual representation of the data using error bars. This shows a pattern with little change for the TaU group; however, there seems to be a pattern of change for the experimental group, with post-intervention SCAS-P scores lower than SCAS-P pre-intervention scores. However, there seems to be a slight increase in follow-up scores from post-intervention scores, but the SCAS-P scores are lower at follow-up than at pre-intervention.

Figure 9: Error bars showing means and confidence intervals for SCAS-P pre- and post-intervention and follow-up scores between the experimental and TaU groups



In order to show whether or not the reductions in SCAS-P total anxiety scores were significant between the pre-intervention and post-intervention scores, I ran a one-way Analysis of Covariance (ANCOVA) with the pre-intervention SCAS-P scores as the covariate, post-intervention SCAS-P total anxiety scores as the dependent variable, with group (either TaU or experimental) as the fixed factor. The experimental group were found to have significantly lower SCAS-P total anxiety scores than the TaU group $F(2,24)= 28.3, p= .000, d= .69$. By replacing the dependent variable with follow-up scores, the experimental group were found to have significantly lower scores than the TaU condition $F(2,24)= 10.5, p= .003, d= .38$. Overall, the ANCOVAs and effect sizes support the conclusions from the tables and figures that at post-intervention children in the experimental group had lower SCAS-P total anxiety scores than at pre-intervention; however, SCAS-P increased slightly for the experimental group pre-intervention and follow-up, but was still significantly lower than at pre-intervention.

4.3.2 Between Group Difference on the SCAS-C at Post- intervention and Follow-up

A table was developed to look at the differences in the groups' means for the SCAS-C total anxiety score between the TaU and experimental group and between the pre- and post-intervention and at follow-up (see Table 12).

Table 13: Pre- and post-intervention and follow-up SCAS-C mean and standard deviation total anxiety scores

	Pre-Intervention		Post-Intervention		Follow-Up	
	TaU	Exp.	TaU	Exp.	TaU	Exp.
Mean	32.6	33.9	33.9	28.3	33.3	30.6
Stan. Dev.	7.1	11.4	6.4	9	6.1	10.5

Table 14: Elevated anxiety scores between experimental and TaU at pre- and post-intervention and follow-up.

		Pre-intervention	Post-intervention	Follow-up
Elevated anxiety scores*	Exp. Grp	7	3	5
	TaU	8	9	7

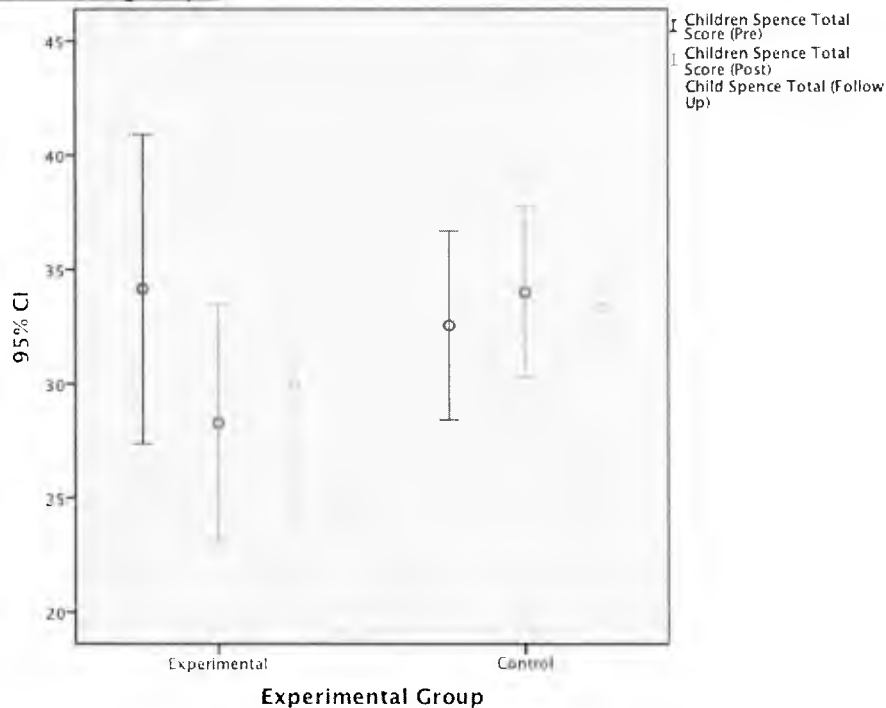
* denoted by total anxiety scores of above 33

Table 12 suggests that the mean SCAS-C total anxiety scores were consistent for the TaU condition at pre- (M 32.6; SD 7.1) and post-intervention (M 33.9; SD 6.4) and at follow-up (M 33.3; SD 6.1). However, the table suggests that the experimental group had lower self-reports of anxiety measured using the SCAS-C at post-intervention (M 28.3; SD 9) than at pre-intervention (M 33.9; SD 11.4), with SCAS-C scores increasing at follow-up (M 30.6; SD 10.5). This is reflected in elevated scores for anxiety, which is total anxiety scores of above 33, with seven children in the experimental group and eight in the TaU group reporting elevated scores of anxiety at pre-intervention, with three in the experimental and nine in the TaU at

post-intervention and five in the experimental and seven in the TaU at follow-up (see table 13).

To look at this pattern in greater detail I developed error bars to show the means and 95% confidence intervals for the SCAS-C between the TaU and experimental group, and between pre- and post-intervention and at follow-up. Figure 10 shows a visual representation of the change in SCAS-C total anxiety for the experimental group. This suggests, like the table, that compared to the children's pre-intervention scores, children in the experimental group had lower self-reports of anxiety at post-intervention and at follow-up, with mean SCAS-C total anxiety scores being higher at follow-up than at post-intervention.

Figure 10: Error bars showing means and confidence intervals for pre-, post-intervention and follow-up scores between experimental and TaU groups



To show whether or not the reductions in SCAS-C total anxiety scores were significant between the pre-intervention and post-intervention scores, I ran a one-way Analysis of Covariance (ANCOVA) with the pre-intervention SCAS-C scores as the covariate, post-intervention SCAS-C total anxiety scores as the dependent variable, with group (either TaU or experimental) as the

fixed factor. The experimental group was found to have significantly lower SCAS-C total anxiety scores than the TaU group $F(2,24)=54.8, p<.001, d=.72$. By replacing the dependent variable with follow-up scores, the experimental group was found to have significantly lower scores than the TaU condition $F(2,24)=13.9, p=.003, d=.31$. Overall, the ANCOVAs support the conclusions from the tables and figures that at post-intervention children in the experimental group had lower SCAS-P total anxiety scores at pre-intervention; however, SCAS-P increased for the experimental group at follow-up, but was still significantly lower than at pre-intervention.

4.3.3 Between Group Outcomes on the Coping Behaviours in Children and Youth

Table 14 shows the means and standard deviations of the different sub-scales of the Coping Behaviours for Children and Youth. This table has been developed to show the different means of scores at both pre- and post-intervention and at follow-up. They have also been split between the TaU and experimental group.

Preliminary analysis of the tables suggest the mean assistance seeking behaviours scores appear stable between the pre- and post-intervention, which was confirmed with a one-way ANCOVA with pre-intervention assistance seeking scores as the covariate, post-intervention score as the dependent variable and group as the independent variable, $F(2,25)=.47, p=.5, d=.33$. There was also no observable group differences between the pre-intervention scores and follow-up scores for the assistance seeking, which again was confirmed with an ANCOVA by substituting the dependent variable with follow-up scores $F(2,25)=.07, p=.79, d=.25$.

Table 15: CSCY mean and standard deviation scores between the experimental and TaU groups at pre- and post-intervention and at follow-up

			Mean	SD
CSCY - Assistance Seeking	Exp	Pre	2.71	2.46
		Post	2.71	1.38
		FU	2.43	1.6
	TaU	Pre	2.21	1.89
		Post	2.21	1.58
		FU	2.07	1.27
CSCY - Cog. Avo.	Exp	Pre	4.86	2.74
		Post	3.5	1.65
		FU	2.71	1.64
	TaU	Pre	5.86	3.7
		Post	5	2.96
		FU	5.07	3.1
CSCY - Beh. Avo.	Exp	Pre	3.79	3.1
		Post	2.71	1.49
		FU	2.21	1.72
	TaU	Pre	3	2.54
		Post	3.21	1.72
		FU	2.86	1.51
CSCY - Prob. Sol.	Exp	Pre	0.93	1.41
		Post	2.57	1.7
		FU	2.57	1.4
	TaU	Pre	1.29	1.38
		Post	1.14	1.23
		FU	1.36	1.01

The means for the cognitive avoidance scale on the CSCY suggest the experimental group appear to be lower between the pre- and post-intervention scores; however, the table also suggests that the TaU group also had lower scores on this scale at post-intervention. A one-way ANCOVA, with pre-intervention cognitive avoidance scores as the covariate, post-intervention cognitive avoidance scores as the dependent variable and group as the independent variable, suggests this result is not significant between the group $F(2,25)=2.84$, $p=.11$, $d=.63$. However, cognitive avoidance behaviours were lower for the experimental group than the TaU group at follow-up $F(2,25)=11.93$, $p=.00$, $d=.95$. This would suggest that children in the experimental group had lower cognitive avoidance scores at follow-up than at post-intervention for the experimental group.

The means for the behavioural avoidance scale of the CSCY suggest the experimental group appear to have lower scores between pre- and post-intervention compared to the TaU group. This observation was confirmed using a one-way ANCOVA, with pre-intervention behavioural avoidance scores used as the covariate, post-intervention behavioural avoidance scores as the dependent variable and group as the independent variable $F(2,25)=4.29$, $p=.05$, $d=.31$. This effect was maintained at follow-up $F(2,25)=8.71$, $p=.01$, $d=.40$. This would suggest that children in the experimental group engaged in less behavioural avoidance strategies at post-intervention and at follow-up than the treatment-as-usual condition.

The means for the problem-solving scale of the CSCY suggest the experimental group appear to have increasing scores between pre- and post-intervention compared to the TaU group. This observation was confirmed using a one-way ANCOVA, with pre-intervention problem-solving scores as the covariate, post-intervention problem-solving scores as the dependent variable and group as the independent variable $F(2,25)=9.21$, $p=.01$, $d=.96$. The means between the groups suggest this effect was maintained at follow-up, again confirmed using the one-way ANCOVA, but with the problem-

solving post-intervention score substituted with problem-solving follow-up scores, $F(2,25)=10.89$, $p=.00$, $d=.99$. This would suggest that the children in the experimental condition engaged in problem-solving as a coping behaviour more than the treatment-as-usual condition both at post-intervention and at follow-up.

4.3.4 Conclusion from Between Group SCAS-P, SCAS-C and CSCY Analysis

Both the SCAS-P and SCAS-C show that children in the experimental group had lower anxiety at post-intervention and follow-up than the TaU group. This shows that there is consistency between parent and self-report for reduced anxiety in the experimental group. While the results show that children in the experimental group had reduced anxiety compared to the TaU group at post-intervention the data does suggest that on average children's anxiety, both self-reports and parent reports, increased at six to eight week follow-up. This would suggest that while the intervention may have an effect on anxiety in the immediate short-term, these gains are not maintained at follow-up. The CSCY suggests that there were cognitive changes in the children's coping style in the experimental group. Children in the experimental group were less likely to use behavioural avoidance strategies and more likely to engage in problem-solving skills. While there were no immediate differences in cognitive avoidance strategies, the data suggests that differences emerged at six- to eight-week follow-up.

4.4 Within Participant Analysis

To look at the individual scores the children achieved on the SCAS-P/C a table showing the pre-, post- and follow-up scores of individual children between the treatment-as-usual group and the experimental group (Table 14 for SCAS-P, Table 15 for SCAS-C).

Table 14 suggest that children in the experimental group had lower SCAS-P total anxiety scores. For example, between pre- and post-intervention, 13 children out of 14 in the experimental group have

lower SCAS-P at post-intervention than at pre-intervention, compared to four children out of 14 in the TaU group. This suggests that more children in the experimental group showed reductions in their SCAS-P total anxiety score. However, at follow-up 10 children in the experimental group had lower total anxiety scores than their pre-intervention scores. This would further suggest that at follow-up there were some children whose reduced total anxiety scores were diminishing at follow-up.

Table 15 suggests that children in the experimental group had lower SCAS-C total anxiety scores. The difference between pre-intervention scores and post-intervention scores was lower for 13 children out of 14 in the experimental group, compared to three children out of 14 children in the TaU group. At follow-up 10 children in the experimental condition and six children in the TaU group showed lower SCAS-C total anxiety scores. Overall, this would seem to suggest that children's self-reported anxiety, measured through the SCAS-C, was lower at post-intervention than at pre-intervention; for some children, however, these gains were diminishing at follow-up.

To understand whether or not these changes in the SCAS-P/C scores could be considered clinically significant I used the Reliable Change Index (RCI). RCI aims to help understand meaningful change to the client for therapeutic intervention at an individual level, thus reducing the gap between clinical research and clinical practice (Bauer, Lambert and Nielsen, 2004). As such, RCI can show if clinical change has occurred which is not at a chance level or might be better explained by regression to the mean or developmental factors (Jacobsen, *et al.*, 1984). However, there are concerns about using the original RCI algorithm used by Jacobsen and Traux (1991)⁷ with the SCAS-P/C. For example, the SCAS-P total anxiety score

$$7 \frac{(X_{post} - X_{pre})}{\sqrt{2SE^2}}$$

has a Cronbach α of .89⁸ and the SCAS-C total anxiety score has a Cronbach α of .63⁹. This would suggest that the SCAS-C total anxiety scale may have a higher regression to the mean coefficient than SCAS-P, which needs to be taken into account in any algorithm which looks at clinical change between pre- and post-measures. Therefore, I decided to use the Gulliksen, Lord and Novick (Hsu, 1989) algorithm which takes into account the regression to the mean coefficient using the following formulae.

$$\frac{(X_{post}-M_{pre})-R_{xx}(X_{pre}-M_{pre})}{SD_{pre}\sqrt{1-R_{xx}^2}}$$

With individual SCAS – C/P scores represented with $X_{post/pre}$, mean of pre-intervention scores represented with M_{pre} , Cronbach α by R_{xx} and the pre-intervention Standard Deviation total anxiety scores represented by SD_{pre} . Using this algorithm scores below -1.96 and above 1.96 suggest a high probability of clinically significant change

Table 14 suggests that of the parent report three children met the confidence level for clinically significant change in their total anxiety scores, with none meeting the criteria from the TaU group. However, only one of the children in the experimental condition and none in the treatment-as-usual condition met the criteria at follow-up.

Table 15 suggests that none of the children in the experimental condition met the criteria for a probability of clinical change between anxiety scores either between pre- and post-intervention, or for pre- and follow-up anxiety scores. The scores also suggest that parents' reports of clinical change in their children's total anxiety score were not reflected in the self-reports of children.

⁸ Nauta, Scholing, Rapee, *et al.* (2003)

⁹ Spence, Barrett and Turner (2003)

Table 13: Individual pre- and post-intervention and follow-up SCAS-P total anxiety scores with RCI change.indr

Participant	Group	Pre SCAS-P (T1)	Post SCAS-P (T2)	FU SCAS-P (T3)	T2-T1	RCI (T2-T1)	T3-T1	RCI (T3-T1)
1	Experimental	50	34	38	-16	-2.56	-12	-1.84
2	Experimental	29	23	26	-6	-1.18	-3	-0.64
3	Experimental	24	20	23	-4	-0.92	-1	-0.38
4	Experimental	19	15	15	-4	-1.01	-4	-1.01
5	Experimental	21	17	17	-4	-0.98	-4	-0.98
6	Experimental	55	43	43	-12	-1.74	-12	-1.74
7	Experimental	61	44	52	-17	-2.52	-9	-1.08
8	Experimental	39	31	32	-8	-1.34	-7	-1.16
9	Experimental	15	19	18	4	0.34	3	0.16
10	Experimental	23	21	24	-2	-0.58	1	-0.04
11	Experimental	41	36	41	-5	-0.76	0	0.13
12	Experimental	56	37	40	-19	-2.98	-16	-2.44
13	Experimental	24	23	24	-1	-0.38	0	-0.2
14	Experimental	31	27	30	-4	-0.78	-1	-0.24
	Exp Mean	34.86	27.96	30.21				
15	TaU	43	36	33	-7	-1.08	-10	-1.62
16	TaU	47	47	49	0	0.26	2	0.62
17	TaU	45	44	46	-1	0.04	1	0.4
18	TaU	22	22	23	0	-0.24	1	-0.06
19	TaU	33	39	34	6	1.06	1	0.16
20	TaU	24	26	26	2	0.16	2	0.16
21	TaU	42	42	43	0	0.16	1	0.34
22	TaU	28	25	25	-3	-0.66	-3	-0.66
23	TaU	27	32	36	5	0.76	9	1.48
24	TaU	38	39	42	1	0.26	4	0.8
25	TaU	27	25	26	-2	-0.5	-1	-0.32
26	TaU	34	42	40	8	1.46	6	1.07
27	TaU	24	24	22	0	-0.2	-2	-0.58
28	TaU	31	34	31	3	0.49	0	-0.06
	TaU Mean	33.21	34.07	34				
	Grand Mean	34.04	30.96	32.11				

Table 14: Individual pre- and post-intervention and follow-up SCAS-C total anxiety scores and RCI change index

Participant	Group	Pre SCAS-C (T1)	Post SCAS-C (T2)	FU SCAS-C (T3)	T2-T1	RCI (T2-T1)	T3-T1	RCI (T3-T1)
1	Experimental	42	34	37	-8	-0.85	-5	-0.31
2	Experimental	39	30	34	-9	-1.23	-5	-0.51
3	Experimental	26	19	18	-7	-1.73	-8	-1.91
4	Experimental	29	26	29	-3	-0.82	0	-0.28
5	Experimental	35	29	29	-6	-0.96	-6	-0.96
6	Experimental	61	46	50	-15	-0.85	-11	-0.13
7	Experimental	50	45	51	-5	0.21	1	1.28
8	Experimental	28	23	24	-5	-1.24	-4	-1.06
9	Experimental	26	19	23	-7	-1.73	-3	-1.01
10	Experimental	24	18	24	-6	-1.68	0	-0.61
11	Experimental	32	31	32	-1	-0.26	0	-0.08
12	Experimental	39	32	37	-7	-0.87	-2	0.02
13	Experimental	21	20	19	-1	-0.99	-2	-1.17
14	Experimental	23	24	21	1	-0.5	-2	-1.03
	Exp Mean	33.93	28.29	30.57				
15	TaU	38	40	37	2	0.67	-1	0.14
16	TaU	36	38	36	2	0.54	0	0.18
17	TaU	46	45	43	-1	0.66	-3	0.31
18	TaU	19	24	20	5	-0.05	1	-0.76
19	TaU	37	38	37	1	0.43	0	0.25
20	TaU	32	33	31	1	0.1	-1	-0.26
21	TaU	39	42	43	3	0.92	4	1.09
22	TaU	34	34	32	0	0.05	-2	-0.31
23	TaU	33	34	32	1	0.16	-1	-0.2
24	TaU	36	34	35	-2	-0.18	-1	0
25	TaU	25	24	27	-1	-0.73	2	-0.19
26	TaU	28	31	33	3	0.19	5	0.56
27	TaU	23	26	28	3	-0.14	5	0.22
28	TaU	30	32	32	2	0.14	2	0.14
	TaU Mean	32.57	33.93	33.29				
	Grand Mean	33.25	31.11	31.93				

Within participant score changes suggest more children in the experimental group had lower anxiety scores at post-intervention than at pre-intervention than the TaU group. This was found for both the SCAS-P and SCAS-C. These gains appeared to be maintained at follow-up. However, clinical change, which can be understood through changes in anxiety scores and regression to the mean, suggest these scores may not be at a clinical level. For parent reported anxiety, three children met the criteria for clinical change at post-intervention, with only one at follow-up. For self-reported anxiety, none of the children had clinically significant levels of change in their anxiety at post-intervention or follow-up. Overall, this would suggest that while children reported lower anxiety at post-intervention and follow-up this was not at a clinical level for many children.

4.5 Parent Interview Themes

The parent interviews were transcribed as outlined in the methodology section. Braun and Clarke's (2006) six-stage process of Thematic Analysis was used to draw themes from the data (see Appendix 8 for transcribed parent interview). Themes were developed in collaboration with my supervisor, a professional supervisor on the doctoral training course. This process involved meetings where codes were developed for the interview transcripts, these were grouped and placed into sub-themes. Logic was then applied to the development of themes to help conceptualise the data, with five one hour meetings organized in total.

In total nine parents were interviewed at pre- and post-intervention, four parents from the TaU group and five parents from the experimental group. Table 16 shows the 10 themes which were developed from these interviews.

Table 18: Themes developed from parent pre- and post-interviews

Theme No	Theme	No of parents	No of quotes
1	Lack of post-diagnostic support	4	5
2	Child's anxiety responses are dynamic	3	4
3	Contextual influences maintain behaviour	3	3
4	Learning to manage behaviour	4	4
5	Social stigma	3	4
6	Challenging social and emotional needs	7	11
7	Tensions between home and school	4	6
8	Difficulties with social relationships and challenges in maintaining them	3	4
9	The right to be different	4	5
10	Inadequate communication with parents about school based interventions	6	9

Theme 1: Lack of post-diagnostic support

This theme conceptualises the parents' feelings of isolation after their child was diagnosed with ASD. In particular, it reflects how some parents felt unsupported by professionals and services once their child had been diagnosed. This theme also reflects how the parents thought they would like support within the home and community environment especially regarding challenging behaviours which may not have been observed in other settings, such as schools.

Theme 1: Lack of post diagnostic support			
Sub themes	Int No	Int Line	Quote
Parents feeling unsupported after diagnosis	3	38	I mean we were never told where we could go or who we could speak to
	4	11 2	All we were given was a report that said ASD on it nothing else
	3	12	It would be nice to speak to someone about it. We were sent to this clinic then told here's what's wrong
Difficulty accessing support for difficulties at home	8	56	The school, bless them, helped him but it was at home he had difficulty, we got no help here
	2	23	It would have been nice for someone to come to our house and tell us what we were doing right and wrong

Theme 2: Child's anxiety responses are dynamic

This theme reflects how some parents understood their children's anxiety to be dynamic, in that as soon as one source is addressed another arises. Some parents thought that anxiety is a stable trait in their children. One parent thought their child needed to develop their own strategies to manage their anxiety due to its ever-changing nature.

Theme 2: Child's Anxiety responses are Dynamic			
Subtheme	Int. No	Int. Line	Quote
Child's anxiety is constantly changing	5	107	He works hard at one thing but then it just, kinda, shifts to something else
	2	43	The thing is that it's always there it just moves from one thing to another
Anxiety is always present	8	52	It's the way he is. I mean we can help him with some things like being anxious around people and stuff, but if it's not one thing then it's just another really

Theme 2: Child's Anxiety responses are Dynamic			
Subtheme	Int. No	Int. Line	Quote
Parent thinks child should learn to deal with feelings independently	5	75	It just changes, if it's not one thing it's another and it gets tiring after a while, just let him deal with it is what I think sometimes

Theme 3: Contextual influences maintain behaviours

This theme encapsulates how the parents thought attempts by their child to change their behaviours were not always supported within some of their immediate contexts, for example, some parents reflected how there are no opportunities for the child to change their embedded behaviours. Two parents reflected on how the perception of their child within their community influences their ability to change their behaviour. For example, one parent talked about how their child has developed a reputation over time and that attempts to change behaviours were influenced by others expectations.

Theme 3: Contextual Influences maintain behaviours			
Subtheme	Int. No	Int. Line	Quote
Changes in child's behaviours not support by an unchanged context	6	45	We've tried doing things in the past and they never work but sometimes there's no opportunity for him to change
Child's behaviours maintained by community perceptions and expectations	2	105	You can tell he tries to do things differently, but, well, everyone behaves the same, it seems like he can't change
	7	27	He has this reputation. Like he has done things in the past that have got him into a lot of trouble. But, I do see he sometimes tries to change but it never works because he has this reputation and that's what's really hard to change

Theme 4: Learning to manage anxiety

This theme emerges from the parents whose children took part in the intervention. It reflects how some of the parents were aware of changes in their child's behaviours. This change takes two forms. Firstly, the parents seemed to be aware of their children putting more

thought into how they were interpreting their environment, which, in turn, affected the way they behave. Secondly, one parent reflected on how their child's behaviour had become better over the period of the intervention, but there was still an awareness of the slow rate of progress in changing these behaviours.

Theme 4: Learning to Manage Anxiety			
Code	Int. No	Int. Line	Quote
Evidence of child engaging in increased thought and managing emotional responses	7	62	You can tell he tries to think things through a bit more, err, logically in his head but he still finds it difficult to do. I mean things just don't work like that
	6	75	The moment of calm before the storm has increased, which is a good thing, because it shows that at least he's thinking about things in a bit more detail rather than just reacting
	5	156	It's the changes he really can't cope with but you can tell he's trying to cope with it
Behaviour issues more controlled since intervention	8	66	Well his behaviour has got better, there's less outbursts but these things don't happen in a day, do they.

Theme 5: Social stigma

This theme reflects how parents perceived the social stigma of their child influences their interaction within the community. This theme reflects how some parents thought that the community judges the parents negatively, based on their child's behaviours. This can make engaging with the community a stressful experience, and can influence the social contact the autistic child experiences.

Theme 5: Social Stigma			
Subthemes	Int. No	Int. Line	Quote
Unpredictability of behaviour influences social contact	5	55	I mean it can be worrying for me because we don't know how he's going to behave
Community reactions to	2	143	He just goes off on one and people can give us funny looks

Theme 5: Social Stigma			
Subthemes	Int. No	Int. Line	Quote
behaviours are a stress for parents	7	24	It can be embarrassing if he behaves really strange
	5	74	It's difficult taking him out sometimes because if it's not something he wants to do he gets a really big sulk and he lets everyone know about it

Theme 6: Challenging social and emotional needs

This theme conceptualises how the parents have an awareness of the way their child interacts with and understands their environment. For some parents this understanding meant they were aware of the confusion that emotions present for their child. In particular, two parents reflected on how they were more aware of the level of anxiety in their child as a result of filling in the SCAS questionnaire, and how anxiety could be confused with anger by parents. Another sub theme which the parents reflected on was the difficulty their children had communicating their feelings, which can make it difficult for those around them to help manage these emotions. There was also, for some parents, an increasing awareness that their child interprets the environment differently from their peers and the consequent uncertainty they have when they interact with their environment and the difficulties that this poses in managing their child's responses to a diverse range of challenges. A number of parents highlighted the influences of puberty as presenting a fresh set of challenges as their son's interest in females and romantic relationships has increased.

Theme 6: Challenging social and emotional needs			
Subthemes	Int. No	Int. Line	Quote
Awareness that child thinks differently to peers	3	123	What I was told was that it's logic. He's really logical but life isn't and that's what causes the difficulties

Emotional responses are exaggerated	5	86	When he loses, sorry, can't find things he can really go off on one. It takes ages to calm him down
Uncertainty in how to respond fuels anxiety	6	65	Like he doesn't know what to do and you can see the changes in his face
Difficulty communicating emotions	2	56	We try to find out what makes him worried but he never wants to speak about it he just stays in his room
	9	77	He can just go and well, we never know why because he never tells us really
Difficulty developing strategies to cope with changes at home	7	105	We tried to put in all these lovely things at home like timetables and stuff like that, but they don't last and he never looks at them. But if something changes in his day which he's not aware of then that can really make him upset
	3	115	I mean we only changed the colour of the kitchen. When he saw it he came in and he really went off on one, shouting and stuff it was really horrible
New Challenges posed by puberty	7	20	He's getting interested, in, err, girls now
	9	36	Around girls he's clueless. He's clueless but becoming interested
Understanding that difficult behaviours reflect anxiety rather than anger	4	54	It was the questionnaire you gave us that really made us understand just how anxious he is about things. I mean we were.... 'always,' 'always,' 'always' all the way through
	7	43	I thought it was anger, but the more you speak about it the more I realise its anxiety

Theme 7: Tensions between home and school

This theme reflects the concern some parents expressed about home and school communication. Some parents were unhappy with the way the school managed their child's emotions, or how difficult days at school can also have a consequence for the child's behaviour at home. Some parents also reflected on how they are pressured by the school to change their child's behaviour. For example, three parents reflected on how school tries to and

pressurise the parent to manage their child's behaviour better without offering solutions to manage this behaviour.

Theme 7: Tensions between home and school			
Subtheme	Int. No	Int. Line	Quote
Problems at school affect life at home	7	213	We know he's anxious but the school do nothing about it. They just want him to get on with things
	3	99	He comes home, slams the door and sits down and turns the TV on. That's when I know he's had a bad day
	4	98	The school keep saying 'this must change,' 'we need to change this' and 'you must change that' without ever really saying how
Parents feel unsupported by and under pressure from school	7	73	School tried to put it all on us. He's not too bad at home but at school he seems to have difficulty, they can't manage him sometimes and try and blame me
	4	105	We're not perfect and no one is. I try and put things in place but the school are always wanting us to do more you know. I mean I have to balance it somehow I need to enjoy his time at home otherwise his time here becomes a chore as well
	2	143	I used to get on with the school but things changed when this new head teacher came in and he never had a place to go when he felt upset. Then they expel him and I get into trouble

Theme 8: Difficulties with social relationships and challenges maintaining them

The difficulties children with ASD have with social relationships and maintaining them warranted a separate theme . Some parents perceived their children to have difficulty coping with setbacks they may experience when they try to develop social relationships, others experienced difficulty negotiating the intricate nature of peer interactions and friendships. A significant sub-theme reflected the parent's increasing awareness of their son's interest in the opposite

sex. Parents were aware of the changing nature of social friendships for their children, and the new demands posed by progressing beyond friendships to attraction based relationships.

Theme 8: Difficulties with social relationships and challenges in maintaining them			
Code	Int. No	Int. Line	Quote
Problems coping with challenges in relationships	6	25	He does try. But he really doesn't cope with set-backs very well so if something happens with a friend it stays in his mind for ever
	2	53	I mean he's not graced with the best social err graces, but bless him he does try and when it works, it works, and when it doesn't well everyone knows about it
The challenges of negotiating relationships with the opposite sex	7	79	It's something we've noticed over the last year or so. I think the difficulty with friends could actually be a difficulty with the opposite sex shall we say I mean he is a teenage boy
	6	132	We thought it was just friends he was having difficulty but now he's asking about girls a lot more, specific girls, so I think there is an interest developing there

Theme 9: The right to be different

This theme captures ethical considerations that parent's raised about the pressures faced by their children from different sources to comply with social norms. Some parents were aware that their child had no real interest in developing or maintaining peer interactions. However, these children were being placed into social skills groups, which aim to try and teach social interaction skills. Whilst these are important life skills and teaching young people with autism how to interact with others is laudable, putting them under pressure to develop friendship patterns that are typical of their non-autistic peers, against their wishes was seen to deny both their personal preferences and the right to be different.

Theme 9: The right to be different			
Subtheme	Int. No	Int. Line	Quote
Child under pressure to build friendships despite preference for solitude	7	58	Like, well he shows no real, I mean we never know what's really going on, but he never seems to show any real concern about being alone,
	1	119	I know having friends is important but he just gets on with life and I say just leave him to it
	6	57	It's like all these things that happen. I mean he's doing okay at school and he's getting good grades. That's how he identifies himself, not as someone with friends
Imposing social norms on the ASD child without taking their views into account	1	60	The school they try and do all these things with him but sometimes you have to ask does he really want them
	2	84	I have to ask myself sometimes if he wants to change from the way he is. He's always been like that and it's the way he's got used to himself. Should we try these things to change it all the time, I really don't know

Theme 10: Inadequate communication with parents about school based interventions

This theme highlights how parents, who feel they have little post diagnostic support, would value more involvement in both planning which interventions are suitable for their child, and being involved in the implementation of suitable interventions. Some parents felt that they would value learning the techniques being used in order to draw on them in the home context. They felt somewhat excluded from most interventions and unsure about their purposes or outcomes.

Theme 10: Inadequate communication with parents about school based interventions			
Subtheme	Int. No	Int. Line	Quote
Parents feel excluded from school based	1	34	It would be nice to know what you were doing with him and what I could do at home

interventions	4	84	It's like those groups that the school put him on ... I mean we never have a clue what goes on in them, do we
	8	40	There are loads of things that people try with him and it would be nice to know what we could do as his mum and dad
	7	32	Just knowing what people are doing would be a nice thing to have.
	8	72	It would be nice to know just what these things are for exactly
	9	63	He goes on all these things and we never know what they are for or how he has been getting on
The need for agreed aims as the basis for interventions and joint evaluation of outcomes	8	61	I have knowledge of all this stuff and sometimes I just have to ask what are the outcomes from all these things
	7	49	What is it all for, what do they want from all this? I have no idea?
	6	39	Just thinking about or everyone sitting down to say what we want T. to achieve rather than just people coming up to me saying we'll put him in that group and this group.

4.6 Child Interview Themes

The parent interviews were transcribed as outlined in the methodology section. Braun and Clarke's (2006) six-stage process of Thematic Analysis was used to draw themes and sub themes from the data (see Appendix 7 for transcribed child interview). Themes were developed in collaboration with my professional supervisor. This process involved creating sub-themes and using logic to develop themes which conceptualise the child's interview data.

In total nine children were interviewed at pre- and post-intervention, four children from the TaU group and five children from the experimental group. Table 17 shows the four themes that were developed from these interviews.

Table 19: Themes developed from child pre- and post-interviews

Theme No	Theme	No of children	No of quotes
1	Changes in thought process influence behaviour	4	12
2	Learning to process complex emotion	8	19
3	Pressure to conform to typical social norms	4	13
4	The influence of the physical environment and social context on engagement in the therapeutic process.	4	11

Theme 1: Changes in thought process influence behaviour

This theme encapsulates the changes in thought process of the four children from the experimental group who took part in the CBT. It represents how the children reflected on the differences in their thought processes post intervention. The children reflect on slowing down their responses to consider wider variables and alternatives responses. They also describe using internalized narratives to reinterpret their environment. There was one child who also described how he had altered his thought patterns to help change his behavior and another who reported using an evidence-based approach to challenge his anxious thoughts about situations.

Theme 1: Changes in thought process influences behaviour			
Subtheme	Int. No	Int. Line	Quotation
Increase in thought processing	9	77	I just kinda thought to myself well I thought that perhaps it won't be that bad
	9	98	I think I just thought about it a bit more. I mean I just sat there and thought well I'm just doing something that I've been asked to do
	8	163	It makes me just stop and think uh it makes me think of other things

	9	116	I think well it just led me to think err hang on what is there to be worried about really I mean well I just thought about it a bit more
	1	181	I knew I hadn't done anything wrong so I thought I might not have been in trouble
	9	184	Sometimes you get worried about things and I think well is this stupid or what
Using personal narratives to change thoughts and behaviour	8	40	Well I think of a story in my head and I try to remember bits of that story to try and stop me worrying about it.
	8	43	In my story I think about a person who does things he likes to do on the playground so he doesn't worry about being pushed around
Changing thoughts to change behaviour	7	31	I can change my thoughts and that will change the way I behave
	7	54	I think that maybe I just said something funny instead
Developing evidence based thinking	8	48	Well it makes me think that I have only ever been pushed around on the playground a couple of times and I think those were by accident. So it helps me to stop being worried by it all the time.

Theme 2: Learning to Process Complex Emotion

This theme reflects how the children are learning to process and manage complex emotions. One child discussed strategies they used to link their physiological reactions to their thoughts. Four children reflected on how they better understood the causes of their anxiety. Two children reflected on the difficulties they have recognising emotions in themselves and others and finding support in the fact that other children felt the same emotions. Within this context, however, was awareness, expressed by two children, of the difficulties they experience in managing strong emotions when they arose. There was also evidence of awareness that some children found it difficult to differentiate anxiety and anger, with one often being confused with the other.

Theme 2: Learning to Process Complex Emotion

Sub Theme	Int. No	Int. Line	Quotation
Learning to link physiology and thoughts	9	73	I had that funny feeling in my stomach like what we talked about and well I knew that was because I was feeling slightly nervous about it
	9	105	I got those funny feelings like in my stomach and I don't know I just suppose I managed to ignore it
Recognising sources of personal anxiety	2	183	Yeah I feel anxious all the time I worry about things all the time like I worry in class I'm not going to understand something
	3	119	but I'm also worried that there is something wrong with me and that he going to tell me I need an operation
	3	50	If the bus was late it might mean I miss the bus to take me swimming
	9	154	I was worried what other people would think of me I was worried about what parts I would have if I had any and I was worried that they might not want me
	1	130	I get I dunno I just get worried that I'm going to lose
Making sense of emotions in self and others	9	212	Perhaps they're all the same thing. All these feelings kinda one thing we just react differently
	6	45	It makes you think that well other people have the same feelings and stuff and like its good to know that's its not just me
Differentiating anger and anxiety	9	195	Sometimes people seem to get angry when they feel worried about something
	9	201	I used to get angry about things sometimes but I don't know if it's because I worry about things or not
	7	104	I know when I feel anxious and I think that's helped because I can sit there or if I get angry about something I sit and think oh am I angry or is it anxiety
	7	108	When I think about it all the feelings are the same and you once said anxiety can be a bit like anger and makes you sort of explode sometimes

Developing emotional self awareness	4	110	So how would you know if you have these feelings then...
	6	27	So it's like it's being really panicky about something
Problems managing strong emotions	5	101	Well people just keep calling me names and things and they make fun of me and well it just winds me up so I get angry and when I get angry I find it difficult to stop what I'm doing
	5	54	Yes I get angry because I get picked on all the time
	1	66	Sometimes I find it difficult to control my temper and I can get frustrated
	5	55	I just get so angry that well I just get into a frenzy

Theme 3: Pressure to conform to typical social norms

This theme encapsulates the reflections of the children about the pressure they are under to conform to normative social expectations. For example, there was a sense of confusion in one child as to their preference for social contact or isolation; for two, there appeared to be a preference for social isolation. Two children reflected on the difficulty they have interacting with others, with some finding their peers' perceptions of their behaviour posing a difficulty, with others finding it difficult to regulate their emotional reactions to frustration from peers. There was also a sense, from two children, of the pressure they feel under to conform to expectations from parents and teachers about the value of friendship groups.

Theme 3: Pressure to conform to typical social norms			
Subthemes	Int. No	Int. Line	Quotation
Preference for social isolation	2	112	I don't want to be with other people
	2	88	I have no friends anyway so it really doesn't matter
Desire for friendship	2	134	It never works and it makes me cross I don't want to be on my own I want friends I want people to come round to my house but I just can't do it
	6	106	Lonely I suppose, I mean I like being around people, you know I do try and well get to know people but well

			its just very difficult to do it
	2	120	Of course I would who doesn't, I don't like being on my own, I don't like spending my time in the library every time or sitting in the form room
Finding others hard to interact with	4	50	Yeah, scary with all those people and then I had to talk about what was said to me
	2	65	People still frustrate me and I still get angry
	2	42	Well I still don't get along with most people at this school they still think I'm crazy
	2	65	People still frustrate me and I still get angry
Feeling under scrutiny and pressure to confirm to typical friendship patterns	4	37	Well my parents come in and speak to some of the teachers and they keep asking me if I have friends and stuff
	4	63	I said I have friends, not at this school but I have friends, and I can have fun with them I just don't have many friends at this school that's all and everyone keeps going on about it
	4	40	I have what I need, I have friends and stuff but they well, I keep on being asked about it all the time
	5	62	She gets phone calls everyday
	5	70	Sometimes the school makes things seem worse than they are when they phone my mum

Theme 4: The influence of the physical environment and social context engagement on engagement in the therapeutic process

The children who were part of the intervention reflected on the physical environment in which the CBT project took place and group dynamics, they talked about how these posed challenges for them in their engagement with the therapeutic process. Two children reflected on the physical environment, the small, dark and cramped rooms, acted as a barrier to their engagement. Four children also reflected on the influence of group dynamics in their engagement with the therapeutic process, with one child believing there were too many children in the group, some finding it difficult to wait their turn

for activities, and others feeling anxious about how the others would perceive their intimate thoughts.

Theme 4: The influence of the physical environment and social context engagement on engagement in the therapeutic process.			
Subtheme	Int. No.	Int. Line	Quotation
Physical Environment and Space	1	63	There were six of us in that small room and I didn't really like it that much
	6	99	Yeah it was a small and dark room the ones where we go for the social groups are bigger
	1	295	Yeah the one we were in was really small and it felt cramped in there. I didn't like that all that much
Group Dynamics	1	111	There was a lot of sitting around sometimes waiting for you to come to me, and then some of the kids wouldn't shut up
	1	245	I remember well sometimes it felt like we just sat there. It was boring listening to the other people all the time.
	7	83	I mean some in there didn't get along well and spent the whole time trying to get each others nerves and that well that kept distracting me all the time
	8	148	When we had to do the writing everyone was quiet so it was easy to concentrate
	6	96	I think perhaps there were too many people
	6	60	Waiting around well sometimes it was uncomfortable, like people were saying things and if I had drawn something stupid the others might of laughed at me
	7	77	I suppose the other people in the groups were really annoying
	6	51	And then we each talked about our pictures and it got a bit err well it got a bit boring waiting for the others

4.7 Chapter Summary / Conclusions

This chapter started by analyzing the characterizations and pre-intervention outcome data to investigate any differences between the groups. No difference was found except for verbal reasoning on the WASI. With children in the TaU group having a higher mean score. It was assumed that this would not affect the inferences that could be drawn from the data because it would not suggest a level of higher cognitive engagement in the experimental group.

Between group analyses of the children and parent anxiety scales suggest children in the experimental group had lower total anxiety scores at post-intervention and at follow-up, which within participant analysis suggested was not at a clinical level for many children. Analysis of the Coping Behaviours in Children and Youth showed children in the experimental group were more likely to use problem-solving skills and less likely to use behavioural avoidance strategies. These behaviours were maintained at follow-up, when children were also less likely to use cognitive avoidance strategies.

Themes developed from the thematic Analysis of the parent interview data suggests that parents felt unsupported in meeting their child's needs post-diagnosis with no access to support services or resources. Emergent themes suggest parents were aware their children were trying to manage their behaviours post-intervention, but there were barriers to this, such as the community's expectations of behaviours, the development of romantic relationships, and a difficulty with understanding complex emotions. Parents also discussed their concerns that they were not involved in the decision making process and interventions were targeting behaviours seen in the school context, ignoring concerns from home. Additional concerns were imposing social norms on children who may not want to conform to social expectations.

Child interviews suggest CBT was successful in changing thought processes, with some children slowing down their thought processes and using taught strategies to assess and respond to their environment. Within this, were themes which suggest homogenous views about the role and preference of friendships between the children, but felt the pressure to conform to social expectations. Interview data highlighted barriers to the therapeutic environment, such as physical space and group dynamics.

Chapter 5: Discussion

5.1 Chapter Introduction

This chapter will discuss how the data relates to the research questions and, in turn, to the educational psychology profession. Thus it considers, in light of the data, whether a brief school-based CBT programme can help children with ASD to manage their anxiety and whether this can be generalised to the child's wider environment. To do this I will first relate the data to the sub-research questions. Then, when the sub-research questions have been answered, I will use these to answer the main research question and consider the relevance of this evidence to the current literature on the subject.

I will then provide an overview of the relevance of the research to the educational psychology profession. In particular, I will describe how this research may have implications for Educational Psychologists who want to deliver Cognitive Behavioural Approaches in school with children with a diagnosis of ASD.

Lastly, this chapter will consider the methodological strengths and weaknesses of this research.

5.2 Sub-Research Questions

SRQ1 - Will children who took part in a brief school-based CBT programme report less anxiety as measured through a standardised anxiety scale than a control group after the intervention has ended and will this be maintained at six- to eight-week follow-up?

The standardised anxiety scales taken at pre- and post-intervention from the children, suggests that CBT can help children with ASD manage their anxiety. In addition, the data suggests that these gains were continued, albeit at a diminished level, at follow-up. However, of the children who were identified to take part in this study by the schools, only seven in the experimental group and eight in the TaU group self-reported their anxiety to be within the elevated range.

While the data may suggest that children who took part in the CBT groups had lower anxiety this is because some children did not rate their anxiety within the elevated range. This may suggest that the CBT was targeting behaviours which the child did not seem to think were a problem. The qualitative data suggests that at pre-intervention some of the children could not differentiate anger from anxiety, and found it difficult to reflect on and self-rate their thoughts and emotions.

In addition to looking at group means, this research also looked at individual differences in anxiety scores for children using a Reliable Change Index score. These scores suggested that from the self-report anxiety scales, children who took part in the CBT group did not, in probability, make sufficient changes in their scores to suggest a clinical level of change. However, this needs to be considered in the context of the duration of the intervention, which lasted for six hourly sessions.

The data suggests that while children did make some improvements in their self-reports of anxiety compared to those in a TaU condition, none of the children reported clinically significant changes in their anxiety. This suggests that a brief school-based CBT programme may help children with ASD manage their anxiety, but this may not be at a level to meet clinical outcomes, but could be used to help in the management of the development of anxiety. In part, this could be explained by only some of the children who were identified by the school as needing CBT self-reporting their anxiety within the elevated range.

SRQ 2 - Will parents whose children took part in a brief school-based CBT programme report less anxiety in their children as measured using a standardised anxiety scale than a control group after the intervention has ended and will this be maintained at six- to eight-week follow-up?

The standardised anxiety scores that were collected from parents suggest children who took part in a brief school-based CBT intervention made improvements in their anxiety compared to a TaU group, and that this was maintained at follow-up.

Reliable Change Index Scores, which are used to look at the probability of clinically significant changes in the children, suggest that the anxiety score of three out of 14 children in the experimental condition were reduced by a clinically significant level. However, only one child in the experimental condition met the criteria for clinically significant change at six to eight week follow-up, which suggest the effects of the CBT intervention diminish over time.

Overall, this would suggest that according to parent reports group level changes happened in anxiety scores between the experimental and TaU group. However, the evidence suggests that these changes were not clinically meaningful to the child at an individual level at six- to eight-week follow-up. Therefore, the evidence suggests that a brief school-based CBT programme can help children manage their anxiety in the short-term, but the intervention may not achieve clinically significant outcomes in the children who took part.

SRQ 3 - Will children who take part in a brief school-based CBT programme develop coping behaviours measured using a standardised coping behaviours questionnaire as a result of taking part in the intervention and will these behaviours be maintained at six- to eight-week follow-up?

The data suggests that both groups of children who took part in this study did not change their assistance seeking behaviour as a coping mechanism. This suggests that children in both groups were just as likely to seek support from those nearby, either peers or adults, to help them manage difficulties in their environment. For the other coping behaviour styles there was some evidence of a change. For example, the data suggests that children in the experimental group were more likely to use less behavioural avoidance strategies as a

way to manage uncomfortable environments, and were more likely to engage in problem-solving behaviours than the children who did not receive the intervention; these findings were maintained at follow-up. This evidence is further supported by the qualitative data where some parents of children in the experimental groups reported less behavioural incidences since the intervention started.

Cognitive avoidance produced the more interesting finding, with the experimental group less likely to use this skill at follow-up, but not at post-intervention. This was supported by the child and parent interview data, which suggested that children in the experimental group were using their thought processes to assess a situation that may be causing anxiety.

Overall, the data suggest that the children in the experimental condition changed their coping behaviours more than the children who were in the treatment-as-usual condition, supported by the child and parent interview data. In particular, this was found for problem-solving behaviours and behavioural avoidance with cognitive avoidance at follow-up. No change was noticed in the children's assistance seeking coping behaviours.

SRQ 4 - Do parents of children with ASD have confidence and knowledge in managing their children's anxiety within the community?

This sub-research question can be understood from five themes developed from the parent semi-structured interview. For example, in theme one 'lack of post-diagnostic support' parents described how they felt unsupported by professionals to meet the needs of their child.

'It would be nice to speak to someone about it. We were sent to this clinic then told here's what's wrong'

and parents also had difficulty accessing the right support to meet their child's needs

'It would be nice for someone to come to our house and tell us what we were doing right and wrong'

In addition to parents feeling that they were unsupported to meet the needs of their child, there was also a theme that indicated that their child's anxiety is a dynamic, evolving and stable trait. For example, some parents reflected on how anxiety can shift from one context to the next, with one parent mentioning that the child needs to be able to learn to deal with these feelings independently.

'It's the way he is. I mean we can help him with some things like being anxious around people and stuff, but if it's not one thing then it's just another really'

The confidence and knowledge of parents in managing their child's anxiety is also affected by the way the community in general interact with their child. The reactions and attitudes of people within the community can have an impact on the level of confidence the parent has managing their child.

'It can be really embarrassing if he behaves really strange'

'But like he just goes off on one and people can give us funny looks'

The schools also place pressure on the parents to manage the children's emotions, which is an additional pressure for parents and may affect their confidence in managing their child's needs

'We're not perfect and no one is. I try and put things in place but the school is always wanting us to do more you know. I mean I have to balance it somehow I need to enjoy his time at home otherwise his time here becomes a chore as well'

The developing and dynamic process that supports the building of social relationships was something that parents noted. The parents who were interviewed were aware of the changing nature of social relationships, with parents being aware that their children were developing an interest in the opposite sex and therefore a new set of skills was required.

'We thought it was just friends he was having difficulty but now he's asking about girls a lot more, specific girls, so I think there is an interest developing there'

The parent interview data suggests that parents' knowledge and confidence in managing their children's anxiety is dependent on multiple interacting factors. External factors, such as the pressure from the school on the parents and the support received from professionals post-diagnosis, and the child and parents' interaction with the community, all seem to have an impact on the parents' confidence and ability to manage their child's anxiety. It further suggests that ongoing involvement from professionals could help parents develop the confidence to manage their children's anxiety at home and within the community. Developmental factors also seem to play a role. For example, the changing nature of the children's social relationships, particularly at adolescence when an interest in the opposite sex emerges, indicates another important stage for intervention, which parents may feel uncomfortable trying to manage alone. This suggests that access to support is required at specific stages throughout the developmental cycle to help develop the parents' confidence.

SRQ 5 - Are parents aware of their children trying to manage their feelings within their environment?

Two themes from the parent interviews: 'learning to manage anxiety' and 'challenging social and emotional needs.' help to answer this research question.

Parents of children in the experimental group were aware of attempts by their children to managing their anxiety. Parents' were aware that their children were engaging in more cognitive processing when interpreting and interacting with their environment, and when trying to manage their emotional responses. Parents also reflected on how the children's behaviour had improved slightly over the period the intervention was run

'You can tell he tries to think things through a bit more, err, logically in his head but he still finds it difficult to do. I mean things just don't work like that'

However, from the parent there was also an awareness that some of the children found it difficult to cope with social and emotional demands. A number of parents acknowledged that their children had difficulty communicating their emotions which makes it difficult to mediate their responses. Within the home environment parents were aware that their children found it difficult to cope with and manage change. Some parents had also recognised that anxiety could be confused with anger, which, for one parent, came about due to the responses they gave to the anxiety questionnaire

'I mean we only changed the colour of the kitchen. When he saw it he came in and he really went off on one, shouting and stuff it was really horrible'

'I thought it was anger, but the more you speak about it the more I realise its anxiety'

Parents of the children who were in the experimental groups were aware that their children were trying to change their behaviours. In particular, it appeared there was a reduction in behavioural incidences noted by some parents, and some parents were aware of their children using cognitive strategies to interpret and respond to

their environment. However, a number of parents noted that while their children were trying to change their behaviours there were barriers to this, such as attitudes and expectations in others and characteristics of their condition that were not planned for or well managed, for example changes to the child's routines or environments.

SRQ 6 - What, from the parents' perspective, may act as barriers to children with ASD managing their anxiety?

The parents who were interviewed as part of this research suggested there are a range of barriers which influence and impact upon their child's ability to manage anxiety. Firstly, the dynamic nature of anxiety in children with ASD, as suggested by the parent interview theme 'Child's anxiety responses are dynamic' seems significant. The parents' interviews suggest that their child's anxiety is an ever present feature of their child's personality that is constantly changing.

'It just changes, if it's not one thing it's another and it gets tiring after a while, just let him deal with it is what I think sometimes'

Furthermore, there are also contextual influences from the community which, according to parents, impact on the child's ability to manage their anxiety. For example, some parents perceive that the child is expected to behave in specific ways which acts as a barrier to change.

'He has this reputation. Like he has done things in the past which have got him into a lot of trouble. But, I do see he sometimes tries to change but it never works because he has this reputation and that's what's really hard to change.'

From the parents' perspective, the difficulty children with ASD have with understanding and interpreting the social environment also seems to play a role in their child's ability to manage anxiety. Specifically, from the parents' perspective it seems like the child's

uncertainty about their social environment in some way fuels their anxiety. As do developmental factors. All of the children who took part in this study were males and the challenges of puberty and the desire to form relationships with the opposite sex heightened anxiety in children in this study.

'He's getting interested in, err, girls now,'

'Like he doesn't know what to do and you can see the changes in his face'

From the parents perspective another barrier to helping their children with ASD manage their anxiety was the level of communication between the home and school. Some parents in this study were not aware of the interventions which were being used with their children, which meant they felt excluded from much of the decision making processes. While some parents understood the importance of the intervention being used some felt by having awareness of what was being taught could also be used in the home environment, as they clearly feel that they have little access to any other form of post diagnostic support

'It would be nice to know what you were doing with him and what I could do at home'

'Just knowing what people are doing would be a nice thing to have'

However, for one parent being aware of the outcomes of these interventions was also a priority

'I have knowledge of all this stuff and sometimes I just have to ask what are the outcomes from all these things'

The interviews with the parents suggest that there are a range of barriers which have an influence on their child's ability to manage

anxiety. Some parents reflected on the nature of anxiety in their children as a dynamic and ever changing characteristic, which is difficult to manage. There were also barriers from their environment, such as the expectations of the community as to how the child would react in certain circumstances. These expectations seem to influence on the child's ability to manage their anxiety. This would suggest that consideration needs to be given to the way clinicians can work across different contexts to help the parents understand and manage their children's anxiety. From the parents' perspective having knowledge of the interventions used within school, including the aims and outcomes would assist them in trying to manage the child's anxiety within the home environment.

SRQ 7 - What are parent's perceptions of interventions which are used to support children with ASD?

Three themes are relevant to help understand the perceptions parents have of the interventions which are used to support their child. Firstly, the theme 'Tensions between home and school' suggest that some parents felt unsupported and under pressure from the schools. For example, the parents reflected on how the school would develop interventions which meet the needs of the child in the learning context, but not take into account the difficulties the child was having in the home context. They also reflected on how decisions made at school would impact on the child's behaviour at home

'I used to get on with school but things changed when this new head teacher came in and he never had a place to for when he felt upset. Then they expel him and I get into trouble.'

Secondly, parents reflected on how norms and behaviours were being forced onto their child without the child's wishes being taken into account. Some parents were reflecting on how interventions may have been changing an aspect of the child's personality in order to fit

into wider social norms, when the child may not want to change these behaviours.

'The school they try and do all these things with him but sometimes you have to ask does he really want them.'

'I have to ask myself sometimes if he wants to change from the way he is. He's always been like that and it's the way he's got used to himself. Should we try these things to change it all the time, I really don't know.'

Thirdly, inadequate communication between the school and parents also played a role in the perception some parents have of the interventions used to support their child, with some parents reflecting on how they felt excluded from the decision making process

'there are loads of things that people try with him and it would be nice to know what we could do as a mum and dad'

'it would be nice to know what these things are for exactly'

A range of interacting factors influenced the parents' perceptions of the interventions used to support the needs of their child. The relationship between the school and home influenced the way the interventions were perceived by the parents, especially when the home environment might be affected negatively. This could, however, be influenced by the communication that happened between the home and school - where interventions were used which the parents did not have a knowledge of or what the aims and outcome were. The parent interviews also suggested that the parents were becoming aware of their child's identity and were challenging the ethics of changing behaviours, which are a core feature of their child's identity.

SRQ 8 - How do young people with ASC benefit from the use of CBT to develop emotional awareness and manage their anxiety?

Two themes from the children's interviews are relevant in trying to understand this research question: 'changes in thought processes influences behaviour', and 'learning to process complex emotions'.

The data suggest that at pre-intervention children with ASD were not aware of, or had difficulty processing complex emotions

'I used to get angry about things sometimes but I don't know if it's because I worry about things or not'

'When I think about it all the feelings are the same and you once said anxiety can a bit like anger and makes you sort of explode sometimes'

However, after the intervention was delivered there is evidence from the interviews that some of the children developed an understanding of the differences between complex emotions. This development may be explained by the way some children began to recognise situations or stimuli which makes them anxious and in other people

'I know when I feel anxious and I think that's helped because I can sit there or if I get angry about something I sit and think oh am I angry or is it anxiety'

'I was worried what other people would think of me I was worried about what parts I would have if I had any and I was worried that they might not want me'

The intervention also appeared to help children engage their thought processes in accessing situations which cause anxiety. As well as increasing their thought processes, some of the interview data suggest that children were using personal narratives to try and

manage their feelings. Through these processes children were able to change their thoughts which led to a change in behaviour

'Well I think of a story in my head and I try to remember bits of that story to try and stop me worrying about it'

'I can change my thoughts and that will change the way I behave'

The interview data collected from the children suggest that the CBT intervention had a range of benefits for children with ASD. Firstly, it helped them to develop an understanding of complex emotions and how to recognise them. Because children were able to identify these behaviours it resulted in some of the children being able to use strategies taught in the sessions to manage their feelings, such as using thinking strategies or using personal narratives to try and control their anxiety.

SRQ 9 - What, according to children with ASD, are important factors in the therapeutic environment?

This sub-research question can be understood from two themes from the child interviews: 'pressure to conform to typical social norms', and 'the influence of the physical environment and social context engagement in the therapeutic process'.

The children who were in the experimental group reflect on how they were under pressure to conform to social expectations of friendship patterns.

'Well my parents come in and speak to some of the teachers and they keep asking me if I have friends and stuff'

'I said I have friends, not at this school but I have friends, and I can have fun with them I just don't have many friends at this school that's all and everyone keeps going on about it'

However, for some children their preference for social interactions differed, with one child preferring social isolation and some showing a desire for friendships, which in some way could be understood through the difficulty they have interacting with others

'It never works and it makes me cross I don't want to be on my own I want friends I want people to come round to my house but I just can't do it'

'Lonely I suppose, I mean I like being around people, I you know I do try and well get to know people but well its just very difficult to do it'

'Well, I still don't get along with most people at this school they still think I'm crazy'

However, the children's ability to engage with the therapeutic process was affected in two ways. Firstly, the physical environment was a barrier to some children engaging. Secondly, the group dynamics play a role in their engagement with the therapeutic intervention

'There were six of us in that small room and I didn't really like it that much'

'Yeah it was a small and dark room that ones where we go for social groups are bigger'

'I mean some in there didn't get along well and spent the whole time trying to get on each others nerves and that well kept distracting me all the time'

The child interview data suggest there are a range of factors which are important in the therapeutic environment. Firstly, the children had different perceptions as to how they understood friendships, with some expressing a desire for friendships and others expressing a desire for isolation. This would suggest that individual child

preferences need to be taken into consideration when thinking about which types of intervention to use with children with a diagnosis of ASD. This may help them engage with the process, but also target behaviours which are meaningful and relevant to the context of the child. Secondly, there are environment considerations which need to be given to the therapeutic intervention. For example, the room where the intervention is delivered and the group dynamics needs to be carefully considered to ensure the barriers to the therapeutic process are minimized.

5.3 Main Research Question, Relevance to Current Literature and Future Research Directions - Will a brief school-based cognitive behavioural therapy programme help children with ASD manage their anxiety, and will this be generalised to the child's environment?

Analysis of the standardised anxiety scales between pre- and post-intervention and at follow-up suggests that children who took part in the intervention were likely to have reduced levels of anxiety. This is consistent with the literature conducted around the subject. For example, studies have shown that children with ASD who take part in a Cognitive Behavioural Therapy programme are likely to show reduced levels of anxiety as measured using standardised scales of parent reported anxiety (Sofronoff, Attwood and Hinton, 2005; Sze and Wood, 2007; White, Ollenick, Scahill, *et al.*, 2009; Wood, Drahota, Sze, *et al.* 2009) and children's self-reports (Chalfrant, Rapee and Carroll, 2007). However, this study expands the current literature in three key ways. Firstly, it is one of the first studies that have used anxiety scales that have been completed by both the children who took part in the intervention and their parents. By using scales from both parents and children this study found that the ratings for elevated anxiety was inconsistent between them, with elevated anxiety being found in more children based on parent reports than the children's self-reports. Although the qualitative data suggests that this could partially be explained by the difficulties the children have understanding complex emotions, and in confusing

feelings such as anxiety with anger. This could also suggest that future research may need to try and understand this discrepancy in further detail. It could also suggest that future research which investigates CBT with children with ASD needs to take into account levels of anxiety from multiple sources, such as parents and children and, possibly, teachers. Secondly, this study was the first to incorporate both between and within group data.

Previous research has looked at between group differences in children with ASD who take part in a CBT intervention (Sofronoff, Attwood and Hinton, 2005; Wood, Drahota, Sze, *et al.* 2009; Chalfrant, Rapee and Carroll, 2007), and within participant differences (White, Ollendick, Scahill, *et al.* 2009; Sze and Wood, 2007). By looking at both between groups and within participant differences this study has extended on the previous literature on the subject. It suggests that a brief school-based CBT can help children with ASD manage their anxiety, but children need long-term support in order to help generalises and use these skills throughout their development and in different contexts. It further suggests that this brief intervention may not meet a clinical need. Instead, this type of intervention should be used before anxiety becomes too problematic to provide the children with the skills and confidence to manage their anxiety both in school, home and within the community. Thirdly, the qualitative data provides important insights into the needs of the parent and children. It suggests that parents need ongoing support from professionals post-diagnosis to give them the knowledge and the confidence to manage their child's complex emotions, which can be accomplished by ensuring parents are part of the decision making process, are aware of the outcomes and have access to the strategies taught so they can be used within the home context. From the children's interviews it suggests that consideration needs to be given to the group dynamics and the physical environment and provides important insights into how the intervention is used to support the child's awareness and regulation of complex emotions.

Coping styles have been consistently linked to future long-term outcomes, such as reduced mental health difficulties in adulthood (Aldwin and Revenson, 1987). The coping behaviours scale used in this research suggested that the children who took part in this study and received the intervention changed their coping styles, supported by the parent and child interviews. By changing the coping styles of children with ASD into a more problem-solving framework, where children were more likely to engage their thought processes to interpret and react to their environment, suggests that CBT could be used to support the long-term outcomes for children with ASD. Previous research in the area has suggested that children with ASD have difficulty with coping behaviours in their environment, and are more likely to rely on behavioural avoidance coping styles (Kussiko, Pollock-Wurman, Jussila, *et al.*, 2008). Some researchers, such as Creed, Anthony and Hicks (1999), argue that changing these behaviours could result in significantly better outcomes for children. However, the evidence suggests that some of the coping behaviours changed gradually in the children who received the intervention. Cognitive avoidance strategies were used less by the children who received the intervention at follow-up. Future research is needed to look at this finding in more detail because it is often implied, rather than empirically proven, that children with ASD achieve better outcomes after the intervention. In order to develop a more robust evidence-based framework for using CBT with children with ASD future research may need to incorporate longitudinal studies to see if children who receive particular interventions achieve better adult outcomes.

In addition to quantitative data this study incorporated qualitative data to understand the main research question, which is the first example, to the author's knowledge, of this occurring, and has led to a better understanding of the research question. In particular, it has led to a better understanding of why the level of change for many children was not at a clinically significant level. Firstly, according to the parent interview data, children who were in the experimental condition were

observed to change their behaviour, with a decrease in behavioural incidences since the intervention started. Secondly, the qualitative data suggests that there are barriers to children with ASD changing their behaviour, with community expectations of the child's behaviour playing an important role. The community expects the child to behave in a certain way to a given situations, perceived as a barrier by the parents because it prevents attempts to change. The interview data from the parents also suggests that social situations pose a difficulty for children with ASD, which is consistent with the literature around this area (Gillott, Furniss and Walter, 2001; Kussikko, Pollock-Wurman, Jussila, *et al.*, 2008). For the adolescent boys, who were the participants in this study, it seemed that the desires for romantic relationships, and the resultant changes in social rules, mean the parents felt deskilled in managing these new expectations. Adolescent boys are at the stage of life where they are entering puberty. This often means that they are negotiating romantic relationships for the first time and need to develop a new set of rules and strategies. The uncertainty in these new contexts fuels new forms of social anxiety as they may not have the interaction or communication skills to engage with the opposite sex, despite a desire to do so. This would suggest that CBT, especially if it is used with adolescent boys, may need to incorporate this into the intervention to help them understand and deal with the changing nature of their social interactions with the opposite sex.

Finally, the interview data drew to attention the ethical issues around changing the behaviours in children with ASD. Singer (1999) argues that children with ASD or ADHD should not be considered to have deficits with their cognitive processes. Instead, Singer (*ibid.*) argues that children with ASD process their environment differently to their typically developing peers and this should be seen as a part of natural variance between individuals, referred to as the Neurodiversity hypothesis. The weak Central Coherence in children with ASD (O'Connor and Kirk, 2008) suggests that children with ASD process their environment differently to their typically developing

peers, which may offer support to the neurodiversity hypothesis. The parent interview data suggests that some parents were questioning the behavioural modification programmes used with their children. Some parents were concerned that the programmes were targeting behaviours which are an integral part of their child's identity. Some practitioners may use Motivation Interviewing, as recommended by Stallard (2005), to address this discrepancy by helping the child to understand that they do have a difficulty; thus trying to force neurotypical-thinking styles on a neurodiverse population. This raises important ethical issues for practitioners who deliver CBT to children with ASD: are behaviours being identified that are not a true cause for concern for the child and how are the child's desires and preferences being taken into account? Anxiety is a negative emotion and it is, of course, laudable to help support children reduce their exposure to it. However, as this study suggests the child may not be aware of their own anxiety. This suggests the importance of developing an alternative means of assessment of anxiety that has been specifically designed for the ASD population.

The current evidence-base suggests that CBT delivered in a clinical setting can help children with ASD manage their anxiety. This study extends the evidence-base further by suggesting it is also an effective intervention to use within a school setting with a group of children with ASD. The data also suggests that there is some evidence, based on parent observations of their children, that these skills are being generalised to the child's environment. This study offers a unique contribution to the current literature in three ways. Firstly, it is the first study to look at changes in anxiety scores as a result of the intervention between an experimental and TaU group and looking at within participant changes. Secondly, it is one of the first studies to have evaluated a CBT intervention delivered to groups of children in a school setting. Thirdly, it provides practitioners with an understanding of the barriers children with ASD have in managing their anxiety and changing their behaviour through their own voice and that of their parent. This offers a unique understanding to the use

of CBT with children with ASD and provides practitioners, such as educational psychologist, with an understanding of the benefits and challenges in using CBT with children with ASD.

5.4 Relevance to Professional Practice

This research has helped in developing the profession of Educational Psychology. Firstly, this research adds to the already increasing empirical evidence-base that CBT is an effective treatment to help adolescents manage their feelings of anxiety. In addition, this research suggests that a manualised CBT programme delivered in schools may help children with ASD manage their anxiety. However, it must be understood that for some children with ASD there is a life-long need for interventions that target social and emotional needs. The educational psychology profession is in prime position to meet these life-long needs through their close involvement with schools and families.

While this study adds to the literature which supports CBT as an effective treatment to help children with ASD manage their anxiety it is important that the person supervising or administering the intervention is aware of its limitations. The data from parents suggest clinically significant changes in anxiety only occurred in three children, with only one child showing clinically significant changes in anxiety at follow-up. For the children's self-rated anxiety no clinically significant changes were observed at follow-up. This would mean that educational psychologists need to be aware of the expectations parents, schools and children place on the intervention, and should target children with ASD who are at risk of developing anxiety. However, this raises an important issue for the profession of educational psychologist: how can those children with ASD who are at risk of developing anxiety be targeted? In part, children could be targeted through joint school and home consultations, which should also include the child. This could be used to discuss the difficulties of the children and, with the understanding educational psychologists

have of child development, be used to identify children who may be at risk.

It was not possible to generalise or practice the skills learnt between each session. However, educational psychologists who deliver CBT to groups of children with ASD may wish to consider this in the future. For example, during this research a member of staff was in the sessions to act as a friendly face and to help in case any issues arose. By offering training and supervision it may be possible to staff members to help the children practice their skills in their natural environment, which, in turn, may help to generalise the skills to other contexts.

This study also raised issues with regards to the therapeutic environment, something which has not been considered in the literature previously. The sensory difficulties children with ASD have may mean they are sensitive to the physical environment and the peers who were part of the group. This would need careful consideration by the professionals who decide to deliver interventions to ensure the availability of an adequate room where the intervention can be delivered. Additionally, careful consideration may need to be given to whether the intervention is delivered in small or large group or individually.

Ethical consideration needs to be considered by educational psychologist who delivers CBT to children with ASD. Anxiety could be regarded as a part of the presentation of ASD. As such, careful attention needs to be given to whether the child identifies their anxiety as problematic. However, the educational psychologist may need to take into consideration the difficulties children with ASD have processing and understanding complex emotions. The educational psychologist may need to use their skills and expertise to work in consultation with the school, parent and the child to identify behaviours that need changing that all stakeholders agree to. Although this may need careful management by the educational

psychologist if the stakeholders cannot agree which behaviours are problematic. In addition, the outcomes of the intervention need to be clearly identified to ensure all parties are committed to the outcomes.

This project raises the role parents have in deciding which therapeutic interventions should be used, with parents wanting involvement in the decision making process. This was to ensure that parents were aware which behaviours were being identified and how strategies could be applied across contexts; by delivering training to parents so that they are aware of the strategies taught to the children. However, in addition to including parents, educational psychologist may want to consider how teachers can be included within the process. This could mean the child has the opportunity to rehearse and, more importantly, have opportunities to modify their behaviour in different contexts.

5.5 Methodological Strengths and Weaknesses

While it is important to consider the weaknesses in this study, it is equally important to discuss its strengths. This is one of the first studies looking at the effectiveness of a brief school-based CBT programme delivered to groups of children with a diagnosis of ASD. It is also one of the first studies that incorporates parents and children's self-reports of anxiety using a mixed methodological approach. By using a mixed methodological approach this study adds to the current evidence-base of using CBT with children with a diagnosis of ASD and provides important insights into the barriers the children face in changing their embedded behaviour. These are important factors for practitioners who want to deliver CBT to children with ASD to consider.

While this study has considerable strengths there are also weaknesses which need to be taken into consideration. There were 28 children who took part in this study with 14 in the experimental and 14 in the TaU group, which represents a small number of

children and could make it difficult to generalise these findings. However, there were no quantifiable differences between the TaU and experimental groups on a range of scales, except for verbal reasoning that was not thought to affect the overall outcome, which suggests the observed changes in anxiety could be attributable to the intervention. Differences did exist between parents' and children's self-report for elevated levels of anxiety, with children reporting anxiety as less of a concern than parents, which needs to be considered.

Due to the time constraints placed in delivering this intervention it was not possible to interview all children and parents who took part in this intervention. Therefore, caution needs to be taken when generalising the interview data to all children with ASD and their parents. The themes that were developed from these interviews may not be the themes relevant to all children with a diagnosis of ASD and their parents. As such, other studies may have different themes emerging from their interview data.

A weakness which could be attributed to this study is the person who delivered the intervention also being the person who evaluated it. While the interaction between the person who delivered the intervention and the children was professional, this does not mean some children altered their responses on the scales and responded to the questions in the interview because they wanted to show that the research had positive effects. This would suggest that future research which evaluates the effectiveness of a school-based CBT programme may need to consider this in their design.

5.6 Chapter Summary / Conclusions

This chapter details how the data was used to answer the sub-research questions, which was used to provide an answer to the main research question.

This study adds and provides a unique contribution to the increasing evidence-base that CBT can be used to help children with ASD manage their anxiety. It contributes to this literature in key ways. Firstly, joint school consultations, which many educational psychologists use as part of their professional practice, play an important role in ensuring successful outcomes. Secondly, practitioners delivering group CBT in schools need to negotiate the room where the intervention is delivered and ensure the group dynamic are manageable by the children. It also discusses how parents can have a voice in deciding which behaviours should be targeted, and training which can be delivered to parents so that the techniques can be rehearsed and applied by the children in different contexts. Thirdly, it concludes that while differences in anxiety were observed between the groups, this, at an individual level, was not a clinically significant level, which suggests school-based CBT programmes should be used to help manage the development of problematic anxiety in children with ASD.

Lastly, this chapter discusses the relevance the thesis has to the development of the educational psychology profession and the methodological weaknesses of this study and the cautions which should be applied in interpreting this data.

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Appendices

Appendix I: DSM-IV criteria for the diagnosis of ASD (APA, 2000)

(I) A total of six (or more) items from (A), (B), and (C), with at least two from (A), and one each from (B) and (C)

(A) qualitative impairment in social interaction, as manifested by at least two of the following:

1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction
2. failure to develop peer relationships appropriate to developmental level
3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
4. lack of social or emotional reciprocity (not actively participating in simple social play or games, preferring solitary activities, or involving others in activities only as tools or "mechanical" aids)

(B) qualitative impairments in communication as manifested by at least one of the following:

1. delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)
2. in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
3. stereotyped and repetitive use of language or idiosyncratic language
4. lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(C) restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:

1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
2. apparently inflexible adherence to specific, nonfunctional routines or rituals
3. stereotyped and repetitive motor mannerisms (e.g hand or finger flapping or twisting, or complex whole-body movements)
4. persistent preoccupation with parts of objects

(II) Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years:

- (A) social interaction
- (B) language as used in social communication
- (C) symbolic or imaginative play

(III) The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder

Appendix II: Initial email sent to schools about the project

Dear XXXXX ,

As a Trainee Educational Psychologist in the XXXXXX area studying for a doctoral degree at the Institute of Education I am planning to run a series of workshops, using a Cognitive Behavioural Therapy programme, to help children who are on the autism spectrum (for example, children with a diagnosis of ASD, Asperger's, High Functioning Autism or Pervasive Developmental Disorder - Not Otherwise Specified) deal with their anxiety. The programme is intended to run for 6 weeks and each session will take around an hour. I would intend to run these groups for between 6-8 children who are in Key Stage 3. I would hope that these groups would start to run in February.

For children with autism anxiety can often manifest in many different ways. They may find social interactions difficult, they may find it difficult to express their ideas in the classroom and they may find it difficult to cope during stressful times, such as exams.

By engaging these children in Cognitive Behavioural Therapy we would hope that they will develop their problem-solving skills necessary to cope with difficulties they may experience day-to-day.

If you feel this is something which may be of interest to yourself, your school and which would help your pupils then I would be more than happy to arrange an appointment with yourself to discuss this proposal in more detail and what it would involve.

I look forward to hearing from you in the near future.

Kind regards

Christopher Clarke
Trainee Educational Psychologist

Tel: XXXXXXXX
Mob: XXXXXXXX

Appendix III: Project overview and consent forms sent to parents

Dear Parent/Guardian,

The XXXX XXXXX and XXXX XXXX XXXX Educational Psychology Service are planning to run a programme which aims to help children on the autism spectrum. The programme aims to help the children manage their behaviour.

The programme will run for 6 sessions, with each session lasting around an hour. The programme aims to help children explore their feelings and how these can be managed. We feel this may be helpful for your child, but before we start we need your consent.

We would also like to see if the programme has been helpful to your child by asking you to fill in some forms and questionnaires. In total there will be 3 sets of forms which we think will take about 20 minutes to complete. We will ask you to fill out some forms before they start the programme, after they have finished the programme and 6 weeks after they have finished the programme.

There may also be the possibility that we may want to talk to you. This is to see if you think the programme has been helpful to your child and in what way.

The data we will collect will also be used as part of my Doctoral thesis. The data I use will only be descriptive and will not include any personal data, such as names or what school your child attends.

Once we have received your consent and you have completed the attached questionnaires we will start running the programme. You can still withdraw your child from the programme at anytime by contacting me directly via email XXXXXXXXXX or telephone XXXXXXXXX

I give permission for
..... (child's name) to
take part in this study.

If you would like to talk to one of the people who are running this project then please use the contact details above. Alternatively, you can leave your phone number or email address in the space below and one of the project's team members will contact you shortly.

My email or telephone number is:

.....
.....
.....
.....

Signed.....(parent or guardian)

Date.....

Appendix IV: Semi-structured interview used with children and parent at pre- and post-intervention

General introduction:

Introductions (*me, my role and why I am speaking to them*)

The right to withdraw at anytime

This is being recorded, do you consent/are you happy to proceed?

What we will do with the interview data

Transcribed

Analysed

Used in doctoral thesis

Securely stored

Check for understanding (*Ask them, if necessary, to repeat back key points of what I have said; Based on what I have told you are you happy to proceed?*)

Child:

Talk to the child about different emotions they have had recently (try to get the child to talk about 'good' or 'happy' experiences as well)

Reflect on an experience they found difficult recently (*what was different to the happy/good experiences?*)

Physiological (sweating, pounding heart) reaction to the event

Thoughts about the event (What were they thinking? Did they think about any other options?)

What emotions were they experiencing?

○

What was the outcome? (*What did they do? What options did they consider? Why did they choose this outcome?*)

If this happened again, would they do anything differently?

Talk to the child about the classroom (where do you sit? who do you work with? what are your favourite subjects (why do you like them?

What about *subject?*)) Develop this to find probing questions about their thoughts, feelings and emotions in the classroom and what strategies they use.

Parent

What is their understanding of ASD

Communication (sharing experiences, mannerisms)

Social interaction (friendships, social rules/etiquette)

Rigid behaviours (interests, other interests, taking part in other peoples' games, rules)

Using their understanding, how does this impact on their child's behaviours.

What sort of feelings/emotions do you see in your child.

How does he cope with these behaviours and feelings?

What does anxiety look like to the parent?

Physiological?

When has he done something which they thought would be difficult, but he was okay with (*what was different? why was it surprising about it?*)

What coping behaviours did they use (avoidance, etc)

What is your understanding of his behaviours in school/classroom
(*what have you heard from teacher's, your child's friends, etc*)
Have you noticed any changes in *child's name* recently?

Appendix V: Skewness, kurtosis and equality of variance statistics for outcome measures

		Skewness*	Kurtosis*	Equality of variance p value
SCAS - P	Pre	0.611	-0.522	0.07
	Post	0.051	-1.295	0.51
	FU	0.192	-0.94	0.36
SCAS C	Pre	0.989	1.589	0.12
	Post	0.173	-0.771	0.23
	FU	0.412	0.051	0.06
CSCY - Ass Seek	Pre	0.897	0.246	0.58
	Post	0.075	-1.151	0.35
	FU	0.424	0.271	0.7
CSCY - Prob Sol	Pre	1.229	0.891	0.35
	Post	0.748	0.135	0.3
	FU	-0.029	-1.165	0.26
CSCY - Cog Avo	Pre	0.531	0.797	0.37
	Post	1.319	2.327	0.15
	FU	0.829	0.381	0.06
CSCY - Beh Avo	Pre	0.463	-0.671	0.28
	Post	0.062	-1	0.74
	FU	0.38	-0.716	0.46

* Scores are representative of z-scores and thus represent scores obtained by chance alone. Due to the small sample size scores above 2.58 suggest a significant deviation from the normal distribution.

Appendix VII. Transcribed child interview

I	1	Hi J [redacted] and how are you today
C	2	Yeah, I'm fine thanks
I	3	It's been a while hasn't it
C	4	Uhhh, yeah I suppose it has
I	5	Okay [redacted] what I want to talk about today is how
	6	you've been getting on. In particular, I want to talk about
	7	how you found the groups we did and what you found
	8	helpful and if it helped you or not.
C	9	Okay. Err where do you want me to start
I	10	Well, shall we start at the beginning. So do you
	11	remember the groups and what we did
C	12	Uhh, yeah. We did loads of things. We talked about
	13	anxiety and how people get anxious
I	14	What else did we talk about
C	15	Uhhh, we talked about how we can recognize when we
	16	are feeling anxious and about the thoughts that happen
		the errrr
I	17	Poisonous thoughts
C	18	Yeah, that's it the poisonous thoughts and how we can
	19	go about changing them
I	20	So okay, thanks for that uhhh what did you learn from
		the groups
C	21	Uhh, I learnt uhhh about anxiety and how that makes
	22	you behave funny sometimes
I	23	So what did you learn about yourself. Anything
C	24	Well, I learnt that I get funny feelings like in my
	25	stomach when I'm anxious sometimes
I	26	Is that so. Do you know when you get those feelings
C	27	Uhh, when I think something bad's going to happen
I	28	Like err can you think of a time recently when this may
	29	have happened
C	30	Err, yeah we were in Geography and some of the others
	31	were being really nasty to the Mrs P [redacted] like really
	32	nasty not doing what she was saying and running out of
		class and stuff
I	33	How many were doing that
C	34	Err, well only about three I think, yeah three
I	35	And, what was happening to make you nervous
C	36	Uhh well, they a were running in and out and throwing
	37	things, I think it was like paper from the toilet and so
	38	well Mrs P [redacted] asked them to stop and they didn't.
I	39	Okay, so then what happened
C	40	Well, err, well I was asked to go and get Mr [redacted]
I	41	And who is he
C	42	He's out, err, head of year
I	43	So why were you asked to go and not one of the others
	44	Err, because I sit at the front. Well I usually sit at the
	45	front. I don't know. I think she was looking at me at the
	46	time and well just choose me.
	47	Okay so what was it you were asked to to

Interacted

Teacher's been

*Could I say
I'm a bit
nervous*

*Anxiety
to behave*

*Physical/
physiological
response
of anxiety*

*peer
intensity /
sense of
rivalry*

C	48	Err. go and get Mr Thornton
I	49	Oh ves sorry you did say that didn't you
C	50	Yeah
I	51	So. okay. then what happened.
C	52	Well I went to his office and asked him to come to our class
I	53	And then what happened
C	54	Well, then he uhhh, then he came to our class and took
	55	the boys out
I	56	And they followed him did they
C	57	Yeah, they did because well he's like really scary he's
	58	really big I've never seen anyone kinda mess around with him
I	59	Okay. So why were you feelings well slightly worried about that
C	60	Well I thought some of the boys the ones who were
	61	mucking around may have known that I was being asked
	62	to go and get Mr Thornton and I thought they might try
	63	and stop me. The others that were mucking around you
	64	know they are the ones you don't mess around with and
	65	well I thought they might chase me or something like that
I	66	And did they
C	67	Err no, they didn't they were in the toilet a the time so I
	68	don't think they knew it was me who was asked to go
I	69	So what exactly made you feel nervous that time
C	70	Err, well I thought they might get back at me later I
	71	suppose I thought they might you know do things to me later on
I	72	So, how did you know you were feeling nervous or worried
C	73	Well, I had that funny feeling in my stomach like what
	74	we talked about and well I knew that was because I was
	75	feeling slightly nervous about it
I	76	So, err, what did you do to try and err calm yourself down
C	77	I just, just kinda thought to myself well I thought that
	78	perhaps it won't be that bad. Perhaps I can just like
	79	explain to them that I was asked to and I didn't have a
	80	choice. Well and I also spent the lunchtime in the
	81	library. I knew they don't go into the library anymore.
I	82	So err, okay you went to get the teacher. Now say that
	83	this happened oh I don't now say just after Christmas.
	84	Do you think you would have behaved differently. Do
	85	you think you might of done something different
C	86	Like... what do you mean
I	87	Well, say what would have happened when you wer
	88	asked to go and get the teacher
C	89	Err, id think I would have I don't know hid in the toilet or
	90	something like that or just not bothered say I couldn't
	91	find him or something like that

and mucking around

and the boys

involving behaviours at audios

peer status over all

Answer for others

peer reprisal

Okay status in the classroom

managing the change thought

peer status

behavioural evidence

reflected on past behaviour. Another situation

I	92	So you think you changed recently
C	93	Err. no
I	94	So why didn't you go into the toilet on this occasion then?
C	95	Err. I don't know actually
I	96	So okay what do you think as different this time
C	98	Well, I think I just thought about it a bit more. I mean I
	99	just sat there and thought well I'm just doing something
	100	that I've been asked to do. I don't think they would have a go at me for that
I	101	So okay then so what you're saying is you managed to
	102	think about it a bit more
C	103	Yeah
I	104	Why is that. What helped you think a bit more.
C	105	Well, I got those funny feelings like in my stomach and I
	106	don't know I just suppose I managed to ignore it. That's all
I	107	That's all
C	108	Yeah, that's all
I	109	Well, that's good then. So would you say things that you
	110	did in the group helped you with that at all
C	111	Well, er I suppose if I were to think about it
I	113	What did we do that helped you to think about it
C	114	Err, well we talked a lot about what anxiety does to you.
	115	Like we talked about when it makes you like think
	116	differently than what you're supposed to do. So I think
	117	well it just let me to think err hang on what is there to be
	118	worried about really. I mean well I just thought about it a bit more
I	119	Good, good. So let's think. Have there been any other
	120	times when you've felt slightly nervous at all.
C	121	Err, well we had to do well I joined a group. I joined the drama club
I	122	The drama club I never had you down for doing that sort
	123	of thing. Why did you join it
C	124	Well, err, promise you won't err laugh or tell anyone
I	125	Err, yeah I promise
C	126	Well, there's girls in there
I	127	Ahh, we're back to girls are we
C	128	Err, yeah
I	129	And
C	130	Well, there's girls in there
I	131	Anyone in particular
C	132	Err, I'm not saying
I	133	So okay you joined the group to talk to girls yeah
C	134	Yeah
I	135	And how is it
C	136	Well, it's okay actually I really like it at the moment
	137	because like well when we are practicing it's okay and
	138	well I get to talk to uhhh girls sometimes
I	139	And what play did you or are you doing at the moment

Memories to end

Remember to think

Difficult reflection on thoughts

physiology symptoms at away

nervous to have thoughts

Remember to think

what is this to practice so

C	140	We're doing Grease
I	141	And are playing one of the main characters
C	142	No, god no I wouldn't want to do that no I just kinda
	143	play the background people like the people who hang
	144	around in the background
I	145	And do you have any words
C	146	I did yeah err I had to say err' whose that girl over there'
I	147	And were those you're only lines
C	148	Yeah, don't laugh
I	149	Sorry, I was just thinking about the play and trying to remember it
I	150	So, err, what were you nervous about err what made you worry...
C	151	Err what do you mean
I	152	What made you worry about joining this group or what was it you were nervous about
C	153	Lots. Lots and lots and lots I was worried what other
	154	people would think of me I was worried about what parts
	155	I would have if I had any and I was worried that they
	156	might not want me
I	157	But they did
C	158	Well, yeah. I mean I have small parts and I help out in
	159	the background a bit
I	160	What you mean like props and stuff like that
C	161	Yeah, I helped out with the props. Like we also talked to
	162	like a garage and they gave us a car like a bust up can to use as a prop
I	163	What a working one
C	164	Err I don't know they pushed it into the hall so err well it
	165	might work I never tried
I	166	I suppose you don't want an engine running in a hall do you
C	167	No it would get err smoky
I	168	Yeah I imagine it would
I	169	So what err what made you join the group was it sudden decision
C	170	Err, sudden...
I	171	Yeah, did you just hear about it and decide to join
C	172	Well, Tom my friend he joined so we did it together
I	173	Ahh right so you didn't decide to do it on your own
C	174	No
I	175	Okay then err so those groups that we did what did you think of them
	176	
C	177	Well, they were okay. [REDACTED]
I	178	What do you remember learning
C	179	Uhh, I don't remember
I	180	Nothing comes to mind
C	181	Err, well I suppose I learnt that other people get worried
	182	about things as well
I	183	What do you mean

*Charm Johnson
Wishy washy
any of an edge
ambition*

*Oh by the way
decided by
some of the
props*

*Area of
away to
take their
role.*

*Relates
my career
of worry*

*peer
relationships
with co
support*

*Carroll
strategies*

*Difficult
remember
context*

C	184	Well, sometimes you get worried about things and I think well is this stupid or what
I	185	And
C	186	Well, it was nice to know that other people get worried by things all the time as well I mean it kinda helped well what really helped is that other people err react differently when they are worried
I	187	What do you mean
C	188	Well, Simon talked about how he gets worried when he plays football because he's worried he's going to lose
I	189	And do you find that
C	190	Err, I suppose, well no on like loosing do they and err what else oh yes and how sometimes people seem to get angry when they fell worried about something
I	191	What do you mean
C	192	Some people kinda get so worried about something that they can get angry because they don't know what they are supposed to do
I	193	Has that ever happened to you
C	194	Perhaps I mean well yeah but not recently. I used to get angry about things sometimes but I don't know if it's because I worry about things or not
I	195	So for you you don't know if when you get worried you also get angry
C	196	Well I have those err thoughts sometimes like when something happens I'm like get really angry inside
I	197	And
C	198	Well, it's the feelings you also get when you really worry about something
I	199	And what does that make you think
C	200	Well, err... Perhaps there all the same thing. All these feelings kinda one thing we just react differently
I	201	What makes people react differently
C	202	Dunno Who they are suppose like who they are like if someone is cross all the time perhaps they will always react like that when something happens
I	203	Very good so that was something that really helped you was there anything else
C	204	Err, no not that I can think of
I	205	Okay if there was something that could be improved something that would make the groups better what would that be
C	206	Err, bigger room
I	207	Bigger rooms
C	208	Yeah the one we were in was really small and it felt cramped in there. I didn't like that all that much
I	209	Okay so the rooms are important. Was there anything else
C	210	Uhh well I suppose more time
I	211	More time
C	212	Yeah it felt like we were rushed all the time it felt like

Simon's one

Angry

*Accommodation
was difficult*

*err
sometimes
to show
stupid
sense of
isolation*

*confusion
of anger/
anxiety*

*Maybe
complex
emotion in
self*

*related to
anxiety
complex
of anxiety*

*Probably
do with
feelings
stability
of thoughts
and action*

*spacious
space of
room
little bit*

	231	we had to move from one thing to another really quickly.
	232	So more time would've been nice I think
I	233	So a bigger room and more time what about something
	234	to do with what we did. Was there anything there that
	235	you think could be improved
C	236	Err, I suppose it would have been nice to err I dunno go homework
I	237	You never did any homework
C	238	Yeah, I always worried I was going to get into trouble
	239	for that for not doing my homework
I	240	Why didn't you do it in the end then. What stopped you
C	241	Err, well some of it was a bit stupid
I	242	Like what
C	243	Err, like trying to find things that made us happy I felt
	244	that was a bit stupid I mean we talked about that in the
	245	group and then we had to go and find things in our room
	246	that we liked.
I	247	What was wrong with that
C	248	Well, it felt daft
I	249	Hmmm, okay. So no homework either. That you didn't do anyway.
C	250	Yeah
I	251	Okay. Shall we leave it there and I'll leave you to get on
	252	with your day
C	253	Yeah okay. Thanks
I	254	Okay see you again soon Jerome. All the best

*Jerome is
a bit of a
fool*

5/11

*Context
covered too
quickly*

*← I don't
know for
no extra
work*

*← I don't
know
a great
anxiety*

*← I think
on emotion*

Appendix VIII. Transcribed Parent Interview

P1	Hello?
CC2	Hello, please can I speak to [name] ?
P3	Yes, that's me.
CC4	Hello [name], it's [interviewer name] from the Institute of Education
5	I'm phoning about the research I've been doing at T's school. Is
6	now a good time to talk?
P7	Yes, yes, it's fine, yes
CC8	Thank you. I've got some questions I'd like to run through with you,
9	but it's fairly informal so feel free to add anything else that you'd like
10	to. Ok, if I can just start by asking if you've got any questions,
11	anything you'd like to ask? Obviously you've done the consent
	form.
P12	Yes.
CC13	Anything else that you'd like to ask, or you can ask as we go?
P14	Um, nothing at the moment, I'll shout if that's ok, if there's anything
CC15	Ok. Right, as you know, I'm looking at ASD and it would be helpful
16	if you could tell me about your understanding of Tyler's condition, of
	ASD?
P17	Um, well, it's quite difficult to sum up because there's several things
18	that really go into it. I'd say the main thing is probably the way that
19	he relates to people is quite different in a lot of ways to other people.
20	I notice it compared to other children his age. I mean, boys tend to be
21	abit more, um, physical in their interactions than girls anyway - girls
22	tend to be better at sorting out disagreements, boys are much more hit
23	first, talk later, but Tyler tends to go off probably more quickly than
24	most. If something isn't how he likes it, or if someone's doing
	something that's really annoying him, he'll just go.
CC25	So he'll hit out physically?
P26	Yes, yes, he does sometimes. If he's really annoyed or if someone's
27	done something or said something he doesn't like. If someone winds
	him up.
CC28	Does this happen in the classroom?
P29	The classroom or outside if it's break time and someone's had a pop
30	at him or got in his way. Sometimes it's quite obvious things, like
31	someone calls him a name or, you know, there's a bit of pushing and
	shoving or whatever.
CC32	Yes.
P33	You know, I do tell him, that's not what you do. You know, you
34	don't hit someone because they say something. But yes, that tends to
35	be his response, like lash out without really thinking I suppose.
CC36	Have you discussed this with Tyler's teacher?
P37	Yes, I get calls every now and again. Phone goes and it's like
38	[name], I'm phoning from the school because we've had a situation
39	with Tyler and I'm like 'what is it this time?' 'cos it's been a few
40	times now. And they say 'oh, he's hit another child in the
41	playground' or 'he's hit someone in a lesson'. Which makes me
42	wonder a bit what they're doing to stop him, you know, lashing out
	and whatever. It's not nice getting that kind of phone call.
CC43	No, no. Aside from the times this happens, when he lashes out, how

Embodied

Agony

Asks why

School and home

emotions of anxiety

issues of social difficulties

Physical Gender roles in play

Curious about

Intended

Physical risk to the children

consistency in his responses

has no school comm.

Study refers to child.

44	does he get on with his peers? Would you say he enjoys being with the other children?
P45	I wouldn't say he likes being with them when he's at school, because
46	he doesn't like being at school full stop, from what I can tell. It's
47	very rare that he says something was good there. Mostly it's saying
48	what he doesn't like, or what he actually hates about it.
CC49	What sort of things might he say?
P50	Well, he says a lot of how he hates it and how he doesn't want to go
51	there each day. Every morning I get 'I hate it. It's boring', that kind
52	of thing, and reasons why he shouldn't have to go. Which I'm sure a
53	lot of parents do get from their children, but it seems to be every day
54	with Tyler. It's a real battle getting him there, and then once he is
55	there, the teachers have the battle of making him actually stay there,
	where he should be.
CC56	Can you give me an example?
P57	Yes, loads. He's always trying to leave the room during lessons
58	School says he'll just get up and walk out. Or try to walk out,
59	depends whether they can talk him round. Sometimes he stays, but
	mostly he'll go out of the room.
CC60	Where will he go?
P61	Um, just out of the lesson, down the corridor, just getting away from
62	where he doesn't want to be. Obviously that's a concern for me
63	because all the time he's wandering around, he's not actually learning
	anything or making any progress.
CC64	Do you know why he wants to leave the classroom?
P65	I just don't think he likes it there. I think he finds it quite stressful
66	being told what to do, when to sit down and when he can play and
67	whatever. He has his own idea of what he wants to be doing and if
68	that doesn't fit with what the timetable says, that can provoke him
69	quite a lot. He gets quite stressed which I think is part of his ASD
CC70	As well as this stress, what other feelings or emotions do you see in
	Tyler?
P71	What, like generally or to do with the ASD?
CC72	Both
P73	Um, I think he gets quite worried in himself about things. I think
74	he's generally a worrier, quite a lot of anxiety and general, yes,
	worrying really.
CC75	How is his worrying and anxiety reflected in his behavior, would you
	say?
P76	He keeps to himself a lot if he is worried, and he won't really say
77	what's bothering him. Um... It's hard to say really. I suppose I'm so
78	used to living with him, it's hard to pick things out that other people
	would...
CC79	Any other emotions?
P80	Quite a lot of anger, I'd say, like at school when he gets into trouble,
81	He really just lashes out as a first response to whatever someone's
	said.
CC82	Apart from when he lashes out, what other ways does Tyler express
83	his emotions?
P84	He doesn't really, to be honest. I know if he likes something because
85	he'll talk about it quite a lot, he doesn't really show excitement about
86	stuff but he will talk about it quite a lot if he has enjoyed it. I put it

How much?

Can we discuss this?

How important is this?

Which one?

Answer of typical relations

Behavioral assessment

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

Can we discuss this?

87	down to his ASD, I think that's quite a big part of it, the whole self-
88	expression thing. Because he doesn't really express himself through
89	his body language very much either. Apart from the stuff at school
90	that I've mentioned. It's more like he keeps it in, until you know,
	bang and out it comes by hitting someone. Yes, that's it really.
	<i>Interview closes.</i>

← Behavior
 ← causes
 my list
 ← how
 value of
 emotion