MAJOR RESEARCH PROJECT

MARK MURPHY BSc (Hons) MSc.

USING PERSONAL CONSTRUCT PSYCHOLOGY TO EXPLORE RELATIONSHIPS
FOR ADOLESCENTS WITH HIGH FUNCTIONING AUTISM SPECTRUM DISORDER

Section A:
A review of research exploring the cognitive deficits of Autism Spectrum Disorder in
adolescents without an identified intellectual disability

Word Count: 7,778 (plus 244 additional words)

Section B:
Using personal construct psychology to explore relationships for adolescents with high
functioning autism spectrum disorder

Word Count: 7,672 (plus 912 additional words)

Overall Word Count: 15,450 (plus 1,156 additional words)

A thesis submitted in partial fulfilment of the requirements of
Canterbury Christ Church University for the degree of
Doctor of Clinical Psychology

April 2014

SALOMONS
CANTERBURY CHRIST CHURCH UNIVERSITY

Acknowledgments

Summary of MRP portfolio

Section A is a review of research exploring the cognitive deficits of Autism Spectrum Disorder (ASD) in adolescents without an identified intellectual disability. To provide context to the review, the paper first describes the development of the concept of ASD in general over the past 70 years. The review highlights that, despite a substantial body of research in the area, no one theory can yet fully account for the core deficits attributed to ASD within this population. A move away from the deficit focused approach is advocated. It is recommended that exploratory qualitative research into the social worlds of adolescents with ASD but without an identified intellectual disability could lead to a better understanding of the nature of the disorder.

Section B describes a qualitative study exploring interpersonal relationships for adolescents diagnosed with ASD but without an identified intellectual disability. Eight participants (aged between 13-16 years) engaged in a structured interview which involved completing a personal construct psychology exercise. Analysis of interview transcripts led to the identification of four themes, which are discussed in relation to clinical implications and future research.

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Section A:

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Abstract

In light of the most recent amendments to the Diagnostic and Statistical Manual (DSM-5, APA, 2013a), the present paper begins by considering how the concept of Autism Spectrum Disorder (ASD) has developed generally, before providing a review of research exploring the cognitive deficits associated with ASD for adolescents without an identified intellectual disability. From a search of electronic databases (Medline; PsycINFO; PsycARTICLES; Web of Knowledge, ASSIA, books@OVID and EBM Reviews), 21 studies were identified for inclusion in the review. The review found that, despite the substantial body of research on this topic, no one theory can fully account for the core deficits attributed to ASD for adolescents without an identified intellectual disability. It is advocated that, in order to develop a better understanding of the disorder, it is necessary to move away from a deficit focused approach and instead, explore how relationships are experienced by adolescents with ASD and how their experience relates to developmental stage demands. The review concludes that qualitative investigation of individual cases, or small groups of individuals with similar presentations, is needed to help develop a better understanding of the nature of ASD for individuals without an identified intellectual disability.

Introduction

The 4th edition of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual (DSM, APA, 1994) described a group of five conditions under the umbrella category of Pervasive Developmental Disorders (PDD), which had in common delays in the development of a number of basic skills, including communication skills and the use of imagination. Three of the conditions listed under PDD – Autism, Asperger's syndrome and Pervasive Developmental Disorder Not otherwise Specified (PDD-NoS) – were more commonly referred to as Autism Spectrum Disorders (ASD). Prevalence rates for the combined ASDs in the UK were estimated in 2009 to be around 157 per 10,000 (Baron-Cohen, Scott, & Allison, Williams, Bolton, Matthews, & Brayne, 2009).

PDD is not included in the latest edition of the DSM (DSM-V, APA, 2013a). Instead, Autism, Asperger's syndrome and PDD-NoS are replaced by a single, broader, category – Autistic Spectrum Disorder (ASD). The main features of ASD, as described within the DSM-V (APA, 2013a), are "[a] persistent impairment in reciprocal social communication and social interaction, and restricted, repetitive patterns of behaviour, interests, or activities" (APA, 2013a, p.53). It is a revision which, according to the authors of the DSM-V (APA, 2013a), represents one of the most significant of the new manual (APA, 2013b). It is arguably also one of the most controversial amendments, with media attention focusing primarily on the removal of Asperger's syndrome within the new classification (see, for example, Grush, 2013).

Rational for review

The ASD research literature is comprised of studies in which participant groups have been defined by the diagnostic criteria of the time – criteria which have been subject to continuous revision.

In light of the most recent amendments to the DSM (DSM-5, APA, 2013a), the present paper begins by exploring how the concept of ASD has developed generally before providing a review of research into the core cognitive deficits of ASD for adolescents without an identified intellectual disability. The purpose of this review will be to identify what conclusions can be drawn and suggest priorities for future research. It should be noted at this stage that research findings in the field of ASD are often conflicting and that tracking the progress of ideas over time can be challenging.

Terminology

The terms Asperger's syndrome and high functioning autism have been used within the literature to describe individuals who have an ASD diagnosis without an identified intellectual disability. Within the present paper, where research is referenced, the terminology used in each specific paper will be retained.

Adolescence

The World Health Organisation (WHO, 2014) describes adolescence as a critical period of human development occurring between the ages of 10-19 years, which, despite being driven by the fairly universal biological process of puberty, is bound within the defining characteristics of time, culture and socioeconomic situation. Stage theories of development have viewed this period of life as one in which the individual strives to explore their independence and develop a sense of identity (Identity verse Role Confusion, Erikson, 1968). Adolescents typically become less reliant on primary care givers as they spend more time with peers (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). Indeed, social relationships become increasingly important as, cognitively, the adolescent develops the capacity for greater emotional perspective taking (Choudhury, Blakemore, & Charman, 2006). The school environment exposes the adolescent to intense socialisation and sees them developing a growing awareness of the differing perspectives of classmates and teachers

(Adams & Berzonsky, 2008). Parents remain important, however, with research suggesting they exert an influence over issues such as career choice and values, whereas friends tend to influence the individual's sense of culture, taste and appearance (Smetana, Campione-Barr, & Metzger, 2006). Amongst typically developing adolescents, friendships are considered to be protective and lead to better emotional outcomes (Mazurek & Kanne, 2010).

Adolescence has been identified as a particularly challenging period for individuals with high functioning ASD, with numerous studies reporting a higher prevalence of loneliness (for example, Whitehouse, Durkin, Jaquet, & Ziatas, 2009) and mental health problems (for example, Bellini, 2006) amongst adolescents with Asperger's syndrome compared to other adolescents. A range of social impairments has been identified for this population including: difficulty relating to peers, difficulty interpreting complex contextual cues and transitioning across settings (Stichter, O'Connor, Herzog, Lierheimer, & McGhee, 2011), poor eye contact, a lack of orientation towards social stimulus (Rao, Beidel, & Murray, 2008), impairments in social pragmatics (turn-taking in conversation), poor speech prosody (White, Keonig, & Scahill, 2007), difficulty interpreting non-literal language and a tendency to become fixated on specific topics (Krasny, Williams, Provencal, & Ozonoff, 2003). In the 1980's, theorists and researchers began to conceptualise the core social and interaction characteristics of ASD as arising from specific cognitive deficits, and in doing so have imposed a primarily developmental perspective on subsequent research (Rajendram & Mitchell, 2007). Tantam (2000) has suggested the experience of rejection and isolation resulting from these core deficits contributes significantly to the development of mental health problems such as anxiety and depression.

Historical context

In order to understand how the concept of ASD for adolescents without an identified intellectual disability has evolved, it is necessary to take a wider perspective and consider the development of ideas in general about the disorder.

American paediatrician Leo Kanner is credited with providing the first description of childhood autism as a distinct disorder within his 1943 paper Autistic Disturbances of Affective Contact. He described 11 children who shared a strong preference for being alone and a preoccupation with maintaining sameness. Kanner (1943) observed that, in most cases, these features were present from birth or early childhood, and speculated, therefore, on their innate nature.

A year later, in Vienna, Austrian paediatrician Hans Asperger (1944, as cited in Wing, 1981a) described what he termed autistic psychopathy in a group of child patients who, similar to Kanner's (1943), presented with problems in social communication and interaction, and circumscribed patterns of interests. However, Asperger (1944, as cited in Wing, 1981a) drew attention to the often advanced linguistic skills of his patients, the later onset of their features and the tendency for there to be additional motor difficulties. Asperger's (1944 as cited in Wing, 1981a) autistic psychopathy bares a great deal of similarity to Russian psychiatrist Grunya Sukhareva's (1926) description of schizoid personality disorder in childhood.

Whilst Asperger (1944 as cited in Wing, 1981a) identified that there could be great variability in intellectual functioning amongst individuals who presented with these shared features, his prognosis for his patients was generally more positive that Kanner's, emphasising the potential for his little professors to use their special interests in adulthood to pursue successful careers. Indeed, Asperger (1944) believed some of the traits of the

syndrome he described were, in fact, necessary for high achievement in science and the arts (Wing, 2005).

Working, as Asperger was, in Nazi occupied territory during World War II, it has been suggested (Feinstein, 2010) his emphasis on the potential for his patients to develop into successful socially productive adults may have been motivated, in part, by his desire to protect them from the eugenics policies of the Nazi regime. Feinstein (2010) noted that, whilst Asperger himself narrowly escaped being arrested by the Gestapo on at least two occasions, his association with Nazi Germany (by proximity of birth rather than ideology) may have hindered the dissemination of his ideas across Europe and the USA following the war. It is of note that, despite Kanner (1943) and Asperger (1944 as cited in Wing, 1981a) publishing their seminal papers within a year of each other, apparently each was unaware of the other's work at the time (Khouzam, El-Gabalawi, Pirwani, & Priest, 2004).

Asperger (1944 as cited in Wing, 1981a) observed that many of the features he saw in his patients were evident also in their family members, especially their fathers. He suggested, therefore, the condition had a genetic basis. Whilst Kanner (1943), also speculated on a possible genetic basis for autism, he suggested, in what became known as the refrigerator mother hypothesis (Bettleheim, 1967), a mother's lack of empathic and nurturing skills may contribute to the development of the condition (London, 2007). Unfortunately, it was an idea that fitted well the pervading psychoanalytic perspective of the time and so predominated thinking about the condition throughout the 1950's and 60's, with many children and families enduring years of often painful and rarely effective psychotherapy as the primary form of treatment for the condition (Wolff, 2004). Rajendran and Mitchell (2007) have suggested that the conceptualisation of ASD has tended to reflect the dominant Zeitgeist of the time. As such, Kanner's (1943) description informed the development of the childhood schizophrenia diagnostic category within the DSM II (APA, 1968).

Wing and Gould's (1979) Camberwell study played an important role in progressing the idea of autism as a spectrum disorder. Their study involved assessing the prevalence of impairments in social interaction, language abnormalities and repetitive, stereotyped behaviours presented by a group of socially impaired children and a comparison group of sociable, severely mentally retarded children. They found that whilst some children fitted Kanner's (1943) criteria (4.9 in 10,000) and a smaller group (1.7 in 10,000) fitted Asperger's (1944 as cited in Wing, 1981a) description (Asperger himself did not outline specific criteria), a much larger group presented with mixed autistic features which did not fit neatly with either syndrome (15.4 in 10,000).

The Camberwell study was soon followed by Lorna Wing's influential 1981 paper in which she described the clinical features of Asperger's syndrome, naming the condition after the Austrian paediatrician whose work, up until to that time, had been little known outside of Germany. The features outlined by Wing (1981a) included: age appropriate language development; resistance to change; a preoccupation with specific interests and repetitive activities; and problems in non verbal communication, social interaction and motor coordination. Wing (1981a) disagreed with Asperger's observation that speech will usually develop before walking for children with the syndrome and his claim that they will typically be highly intelligent and capable of considerable creativity and originality in their chosen field. Wing (1981a) suggested that special abilities tended to relate to a strength in rote learning, which often masked poor comprehension of underlying meaning. Indeed, later research indicated the typical cognitive profile of individuals with Asperger's syndrome to be somewhat uneven, but often characterised by higher verbal and lower performance skills (Ghaziuddin & Mountain-Kimchi, 2004). Wing (1981b) agreed with Asperger (1944) that the condition was seen less commonly in females but proposed that this might relate to an under-referral of females to services, or a greater capacity in females to mask difficulties.

Although Wing (1981a) presented Asperger's syndrome as one in a range of autistic spectrum conditions, she emphasised that identifying the syndrome as a separate entity was useful, primarily as a means of helping people to understand individuals who had autistic features but who talked grammatically correctly and who were not socially aloof; a utility, she suggested, which would suffice until the aetiologies of the autistic spectrum conditions were better known.

Autism and the DSM

The DSM-III-R (APA, 1987) saw the introduction of the category autistic disorder characterised by a triad of features which more closely matched Kanner's (1943) original description. The triad comprised: impairments in reciprocal social interaction; impairments in verbal and nonverbal communication and in imaginative activity; and a restricted repertoire of activities and interests (DSM III-R, 1987). Autism as a spectrum disorder was not recognised in the DSM until the 4th edition (DSM-IV, APA, 1994) with the inclusion of Pervasive Developmental Disorders. Five pervasive developmental disorders were described: Autistic disorder, PPD-NOS, Asperger's syndrome, Rett's disorder and Childhood disintegrative disorder. Within DSM IV (APA, 1994) Asperger's syndrome could be differentiated from autistic disorder in that the individual would have had no significant delay in the development of early language, cognitive skills, self-help skills, adaptive behaviour and curiosity in their environment during infancy. Whilst not included within the DSM IV (APA, 1994) criteria, the term high functioning autism emerged within the literature to describe a presentation in which all the classic signs of autism were present in early childhood but without a delay in cognitive functioning. Whilst the absence of delay in cognitive functioning was considered a feature of both high functioning autism and Asperger's syndrome, the conditions were differentiated by the fact that children with high functioning autism typically experienced a delay in the development of early language.

It has been suggested that the cases described by Asperger (1944) would more closely have met the criteria for a diagnosis of autism rather than Asperger's syndrome using the DSM-IV (APA, 1994) criteria (Miller & Ozonoff, 1997). PDD-NOS was included in the DSM-IV (APA, 1994) to cover cases where the individual did not sufficiently meet the criteria for autistic disorder or Asperger's syndrome. Overall, the amendments in the DSM-IV (APA, 1994) reflected a growing awareness amongst clinicians at the time of the large number of children who shared some of the features of autistic disorder, but who fell short of the DSM-III-R (APA, 1987) diagnostic criteria (Khouzam, et al. 2004).

In the years following Wing's (1981a) paper and the publication of the DSM-IV (APA, 1994), there has been a great deal of academic and public interest in autism and Asperger's syndrome (Wing, 2005). Whilst it is unclear whether the incidence of ASD has increased (Newschaffer, Croen, Daniels, Giarelli, Grether, Levy, ... & Windham, 2007), rates of diagnosis have certainly escalated over the past 20 years (Blaxill, 2004). Russell, Kelly and Golding (2010) identify three factors which have contributed to this escalation: the inclusion in diagnostic criteria of milder conditions (such as Asperger's syndrome), the diagnosis of children at a younger age and a growing awareness of ASD amongst parents and clinicians.

In a UK based epidemiological study exploring public perception of the prevalence and aetiology of autism, Russell, Kelly and Golding (2010) found that most lay people believed the condition to have an environmental cause. Public concern about environmental factors might not be surprising considering the well publicised fears regarding alleged negative side effects on children's health of certain vaccines. Indeed, the late 1990's witnessed a media frenzy following the later discredited research of Wakefield, Murch, Anthony, Linnell, Casson, Malik,... and Walker-Smith (1998), linking the MMR vaccine to the development of autism in children.

Connor (2013) claims that Asperger's syndrome has become a cultural phenomenon, the media's invalidité du jour. Certainly, one does not have to look far to find reference to the condition within the popular media. At the time of writing, an article in the Guardian newspaper (Deveney, 2013) describes the singer Susan Boyle's revelation of having received the diagnosis. Some debate has taken place through social websites over whether the character Sheldon from CBS' The Big Bang Theory should be "outed" as having Asperger's syndrome. The computer hacker, Gary McKinnon, arguing the significance in his case of a diagnosis of Asperger's syndrome, successfully challenged extradition proceedings brought by the US government. Latterly, however, a Google search of the term primarily returns articles from support groups and the popular media discussing the removal of Apserger's syndrome from the latest edition of the DSM (DSM V, APA, 2013a).

The validity of PDD subtypes and the move towards diagnostic criteria revision

Writing in the New York Times prior to the recent DSM revisions, Wallis (2009) quotes Catherine Lord, a member of the APA group evaluating autism for the DSM V (APA, 2013a), who commented that the move to replace the five autistic spectrum disorders with a single diagnostic category had been driven, in part, by a lack of consistent evidence that the terms Asperger's syndrome and high functioning autism represented separate conditions. Indeed, research suggests diagnosis of the pervasive developmental disorder subtypes has lacked reliability. In a multisite study, with clinicians using the same standardised assessment tools across sites, Lord, Petkova, Hus, Gan, Lu, Martin,., ... and Risi (2012) found that there were significant differences in the way the diagnosis of autistic disorder, Asperger's syndrome and PDD-NOS were assigned to children.

Lord et al. (2012) speculated that these differences may have related, in part, to regional service provision for different diagnosis. It is of note that all the sites included within Lord et al.'s (2012) study were in the USA, where service provision may vary on a

state by state basis. For example, whilst in Texas and California a diagnosis of autistic disorder would enable an individual to access state services, a diagnosis of PDD-NOS would not (Wallis, 2009). In an earlier article, the British psychologist Tony Attword (2003) noted that American clinicians often felt compelled to provide diagnosis which best enabled children to access the support they needed. Attwood (2003) also highlighted a potential difference in the way that clinicians and researchers have used diagnosis, with a clinician often employing the label which seemed most appropriate in helping a client to define and understand their difficulties whereas the priority for researchers had been to identify discrete groups for study.

Investigating the validity of PDD subtypes, Prior, Eisenmajer, Leekam, Wing, Gould and Ong (1998) carried out a study to identify what behaviours cluster together for children with ASD. They collected information from 135 children with a formal diagnosis of high functioning autism, Asperger's syndrome or PDD-NOS, using a 110 item checklist. These items covered behaviours from across the triad of impairments described by Wing and Gould (1979). Three clusters (AB&C) emerged from their analysis which did not neatly fit with the three diagnostic criteria. Indeed, 50% of children with high functioning autism were in cluster A, 30% of children with Asperger's syndrome were in cluster A and 50% of children with Asperger's syndrome were in cluster B. Rather than the groups being separated by distinct behaviours, analysis showed that separation was due to the severity of behaviours (Cluster A being the most impaired, cluster C the least). Furthermore, when data relating to developmental history was explored, it was found that language delay did not separate the groups.

Firth (2004) also questions the validity of distinguishing between Asperger's syndrome and high functioning autism on the basis of early language acquisition. She comments that not only is the reliance on retrospective accounts for this information

problematic, but, far from being normal, the early language of children who are given a

diagnosis of Asperger's syndrome has often been described as atypical – for example, using

words or phrases not often used by other children. In line with Prior et al.'s (1998) research,

Ozonoff, South and Miller (2000) found that Asperger's syndrome and high functioning

autism both involved the same symptomatology, differentiated only by the degree or severity

– with children diagnosed as having Asperger's syndrome demonstrating less severe

symptoms and better outcomes.

A second feature of the DSM-V (APA, 2013a) has been the move to define autism on

the basis of two rather than three dimensions of impairment. This amendment follows a

number of factor analytic studies (for example Gotham , Risi, Pickles, & Lord, 2007) which

have shown social impairments and social communication deficits to load onto a single

factor. The two dimensions of ASD would, therefore, be a) deficits in social communication

and b) restricted and fixated interest. Diagnosis is accompanied by a score to represent the

severity of these features for the individual.

There is, Baron-Cohen (2009) has commented, a risk that individuals with an existing

diagnosis of Asperger's syndrome will feel disenfranchised by the new diagnostic criteria. In

her 2009 New York Times article, published prior to the DSM-V (2013) revision, Wallis

noted that opinion amongst people with an Asperger's syndrome was divided on the prospect

of losing the label. Indeed, the DSM revisions are not only a matter of debate for researchers

and mental health professions, but, as Giles (2014) has commented, in this age of digital

communication there are a great many powerful interest groups for whom these changes are

of concern. By 2010, one online community alone, Wrongplanet.net, had attracted a reported

25,000 members (Jordan, 2010), climbing to 62,000 members in 2012 (Giles, 2014). Most of

the site's contributors identified as having Asperger's syndrome or high functioning autism

(Jordan, 2010). Analysing discussion board conversations on the Wrongplanet website, Giles

(2014) found that there was concern amongst members regarding the loss of their aspie identity, and the possible impact changes could have on the provision of services. However, he also found that many members felt strongly that the condition should be viewed primarily as a spectrum disorder, with some identifying with the term "spectrumite" rather than Asperger's syndrome.

In summary, the concept of ASD has been subject to continuous revision and re-classification over the past 70 years. The range of distinct ASD subtypes has given way to a boarder conceptualisation of the disorder. It is, at present, too early to assess how the loss of the Asperger's category will be experienced by individuals who have already received this diagnosis.

Given the higher prevalence rates of mental health difficulties experienced by adolescents with high-functioning ASD compared to the general population of adolescents, the present review aims to establish the conclusions that can be drawn from the research literature covering the core cognitive deficits underlying the social-interactional features of the disorder.

The core cognitive deficits of ASD in adolescents without an identified intellectual disability

Review strategy

A literature search was conducted using the following databases; Medline; PsycINFO; PsycARTICLES; Web of Knowledge, ASSIA, books@OVID and EBM Reviews. Google scholar was used to find additional papers.

The parameters of this review were set taking careful account of Kaland, Mortesen and Smith's (2007) cautionary comment that cognitive abilities assessed as present in adulthood for individuals with ASD may have developed through maturity and experience and cannot be assumed to be fully developed in adolescents. Consequently, the review

focused specifically on research exploring the cognitive deficits associated with ASD in adolescents without an identified intellectual disability. However, research involving none adolescent populations was included where it was assessed as providing important contextual detail regarding the development of ideas in the area. The review focused principally on research which best evidenced the current state of knowledge in this field. A total of 21 studies were included (Please see appendix A for a more detailed description of the review strategy). An important issue to consider when reviewing the research literature is whether adolescents diagnosed with a PDD under the DSM-IV (APA, 1994) – and possibly, therefore, having been included in ASD groups within research - would receive a diagnosis of ASD under the new criteria. Lord et al. (2012) offer reassurance that, as all the behavioural dimensions from the DSM-IV (APA, 1994) criteria are included in the DSM-V (APA, 2013a), there should be no fewer individuals receiving diagnosis, providing criteria are used as intended. In a study comparing agreement between the DSM-IV (APA, 1994) and DSM-V (APA, 2013a) for a sample of 125 children with previously diagnosed autism spectrum disorders, Mayes, Black and Tierney (2013) found that, in line with Lord et al.'s (2012) claim, there was very high agreement for high functioning autism and low functioning autism (98%). However, they also found very low agreement (27%) between the two manuals when children with PDD-NOS were assessed. Children, therefore, with a diagnosis of PDD-NOS might not meet the criteria under the DSM-V (APA, 2013a) for a diagnosis of ASD. This finding suggests that a degree of caution may be necessary when reviewing research which included individuals with PDD-NOS in their ASD sample. Given that the evidence base (for example, Firth, 2004) suggests there is insufficient evidence to distinguish between Asperger's syndrome and high functioning autism, research involving participants with either classification will be relevant when reviewing research on ASD for individuals without a known intellectual impairment.

However, the matter of co-morbidity should be born in mind. At least 70% of children diagnosed as having an ASD also have one or more co-morbid psychiatric disorders (Simonoff, Pickles, Charman, Chandler, Loucas, & Baird, 2008). It is of note that the behavioural features of autism are shared by a range of mental health problems and, as such, it becomes very difficult to say with any certainty that a particular behaviour belongs to autism or to a co-morbid condition. The issue of co-morbidity is particularly salient when considering research investigating the genetic basis of autism. No specific autism gene has been identified and, whilst numerous genetic patterns have been linked to specific features of autism, they have not been exclusively linked to the disorder, but instead are shared by a range of psychological and psychiatric disorders (Lord & Jones, 2012).

This review considered the four main cognitive explanations for the core cognitive deficits of ASD– Theory of Mind (ToM), executive function, central coherence theory, and extreme male brain theory.

Theory of Mind

False belief tasks (Wimmer & Perner, 1983) have been one of the main ways in which ToM abilities have been evaluated in school aged children with ASD (Williams & Happé, 2009). These tasks typically involve the child being shown a series of events enacted by dolls in which information is given about the incongruous location of an object. It is emphasised that the doll is unaware of this information. The child is then asked to take the perspective of the doll (mentalising) to say where the doll might believe the object to be located. Passing this test involves the child recognising that the doll would be unaware of the true location of the object and would, therefore, incorrectly assume it to be in the congruous location. Baron-Cohen et al. (1985) found only 20% of children with ASD in their study were able to pass this test.

If ToM deficits were a core feature of ASD, one might expect there to be universality of the deficit for all people with ASD, both those with and without an intellectual disability. That even 20% of Baron-Cohen et al.'s (1985) original sample passed the false-belief test might call into question this universality. Indeed, once a higher percentage of children with milder features of ASD (for example, Asperger's syndrome) were included in studies following the broadening of definitions, results began to look very different, with a greater proportion of children passing false belief tests (Leekam, 2006). Baron-Cohen (1989) proposed that, whilst the simplicity of these first order tasks meant many higher functioning individuals with ASD were able to complete them successfully, if a higher level test of ToM were employed the universality of this specific developmental deficit could be demonstrated.

The higher level, or second order, test of ToM used by Baron-Cohen (1989) involved participants identifying embedded mental states, i.e. what one person might think another person is thinking. Baron-Cohen (1989) found that, when these more complicated tests were used, all children with ASD, both high and low functioning, showed a significant impairment.

Whilst a number of studies have demonstrated second order ToM impairment in younger children with ASD (White, Hill, Happé, & Firth, 2009) and adolescents (Kaland, Callesen, Moller-Neilson, Mortenson & Smith, 2008), studies carried out with adolescents and young adults with Asperger's syndrome has yielded inconsistent results, with Bowler (1992), for example, finding that most in their study could pass these tests.

More recently, in a study benefiting from a larger sample of children and adolescents with high functioning ASD, Scheeren, Rosnay, Koot and Begeer (2012) did not find any differences in either the child or adolescent groups when compared to controls of typically developing individuals. They conclude, however, that whilst individuals with high functioning ASD might be able to master the theoretical principals of ToM, they may still fail to apply these principles in real world situations.

Eye tasks (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997) have emerged as a generative method for assessing advanced ToM abilities in adolescents and adults. Baron-Cohen et al.'s (1997) research illustrated that, for normative populations, a great deal of information about the emotional states of others can be read from facial expressions, and for complex mental states seeing the eyes alone is as informative as seeing the whole face. However, people with high functioning autism or Asperger's syndrome show an impairment in recognising complex mental states, with the most marked impairment occurring when the eyes alone are viewed. One might speculate, therefore, on whether people with ASD have a deficit recognising emotions, or whether they spend less time attending to facial cues due to gaze aversion. Sawyer, Williamson and Young (2012) found that, whilst individuals with Asperger's syndrome in their study were less accurate when identifying emotional states, they did not show evidence of gaze avoidance compared to a normative sample. The use of an exclusively adult sample in Sawyer et al.'s (2012) study should be noted, however, given the focus of the present review.

Building on the eye task paradigm, Spezio, Adolphs, Hurley and Piven (2007) developed a test which involved showing participants pictures of specific areas (bubbles) of a face from which they would make a judgment regarding what emotion was being expressed. Compared to matched controls, adolescents with high functioning ASD or Asperger's syndrome were shown to rely primarily on the mouth when making these judgments, not the eyes as was the case with the normative control group. In a later study using the same test, Song, Kawabe, Hakoda and Du (2012) found that participants with high functioning autism were able to derive information about positive emotions from eyes, but not information pertaining to negative emotions.

Further potential deficits are identified when researchers have moved beyond the use of still photographs. Koning and Magill-Evans (2001), for example, found that, although

adolescents with Asperger's syndrome might be able to identify the emotional state of others when labelling still photos, they encountered greater difficulty when confronted with the simultaneous presentation of facial, auditory, body and situational cues. Koning and Magill-Evans (2001) reported also that adolescents with Asperger's syndrome tended to rely on fewer available cues when inferring emotional state than the normative sample, which may make them more susceptible to error.

Executive function

Generative as the ToM account of the social-communication features of ASD has been, the theory does not explain the behavioural dimensions of the disorder. Executive function is an umbrella term referring to a range of overlapping neuropsychological processes including planning, inhibition, cognitive flexibility, selective attention and working memory (Montgomery, Stoesz, & McCrimmon, 2013). Executive dysfunction has been proposed as one possible explanation for the restrictive and repetitive patterns of behaviours and interests seen in ASD (Lopez, Lincoln, Ozonoff, & Lai, 2005). It has been suggested these problems could manifest in an inability to shift from an internal to external point of reference or disengage from specific objects and, as a consequence, result in difficulties in relating to people or participating in conversations where topics change over time (McCrimmon, Schwean, Saklofske, Montgomery, & Brady, 2012).

A number of laboratory based studies have identified executive function problems in adolescents with ASD. For example, Luna, Doll, Hegedus, Minshew and Sweeny (2007) found that, compared to an age and IQ matched normative sample, response inhibition and spatial working memory were impaired for individuals with high functioning ASD. Rosenthal, Wallace, Lawson, Wills, Dixon and Yerys (2013) found that, again compared to a normative control group, executive function problems worsened for individuals with high functioning ASD as they progressed through adolescence.

However, as Rajendran and Mitchell (2007) note, the uniqueness of the executive function problems in ASD is questionable, given that a number of conditions, including Attention Deficit Hyperactivity Disorder, Tourette syndrome and Obsessive Compulsive Disorder share similar executive dysfunction profiles. Nyden, Gillburg, Hjelmquist and Heiman (1999) compared performance in executive function and attention tasks of children with Asperger's syndrome, attention disorder and reading and writing disorder with that of a control group of normally developing children. They found that all the groups performed worse than the control on the executive function and attention tasks, with children diagnosed as having attention disorder showing the highest level of impairment. However, there were no specific markers in terms of an executive functioning profile that could distinguish the three groups. Therefore, whilst executive dysfunction may be a feature of ASD, it is not a unique feature upon which the condition might be differentiated from other disorders.

Montgomery, et al. (2013) investigated the power of executive function, ToM and a third variable, emotional intelligence, in predicting social difficulties for older adolescents with Asperger's syndrome. Emotional intelligence, Montgomery et al. (2013) explain, can be conceptualised as having two elements: ability and trait. Ability emotional intelligence involves recognising the meaning of emotions and being able to problem solve on the basis of the interaction between emotion and reasoning. Trait emotional intelligence relates to an individual's own perception of their emotional abilities and is associated with a range of competences such as optimism, self awareness and self-esteem. Montgomery et al. (2013) administered a battery of tests which included the D-KEFS (Delis, Kramer, Kaplan, & Holdnack, 2004) as a measure of executive function; self report measures of trait and ability emotional intelligence; and Baron-Cohen, Wheelwright, Raste, and Plumb (2001) "Eyes test–revised" as a measure of advanced ToM. They found that the Asperger's syndrome group showed more subtle impairments than the combined Asperger's and high functioning autism

group and that the impairments were more significant when compared to the normative group. The Asperger's syndrome and high functioning autism groups showed significant executive function impairments on tasks of inhibition and those combining inhibition and cognitive flexibility. Whilst previous research by Montgomery, McCrimmon, Schwean and Saklofske (2010) showed no impairment in ability emotional intelligence for the same group of participants, in their most recent study they reported impairments in actual social interactions. Again this might point to a discrepancy between ToM skills as assessed in a laboratory setting and the real world experience of ToM difficulties. In terms of predictor variables, whilst executive function and ToM abilities alone did not predict social stress, a model incorporating ToM and trait emotional intelligence accounted for 33% of variance, with increased ToM skills and less developed emotional intelligence predicting social stress.

Flood, Hare and Wallis (2011) draw on Crick and Dodge's (1994) normative model of information processing to study social cognition for adolescents with Asperger's syndrome. Crick and Dodge's (1994) model integrates a range of processes, including ToM, executive function and joint attention into a single model to explain how adolescents with Asperger's syndrome approach and engage with social situations. According to the model, the individual encodes and interprets social cues based upon their social knowledge, schemas and a database of past experiences; they identify and select strategies for achieving their goals; evaluate these strategies against moral rules and internalised values and finally initiate a response. Rather than being a linear process, each stage involves a series of feedback loops. For Flood, et al.'s (2011) study, adolescents with and without Asperger Syndrome read stories depicting negative social peer interactions before answering questions about interpretation, evaluation of, and potential responses to, the described scenarios. Interestingly, they found that, in contrast to previous research (Baron-Cohen, 2000) and despite obtaining lower scores on the ToM assessment, participants with Asperger Syndrome

had no greater difficulty than normally developing adolescents in correctly attributing the intent of protagonists in the stories. Whilst Flood, et al.'s (2011) approach holds promise, as it attempts to integrate various aspects of cognitive functioning, the social scenarios used may have lacked the complexity of real world situations.

Central coherence

Central coherence theory proposed by Firth (1989) postulates that, whilst typically developing individuals are able to extrapolate the gist or global meaning of information, people with ASD have a tendency to process information locally, in a detail-focused way, failing to obtain the global meaning (i.e. a weak central coherence). Repetitive behaviours, according to this model, are seen a mechanism for limiting environmental variance (South, Ozonoff & McMahon, 2007). Weak central coherence has been studied, Le Sourn-Bissaoui, Caillies, Gierski and Motte (2011) have commented, in two main domains: visual spatial coherence and verbal semantic coherence. Studies of the former, typically assessed through Block Design tests and the Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971), have illustrated that individuals with ASD are often better able than normally developing individuals to complete tasks which can be segmented or involve discrete components. This, it has been suggested, is due to a lack of cognitive drive to view objects in their global form (Rajendran & Mitchell, 2007). Verbal semantic coherence has been explored through linguistic and contextual processing (Le Sourn-Bissaoui et al. 2011). For example, Jolliffe and Baron-Cohen (1999) found that adults with high functioning ASD or Asperger's syndrome experienced difficulty integrating linguistic material (i.e. homophones within sentence context, selecting the correct sentence to provide the correct inference for a scenario and interpreting an auditorily presented ambiguous sentence).

Contrary to the predicted outcome based upon central coherence theory, adolescents with Asperger's syndrome completing a global processing task in Rinehart, Bradshaw, Moss,

Brereton and Tonge's study (2000) did not differ in performance from a control group of individuals without an ASD diagnosis. Whilst Rinehart et al.'s (2000) study is limited by small participant numbers, further evidence contrary to the predictions of central coherence theory is provided by Kaland et al. (2007) who found adolescents with Asperger's syndrome performed less well on Block design and Embedded Figures tests than matched controls. Kaland et al. (2007) noted that, as many studies of central coherence have employed adult samples, age might be an important factor in the completion of these tasks and that this has not been given sufficient consideration within the literature.

South, et al. (2007) explored the relationship between repetitive behaviours and tests of executive functioning and central coherence for adolescents with high functioning ASD. Using an age and IQ matched control group, they found partial support for a link between repetitive behaviours and executive function, but no link between repetitive behaviours and central coherence.

Lord and Jones (2012) commented that, whilst there is debate about the relationship between social deficits and repetitive / restricted patterns of behaviour, at present there is no clear evidence to suggest deficits in one domain cause deficits in the other. Research indicates the restrictive / repetitive behaviour domain of ASD comprises two distinct factors or dimensions (Szatmari, Georgiades, Bryson, Zwaigenbaum, Roberts, Mahoney, Goldberg, & Tuff, 2006; Bishop, Richler, & Lord, 2006). Szatmari et al. (2006) report a correlation, whereby repetitive sensory motor behaviours were found to negatively correlate with adaptive skills, and Insistence of sameness positively correlated with communication and language. Bishop, Richler and Lord (2006) found age and non-verbal IQ mediated the type and nature of repetitive / restrictive behaviour in children with ASD, such that older children with higher verbal IQ exhibited less restrictive repetitive behaviour.

Extreme male brain theory

Whilst theories of executive function and central coherence may offer some explanation for the restrictive / repetitive behaviours seen in ASD, ToM only accounts for the social communication dimensions of the disorder. Baron-Cohen, Knickmeyer and Belmonte (2005), therefore, proposed the extreme male brain theory in which they hypothesised that individuals with ASD "match an extreme of the male profile, with a particularly intense drive to systemise and an unusually low drive to empathise" (Baron-Cohen, et al. 2005, p13). Within the general population, males, Baron-Cohen, et al. (2005) have suggested, tend to be stronger systemisers (developing principles to understand complex systems), and females are stronger empathisers (possessing a greater understanding of social environments and understanding the mental state of self and others). ASD, Baron-Cohen, et al. (2005) proposed, represents the extreme male brain pattern. Males are, therefore, more at risk of developing ASD than females, which accounts for the much higher prevalence rate of the condition amongst males. Krahn and Fenton (2012) have argued that Baron-Cohen, et al. (2005) have been misled by the unpersuasive gendering of certain human aptitudes and behaviours. They claimed that diagnostic systems have developed which inadvertently favour males, and, as a consequence, have perpetuated the under-diagnosis of females.

Females with Asperger's syndrome tend to be referred later to services (Goin-Kochel, Mackintosh, & Meyers, 2006) though many, Attwood (1998) has commented, slip through the net. Research suggests that females are better able to mask their difficulties by, for example, engaging in pretend play (i.e. imitating or repeating play modelled by other children, Knickmeyer et al. 2008), or echolalic speech (Kirkovski et al. 2013).

An alternative to deficit focused research

Lord and Jones (2012) have claimed that, whilst there is a substantial body of research demonstrating that people with ASD show a mean difference from control groups on a range

specific measures, fine grained understanding of the behavioural features of ASD at an individual level is currently lacking. They have suggested that analysis of individual differences, how the features of ASD interact with the individual's strengths and are affected by opportunities, is essential for developing a better insight into the nature of ASD. It may be argued that, rather than designing research to test hypothesised deficits, there would be value in striving to understand better the social worlds of individuals with ASD through qualitative exploration.

A second literature review was carried out to identify studies which have employed qualitative methodologies to explore the social worlds of adolescents with high-functioning ASD (see appendix B for search strategy). Three studies meeting the inclusion criteria were identified: Carrington and Graham, 2001; Carrington, Templeton and Papinczak, 2003; Daniel and Billingsley, 2010.

Carrington and Graham (2001) reported a case-study in which they interviewed two 13 year old boys with Asperger's syndrome and their mothers. The study provided a valuable insight into the adolescents' anxieties at having to hide their ASD (masquerading) in order to better fit into their school environment and the stress they experienced managing social interactions with peers. Participant accounts revealed the difficulties they experienced in understanding the concept of friendship and appreciating the perspectives of other people. Indeed, potential ToM deficits were evident, with one participant commenting on feeling like an alien observing a world in which people act in ways he neither understands nor expects. Based upon the accounts of their participants, Carrington and Graham (2001) provided a number of practical suggestions for teachers regarding, for example, recognising stress in students with ASD and helping students develop coping strategies. Carrington et al. (2003) built on this research in a subsequent study in which they interviewed five adolescents with Asperger's syndrome. Again the theme of masquerading featured prominently in

participants' accounts. The study found that, whilst participants were able to describe what a friend was not (i.e. undesirable characteristics in others), their understanding of the language and concepts of friendships was, again, limited. Carrington, et al. (2003) suggested that descriptions of friendship characteristics offered by participants demonstrated their cognitive inflexibility. Daniel and Billingsley (2010) used Carrington, et al.'s (2003) interview schedule, together with parental reports and school records, to explore the relationship experiences of seven adolescents with high functioning ASD. Their research highlighted that, despite participants offering positive descriptions of the friendships they had, they saw the task of developing new friendships as being difficult.

Carrington and Graham (2001) cautioned that researchers must be mindful not to make assumptions based upon their own beliefs regarding friendship as these may differ from those held by adolescents with ASD. Whilst they suggested that further qualitative research is required in order to develop the knowledge base, they highlighted that social communication difficulties experienced by this client group can make such research challenging.

Summary and Implications

This paper has attempted to provide an account of the changes to the diagnostic criteria for ASD and, in light of the most recent revisions to the DSM, review current thinking about the core cognitive features of ASD for adolescents without an identified intellectual disability. Zwaigenbaum (2012) has observed that it is, perhaps, ironic that a developmental disorder characterised by resistance to change should have itself undergone considerable paradigm shifts over the past 15-20 years. However, despite an escalation in diagnosis, growing public awareness of the condition, the sense of identification many people have with, in particular, Asperger's syndrome and a substantial body of research dedicated to

the area, no one theory can yet fully account for the core deficits attributed to ASD within this population.

It is perhaps unsurprising that a spectrum disorder that has proven so difficult to define succinctly has been the subject of such wide ranging and often conflicting research findings. Rajendran and Mitchell (2007) have noted that finding any unifying theory to explain the core cognitive deficits of ASD may be complicated by the possibility of there being many different types of autism, with the same core symptoms of ASD developing from a wide range of aetiologies. This does not mean, however, that current cognitive theories of ASD lack validity, or that the continued efforts to refine these theories through research would be of no value. Indeed, the ToM hypothesis in particular continues to provide a convincing account of the difficulties in perspective taking (mentalisation) experienced by individuals with ASD. At this stage, the salient issue is not which cognitive theories are valid, but rather how can these theories be tested when methods for adequately capturing hypothesised deficits are currently lacking? Both a priority and a challenge for researchers will be to move beyond the laboratory setting to develop assessment methodologies sensitive to hypothesised deficits but which more closely reflect the type and nature of real world situations experienced as challenging by people with ASD. Taking account of compensatory strategies utilised by these individuals to cope with their difficulties will also be very important. Even with second order tests of ToM, the scope for participants to apply rote learnt knowledge of emotional states in the completion of research tasks has not been fully taken into account.

Whilst theories of ToM, executive functioning and central coherence continue to hold promise, the author has been less convened by Baron-Cohen et al.'s (2005) extreme male brain theory – a theory which, others have argued, reflects the inadequacy and gendering of

current assessment techniques rather than the hypothesised extreme male profile in this population.

As the research stands, it is possible to draw some conclusions about cognitive deficits in ASD. It is likely ToM abilities are delayed for individuals with ASD, even those who do not have an intellectual impairment; adolescents with high functioning ASD often find reading the emotional state of others difficult, and, unlike the normative population, will typically rely on the mouth rather than the eyes for emotional cues; adolescents with high functioning ASD will often experience executive function problems, specifically in relation to inhibition, working memory and cognitive flexibility, and will tend to experience difficulty generalising or extrapolating the gist from situations, focusing instead on fine detailed information.

The current review would indicate that the cognitive deficits of ASD are multiple. Therefore, the author would suggest that developing research which is not narrowly focused but accesses the range of cognitive processes hypothesised as areas of deficit in ASD may hold promise. Furthermore, within future research it will be important to explore co-morbidity in relation to possible core cognitive deficits - for example, adolescents with ASD and co-morbid ADHD or language delay or intellectual disability. In doing so, researchers may potentially be utilising participant groups which have a greater degree of homogeneity than would have been possible using groups defined under the PDD subtypes.

A greater understanding is needed of the behavioural features of ASD in females who do not have an identified intellectual impairment. This is a further reason why it is important to move beyond the deficit focused approach which has predominated ASD research since such research has typically employed gender biased measures which are insensitive to ASD presentations in females.

Detailed qualitative investigation of individual cases, or small groups of individuals with similar presentations, could help develop a better understanding of the nature of ASD for individuals without an identified intellectual disability. Whilst the literature base may provide some indication of the difficulties these individuals are likely to encounter, there is little research exploring how relationships are actually experienced by this population or how their experience relates to developmental stage demands.   Diagnostic tools for ASD have been developed on an incomplete conceptualisation of the behavioural features of the disorder. A better understanding of the social worlds of adolescents with ASD would, it is suggested by the present author, help the development of more sensitive diagnostic tools.

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MAJOR RESEARCH PROJECT

MARK MURPHY BSc (Hons) MSc.

Section B:

Using personal construct psychology to explore relationships for adolescents with high functioning autism spectrum disorder

Word Count: 7,672 (plus 912 additional words)

A thesis submitted in partial fulfilment of the requirements of
Canterbury Christ University for the degree
of Doctor of Clinical Psychology

April 2014

SALOMONS
CANTERBURY CHRIST CHURCH UNIVERSITY

Section B: Empirical Paper

Contents

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Abstract

Background: Individuals with high functioning Autism Spectrum Disorder (ASD) stand an increased risk of experiencing mental health problems during adolescence. The present study aimed to develop a better understanding of interpersonal relationships in the lives of adolescents with high functioning ASD.

Method: Eight adolescents with a diagnosis of Asperger's syndrome or ASD without an identified intellectual disability engaged in a structured Personal Construct Psychology interview to explore interpersonal relationships. Interviews were transcribed and subjected to a thematic analysis.

Results: Four themes were identified: 1) Relationships as a source of support, 2) Perceptions of similarity and difference, 3) Valued qualities in self and others and 4) The development and maintenance of relationships.

Conclusions: Whilst this exploratory study highlighted some commonality in terms of perceptions of family support and friendships as protective and desirable, the participants differed in their ability to establish and maintain peer relationships. However, peers were seen by participants as being very important in the development of social skills - a finding which has implications for the delivery of social skills training and other supportive interventions. The Personal Construct Psychology approach provided an accessible and useful platform for the exploration of the social worlds of adolescents with ASD.

Keywords: autism spectrum disorder, Apserger's syndrome, relationships, friendships, personal construct psychology, qualitative.

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Introduction

Changes to the ASD diagnostic criteria

The 5th edition of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-V, APA, 2013) includes significant changes to the diagnostic category of autism. Within the new manual a single category of autism spectrum disorder (ASD) replaces all the conditions previously categorised under pervasive developmental disorders (PDD) in the DSM-IV (APA, 1994), including Asperger's syndrome. This new category is graduated to indicate the severity of the condition. There is preliminary evidence to suggest that individuals previously diagnosed as having Asperger's syndrome or high functioning autism would receive an ASD diagnosis if assessed using the DSM-V (APA, 2013) criteria (Mayes, Black & Tierney, 2013).

ASD and deficits in social communication

A necessary criterion to be met in reaching a diagnosis of ASD within the DSM-V (APA, 2013) is the presence of "persistent deficits in social communication and social interaction across multiple contexts" (DSM-V, APA, 2013, p.50). Manifested by:

1. Deficits in social-emotional reciprocity

2. Deficits in nonverbal communicative behaviours used for social interaction

3. Deficits in developing and maintaining relationships, appropriate to developmental level (DSM-V, 2013)

Pupils with ASD in mainstream education

It is estimated that the prevalence of ASD[1] amongst children in the UK is 157 per 10,000 (Baron-Cohen, Scott, Williams, Bolton, Matthews & Brayne, 2009). In line with government policy (Department of Education & Skills, 1997), recent years have seen an

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[1] The present paper takes full account of the changes to classification within the DSM-5. The prefix high functioning is used when the referenced population has a diagnosis of ASD without a learning disability. However, as the body of research from which the author has drawn was conducted prior to the change in classification, the term Asperger's syndrome, where used, has been retained when referencing these sources.

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increase in the number of children with ASD attending mainstream educational settings (Symes & Humphrey, 2010). Whilst the social environment of school can be a source of challenge and opportunity for children with ASD (Jones & Frederickson, 2010), research suggests that the needs of pupils with ASD are often inadequately provided for, with many teachers finding the incongruence between student's academic abilities and social difficulties hard to reconcile (Symes, & Humphrey, 2010). When the child with ASD enters adolescence, social problems can often worsen, and feelings of loneliness and isolation may emerge (Locke, Ishijima, Kasari & London, 2010).

Friendships

The development of friendships, it has been suggested, is of vital importance during adolescence because of the individual's growing need for acceptance by their peer group (Rubin, et al. 2004). Friendships provide an opportunity for the adolescent to nurture key social and cognitive skills such as cooperativeness and sharing (Whitehouse, Durkin, Jaquet, &Ziatas, 2009). Furthermore, the quality of these relationships is considered to be very important, with higher quality friendships associated with a more positive sense of self-worth and increased perceptions of classmate support(Rubin, et al. 2004).

A number of studies have reported a higher prevalence of mental health problems amongst adolescents with high functioning ASD when compared to the general population (Bellini, 2006; Whitehouse, et al. 2009). Tantam (2000) has suggested the experience of rejection and isolation resulting from the social deficits associated with the syndrome contributes significantly to the development of mental health problems such as anxiety and depression.

The research of Whitehouse et al. (2009) indicates that there is an association between the experience of poor quality social relationships and increased levels of negative affect in adolescents with high functioning ASD. They found that levels of loneliness and depressive

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symptoms were significantly higher in participants with high functioning ASD compared to the levels evidenced by non-autistic participants. However, by only considering only loneliness and depression, Whitehouse et al. (2009) neglected to take account of the wide range of additional mental health and behavioural difficulties which might contribute to the experience of poorer quality friendships for this population.

Loneliness

Weiss (1973) distinguished between social-cognitive and emotional loneliness. Social-cognitive loneliness refers to the experience of social isolation and feelings of rejection resulting from an inadequate social network. Emotionalloneliness refers instead to feelings of emptiness experienced due to a lack of adequate attachment relationships. The research of Bauminger and Kasari (2000) found that children with high functioning ASD experienced higher levels of social-cognitive loneliness than non-autistic children. Furthermore, whilst many of the autistic children in their study reported having at least one friendship, these relationships were generally poorer in quality than the relationships experienced by none autistic children. Importantly, Bauminger and Kasari's (2000) research indicated that, rather than preferring to be on their own, children with high functioning ASD had the same desire for friendships as their non-autistic peers. A common limitation of research exploring loneliness in relation to ASD has been the reliance on self-report measures. In addition to vulnerability to social desirability bias in participant reporting, such measures provide no indication as to whether friendships identified by participants are reciprocal or unidirectional. Furthermore, measures such as the Friendship Quality Scale (Bukowski, Boivin & Hoza, 1994) rely on a narrow, arguably overly simplistic, conceptualisation of friendship and provide little insight into the qualitative experience of relationships.

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The challenge of exploring the nature of social relationships experienced by adolescents with ASD

Tantam (2000) emphasised the importance of understanding the subjective experiences of people with ASD so that services can respond appropriately to the "triumphs and disasters" (Tantam, 2000, p.61) that people with ASD encounter. However, understanding such experiences can present a challenge to existing research methods. Exploratory research into how adolescents with ASD experience their social world has typically involved the use of semi-structured interviews. For example, Carrington, Templeton and Papinczak (2003) interviewed five adolescents with Asperger's syndrome as part of a multiple case study. They found that their participants often lacked insight into what constitutes friendships and struggled to grasp the subtleties of how people relate to each other. However, they also noted that, during their interviews, participants often appeared to experience difficulty understanding orally presented information and frequent prompting was required from interviewers to solicit responses. This highlights a potential challenge in conducting research with this population – that the very deficits being explored may limit the utility of research methodologies which rely heavily upon the subject being able to engage in a conversation with the researcher. Indeed, even a fairly structured interview may be problematic for an individual on the autistic spectrum owing to the complexity of the social interaction.

An alternative approach to exploring how adolescents with high function ASD experience their social world might be found in the work of Hare, Jones and Paine (1999) who reported the use of a clinical assessment technique derived from Personal Construct Psychology (PCP). PCP (Kelly, 1955, as cited in Fransella, 2005) is based on the principle of constructive alternativism, the notion that all our understanding, perceptions and insights are open to question and reconsideration (Butler & Green, 1998). The focus within the PCP

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framework is on exploring how an individual construes (or makes sense of) objects or events in their world. To these objects or events (which might include, for example, experiences, people, places, physical objects or, indeed, the self) Kelly (1955, as cited in Fransella, 2005) ascribes the term elements.

The constructs an individual forms in relation to elements can be understood as bipolar abstractions (such as happy/sad) arising from an awareness of the similarity and/or difference between elements (Butler & Green, 1998). Hare, Jones and Paine (1999) elicited constructs from clients with Asperger's syndrome in relation to people (elements) whom the clients identified as being important in their lives. The technique provided an insight into some of the personal and interpersonal issues which were contributing to their clients' mental health problems. They suggested that the PCP framework is particularly suitable for use with clients with ASD due to its relatively formal structures and interactions. Rather than interviewing the subject, the researcher guides them to complete a construing exercise. Furthermore, the PCP framework enables the researcher to move beyond the identification of specific deficits to an exploration of how the individual actively makes sense of their social world. This has been aided by a technique developed by Hinkle (1965) which he termed laddering and which was first used in a research context by Fransella (1970). Laddering, is the process of eliciting superordinate, value laden, constructs from an individual. This is achieved by asking the participants to select a preferred pole of a bipolar construct and to describe why that pole might be important.

Although PCP research has been dominated by quantitative methodologies, Melrose and Shapiro (1999) comment that PCP tools can provide a valuable framework for stimulating discussions between the researcher and participants, which can then be subjected to qualitative analysis.

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The present study

The literature indicates that adolescents with high functioning ASD experience particular difficulty forming appropriate relationships with peers at school (Attwood, 2006) and are at increased risk of experiencing peer bullying (Wainscot, Naylor, Sutcliffe, Tantam & Williams, 2008) and mental health problems (Whitehouse, et al. 2009). By adopting a PCP framework in which an "individual's views, experiences, meanings, and perceptions can be articulated and understood" (Gucciardi, Gordon &Dimmock, 2009, p.262), the present study allows for a more comprehensive appreciation of the social world of adolescents with high functioning ASD. It represents the first use of a PCP construct elicitation exercise in combination with Fransella's (1970) laddering exercise as a research tool with this client group.

The following research questions were addressed:

1) How do adolescents with high functioning ASD construe interpersonal relationships?

2) From participants' exploration of personal constructs, what can be inferred about the development of successful interpersonal relationships for people with high functioning ASD?

Method

Participant recruitment

Adolescents aged between 13-18 years with a diagnosis of Asperser's syndrome or ASD without an identified intellectual disability were invited to take part in the study.The researcher aimed to recruit 8-10 participants. Within the existing body of qualitative research on this population a number of studies employing thematic analysis have utilised smaller participant numbers (For example, Dann, 2011; Jones, Zhal & Huw, 2001). However, the lower limit of eight for the present study reflects a precedent set in previous qualitative PCP research (Melrose & Shapiro, 1999) employing thematic analysis.

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Design

The study employed an exploratory non-experimental qualitative design. Traditionally, constructs have been elicited using a triadic method. This involves presenting the respondent with three elements and asking in what way two are alike and thereby different from a third (Fransella, 2005). However, as Butler and Green (1998) comment, this approach can be conceptually difficult for young respondents. Dyadic elicitation, considered to be a less demanding task (Butler & Green, 1998), involves the respondent first identifying the similarity between two elements (thereby defining one pole of a construct) before identifying the opposite of that similarity (the contrast pole).

An interview schedule was developed to incorporate a dyadic elicitation task (Hagans, Neimeyer & Goodholm,1999) with the addition of the laddering technique described by Fransella (1970). This combined exercise was the principal component of the participant/researcher interaction and provided a highly structured platform for the exploration of interpersonal relationships.

An initial version of the structured PCP interview was piloted with an adolescent male matching the inclusion criteria. Positive feedback was given by this individual who felt the task was accessible and easily understood and that the ordered nature of the exercise was appealing (See Appendix C for the interview agenda).

Procedure

Participants were recruited via an ASD support charity and the special needs co-ordinator (SENCO) of a secondary comprehensive school, both of whom sent potential participants an information leaflet inviting them to take part (See Appendix D). The researcher outlined inclusion criteria to ensure only suitable candidates were contacted. The criteria were that candidates: were aged between 13-18 years; had a formal diagnosis of ASD

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or Asperger's syndrome; had no identified intellectual disability; had no additional mental or physical health problems; and were participating in mainstream education.

Participants contacted the researcher directly by telephone or email if they wished to take part in the study. All the interviews were conducted in the participant's own home and lasted between 50-90 minutes. At the start of each interview visit, the researcher met with participants and their parent(s)/guardian(s) jointly in order for the interviewer to introduce himself and discuss issues of consent. Participants were invited to choose whether to be interviewed alone or to have their parent(s)/guardian(s) remain present.

The PCP exercise involved participants writing on cards the names of 10 important people in their lives, then, by choosing pairs of cards, identifying characteristics or similarities which the two selected individuals had in common. Participants were next asked to name the opposite of each identified characteristic or similarity. In this way, bipolar constructs were identified. Laddering involved participants identifying which pole of a characteristic/trait they preferred. The researcher would then ask why this characteristic/trait was important. Within their explanation, the participant would typically identify further characteristics or traits. The researcher would again ask the participant to identify the opposites of these new traits/characteristics, select their preferred pole and explain why they felt their selected pole was important.

Ethical approval and considerations

Ethical approval was received from a university ethics committee (see Appendix E). The BPS Code of Ethics and Conduct (2009) was adhered to throughout. The SENCO obtained approval for the school's involvement via her immediate line manager and the Head Teacher (The school required the researcher provide a current, clean, CRB Disclosure form and proof of identity).

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Only those individuals considered by the ASD charity or SENCO capable of engaging in the process, and for whom they believed the process would not be upsetting, were invited to take part. To ensure consent was informed, the study was comprehensively outlined in the information leaflet sent to participants. Parental and participant consent was obtained at the start of each interview (See Appendix F for participant consent form and Appendix G for parental consent form). The researcher read the consent form to each participant and checked their understanding of each element of the form before they signed. The signing of the participant form was witnessed by their parent/guardian. Withdrawal procedures were outlined and data was managed in compliance with the Data Protection Act (1998).

Data analysis

The researcher sought a framework for analysis which would allow for the identification of themes specifically focusing on constructs for, and maintenance of, interpersonal relationships. Therefore, whilst a phenomenological approach such as interpretive phenomenological analysis may have provided a valuable insight into how participants made sense (Larkin & Thompson, 2012) of their experiences, a top down, deductive approach was considered more appropriate.

Braun and Clarke (2006) describe deductive thematic analysis as an explicitly researcher drivenapproach in which specific aspects of data can be analysed in detail. Themes, "specific patterns of meaning found within the data" (Joffe, 2012, p.208), can be identified within thematic analysis with either manifest or latent content. An advantage of thematic analysis, Joffe (2012) comments, is that whilst the data can be analysed utilising certain preconceived categories (a deductive standpoint), the research can also remain open to the emergence of new categories and themes – thus enabling for duel inductive-deductive, latent-manifest theme identification.

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Quality assurance

It was important at each stage of data collection and analysis to be mindful of Boyatzis' (1998) cautionary comment that deductive approaches are particularly susceptible to the projections of the researcher. Although the focus of the analysis was broad (i.e. developing themes concerning relationships, but not informed by coding or specific theories from previous studies) the researcher was mindful of how his knowledge of the ASD literature could potentially impact upon coding. To ensure, as far as possible, objectivity, a research diary was maintained, enabling each stage of the study and analysis to be closely scrutinised (see Appendix H for an example extract). Furthermore, the researcher undertook a bracketing interview (informed by Tufford & Newman, 2012) which provided a platform for reflection on his values, beliefs and, through his own completion of the PCP exercise, relationship constructs (See Appendix I for a summary of the bracketing interview). The researcher was guided by Yardley's (2000) four principles for quality in qualitative research; "sensitively to context; commitment and rigour; transparency and coherence; impact and importance" (Yardley, 2000, p. 215).

An audit trail of theme development was kept and each theme discussed with the lead supervisor of the project (see Appendix J for an extract from the theme development audit trail and Appendix K for an example of an annotated interview transcript).

Process of data analysis

Analysis followed Braun and Clarke's (2006) guidance. Audio recordings of interviews were transcribed and repeatedly read by the researcher. Initial codes were generated to reflect the most basic elements of the raw data, with particular emphasis on developing codes regarding the nature of /maintenance of interpersonal relationships. From the long list of themes produced, the researcher looked for broader overarching themes. Mind maps were used to support this process, an example of which can be found in Appendix L.

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The process of reviewing themes in consultation with his research supervisor enabled the

researcher to further refine the themes until four overarching themes could be defined and

named.

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Results

Participants

Eight participants between the ages of 13-16 took part in the study. Six were recruited via the school and two via the charity. Whilst the researcher had aimed to recruit up to ten participants, a cohort of eight reflects precedent set by previous qualitative PCP research (Melrose & Shapiro, 1999). The host organisations' inability to identify additional participants was seen as a positive reflection of the rigour with which they applied the inclusion criteria, as all eight individuals who came forward were entirely suitable for the study.

Sixparticipants had a diagnosis of Asperger's syndrome, one had a diagnosis of high functioning ASD and one a diagnosis of autism. As can be seen from Table 1, the age of participants at the time of their diagnosis ranged from five to 12 years, with six participants receiving a diagnosis through the NHS and two via private assessment.

Overview of engagement in PCP exercise

The majority of participants (6/8) were able to identify 10 individuals to use as elements in the exercise. Two participants, David and Sarah, found identifying individuals particularly challenging. With encouragement, David was able to name seven and Sarah nine elements. However, in both cases, non-specific elements were included (for example, writing the word "friends" on a card instead of identifying the names of specific individuals). The elements identified by participants could be classified under eight groupings: parents/step-parents, siblings, extended family, friends, teachers, celebrities, the police and pets. As can be seen from Table 2, the most commonly identified elements were parents and friends. Matthew was the only individual to include celebrities and the police. It is of note that Matthew had a very unsettled family background and was currently living with his grandparents.Only two of the eight participants lived with both birth parents. Three lived with their mother and step-father and two with their mother as a sole carer.

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Table 1: Demographic details of participants

Participant Name*	Age	Diagnosis	Age at time of diagnosis	Place of diagnosis	Household
Matthew	16	ASD	5	CAMHS	Grandmother, Step-Grandfather
David	15	Asperger's syndrome	7	Private Assessment	Mother, step-father, younger brother (13 years old)
Sarah	15	Autism	10	NHS Children's Assessment Centre	Mother, step-father, older sister (19 years old)
Tom	15	Asperger's syndrome	5	CAMHS	Mother, step-father, younger brother (11 years old)
James	14	Asperger's syndrome	6	CAMHS	Mother, 3 older brothers (17, 20, 21 years old)
Simon	14	Asperger's syndrome	9	CAMHS	Mother, Father younger brother (11 years old)
Jenny	13	Asperger's syndrome	12	NHS Neurodevelopm-ental centre	Mother, younger sister (10 years old) younger brother
Edward	13	Asperger's syndrome	12	Private Assessment	Mother, Father, younger brother

* pseudonyms used to protect identity

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Table 2: Elements identified by participants

	Parents / step-parents	Siblings	Extended family	Friends	Teachers	Celebrities	The police	Pets
Matthew	2	2	2	2	0	2	1	0
David	2	1	0	3	0	0	0	1
Sarah	2	0	5	1	1	0	0	0
Tom	3	1	0	6	0	0	0	0
James	2	3	2	3	0	0	0	0
Simon	2	1	0	7	0	0	0	0
Jenny	2	2	0	3	3	0	0	0
Edward	2	1	0	5	0	0	0	2

Whilst all participants were able to engage with the format of the exercise and generate bipolar constructs, some found the task more challenging than others. James, for example, explained that it was difficult to describe other people as this was something he rarely had to do in real life. Sarah in particular struggled to elaborate on why identified constructs were important to her. Despite these difficulties, however, participants were clear about the task they were being asked to undertake and quickly settled into the rhythm of the exercise. An example list of constructs identified by a participant, together with a photograph depicting their placement of element cards can be found in Appendix L.

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Thematic Analysis

The thematic analysis of interview transcripts resulted in the identification of four main themes: 1) Relationships as a source of support, 2) Perceptions of similarity and difference, 3) Valued qualities in self and others, and 4) The development and maintenance of relationships. These themes highlighted not only the similarities between participants but also considerable differences in the way participants viewed themselves and their relationships.

Theme 1: Relationships as a source of support

Construct elicitation involving family members as elements highlighted a degree of consensus between participants. Most participants reported access to dependable support as being a salient and much valued feature of their family relationships. This is illustrated by the bipolar construct "There for me/Not really caring" (Figure 1) described by Sarah.

<u>Sarah</u>

Similarity/shared characteristic for Mum and Dad

"There for me"

Bipolar construct:

There for me ——————————————— Not really caring

   ↓   Preference

There for me

Interviewer: "Why is that important?"

Sarah: "Because, if I like need anything, or just like need some help, I can go and talk to them... someone's going to be there"

Figure 1: Bipolar construct for "There for me/ Not really caring".

Whilst James highlighted the loving nature of his family relationships and Matthew spoke of the kindness of his grandparents, for Tom a salient feature of parental support was

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their guidance in helping him to make difficult life choices: "They support me and guide me through life until I can make more decisions on my own".

Sarah and Jenny placed particular emphasis on the supportive nature of family relationships, both individuals notably acknowledging difficulties in their peer relationships and so possibly lacking alternative sources of support.

The protective nature of friendships was acknowledged by a number of participants. Friends could "prevent you from being lonely" (James) and were "there to turn to"(Edward) when feeling threatened. Indeed, a lack of friendships could lead to vulnerability, with Jenny commenting, "If you don't make so many friends, it would be easier to make enemies" (Jenny) and Edward noting, "If you don't have friends there's no one really there for you except for you and your family" (Edward). Only three participants spoke of having contact with friends outside of school. For Simon, this degree of contact was particularly important, as illustrated in Figure 2.

Simon

Similarity/shared characteristic for Friend and Friend:

"Being there when you need them"

Bipolar construct:

Being there ——————————— Not being there when you most need them

    ↓   Preference

Being there in times when it's tough

Interviewer: "Why is it important for a friend to be there for you?"

Simon: "Well, if you're bored or upset. I was staying with my grandmother and I knew that (name of friend) was just over the phone, so I was calling him, talking to him. Then, when we got back we arranged to go out to the cinema. It was just nice."

Figure 2: Bipolar construct for Being there / Not being there when you most need them.

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The importance of mutual support in friendships was highlighted by Simon, James and Matthew, "I help him a lot, and he helps me" (Matthew).

It is of note that the two individuals who reported a history of difficulty in their peer relationships at school, Jenny and Matthew, included authority figures (a teacher and a policeman) in their important relationships and spoke of valuing the support and guidance these individuals had given them; "I talk to my teacher, Miss Johnson,…I don't have her as my teacher for Year 8, but I still see her ever week" (Jenny).Matthew identified "the police" as one of his elements. Although he was subsequently able to identify a specific police officer to use in the exercise, it is possible that Matthew's choice may have symbolised the police generally.

In summary, participants consistently acknowledged family as a source of support. However, whilst friendships were also seen as being supportive and desirable, the reported availability of these relationships varied.

Theme 2: Perceptions of similarity and difference

Participants held a range of perspectives regarding their perceived similarity to, or difference from, the important people in their lives. Some participants identified positively with a sense of difference, some were less comfortable with their perceived differences, whilst others strongly identified with a sense of similarity to friends or family.

David spoke of valuing his and his friend's individuality and considered this quality contributed to their being more "interesting", and, therefore, less "boring" than other people. Similarly, Simon strongly identified with being "unique", explaining this uniqueness had helped him to develop positive relationships at school,"I was unique at the start of school, very quirky and just made everyone laugh and that's how I met David and then Alan and everyone else, erm and that's kind of built up from me being unique".

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It is of note that Simon was the only participant to distinguish between the feeling of connectivity he experienced within his friendship group and the sense of difference he experienced within the wider school community: "In my friendship group I can certainly connect myself to others, but I suppose I'd be unique around the school".

James saw a great deal of similarity between himself and his best friend, commenting that the words he used to describe his best friend could also be applied to him. Tom was of the opinion that a good friend should be like a "mirror" to the self, as outlined in the bipolar construct "Good friend/ Enemy" (Figure 3).

Tom

Similarity/shared characteristic Friend and Brother:

"Good friend"

Bipolar construct:

Good friend ——————————————— Enemy

    ↓   Preference

Friend

Interviewer: "Why is a good friend a good thing?"

Tom: "Trust, similarities, like a favourite TV series, favourite music, favourite food. They are like a mirror, you look at them and you see a bit of yourself in them."
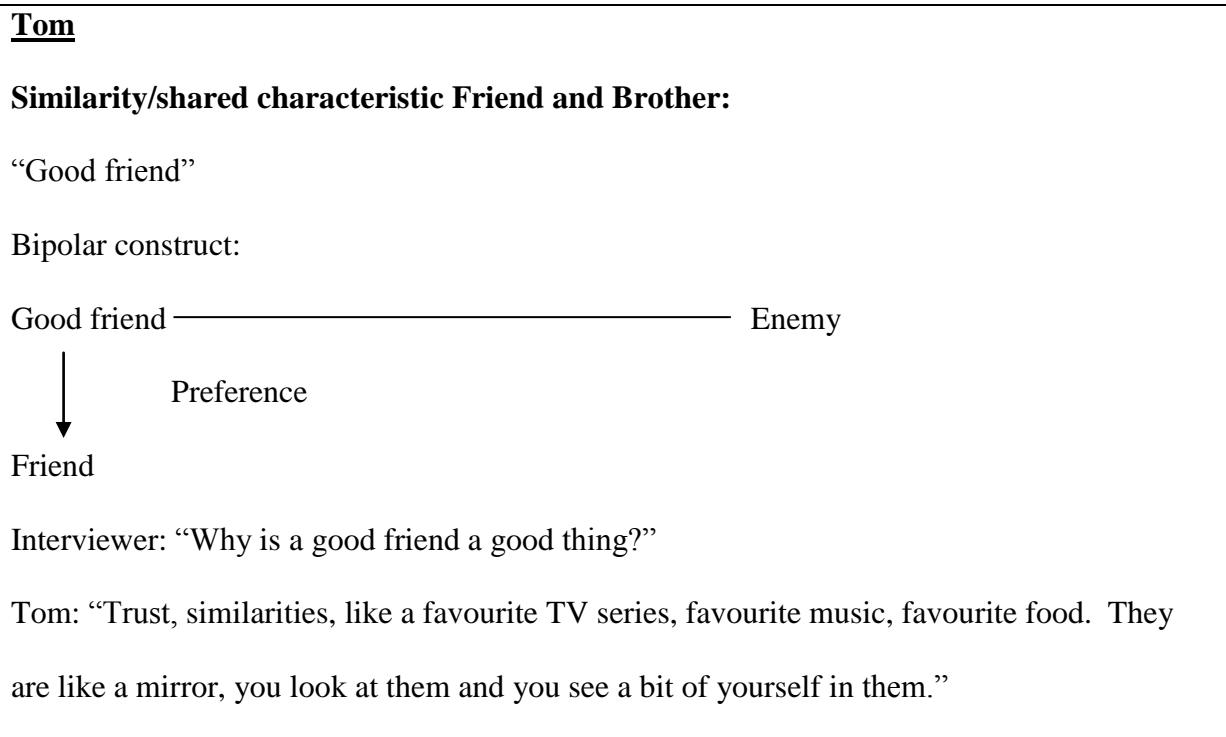
Figure 3: Bipolar construct for Good friend / Enemy.

Despite valuing these similarities, Tom also spoke of his friends holding different perspectives, and, whilst these differences could lead to enjoyable and enlightening discussions, he noted they could often be confusing, "They [two best friends] both like what I like but it's kind of confusing because, say if there's a TV show, they both like it but they both have their different opinions about it".

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The experience of perceived differences was less positive for participants who had encountered difficulties in their peer relationships. Matthew, who reported experiencing considerable bullying at school, recognised his difference and spoke of a desire to be more like his two best friends, both of whom had a physical disability. When discussing the bipolar construct disabled/non-disabled(Figure 4), Matthew expressed a preference for being disabled, rationalising that, if he too had a physical disability, he would gain respect and no longer be a victim of bullying. Indeed, identifying a clausal relationship between, in his words, "physical deformity" and peer respect, Matthew appeared to show a lack of insight into factors which would potentially contribute to his experience of bullying at school.

Matthew

Similarity/shared characteristic: Friend and Friend

"Disabled"

Bipolar construct:

Disabled ———————————— Non-disabled

                                 Preference
↓

Disabled

Interviewer: "Tell me a little about that choice."

Matthew: "Because I would get a lot of respect and that, but, the way I am now, I get no respect"

Figure 4: Bipolar construct for Disabled/ Non-disabled.

Managing difference was a salient theme within Jenny's transcript. She spoke of having to hide her Asperger's from friends using a number of different "masks",

With my really, really close friends I can be more me, but to friends *I've* just recently made *I'd* still be my sort of my mask, my hidden self, and what I would do is *I'd* try to be like them so *I'd* try not mirror them but I would find what they have interests in and

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> I would compare things of interest and I would talk about that a lot because it would start conversations easily (Jenny)

Participants' relationship with their diagnosis varied greatly. Matthew identified as being autistic, and explained that this diagnosis meant he had a "difficulty of anger". Sarah, who identified with the label ASD, considered the main feature of the condition to be her difficulty interacting with others – "I guess it's like a disability.... like finding it hard to socialise sometimes". Similarly, Edward felt his Asperger's syndrome meant that he found it "hard to talk" to people he had not met before. Interestingly, he made a distinction between Asperger's syndrome and autism, explaining that he had learnt about autistic people at school. Of particular note is Edward's othering of autism evident in the following extract: "In English we read about people with autism and in form time we looked at people who have autism and how their life is different to ours". Simon commented his life would be much the same if he did not have Asperger's syndrome: "I sometimes think about it (not having Asperger's syndrome), what would life be like, but I'm assuming it wouldn't be much different really."

Tom spoke of having had little cause to think about his diagnosis since progressing to secondary school. James, who identified with the term autism rather than Asperger's syndrome, commented that the disorder had relatively little impact on his life: "I don't really talk about it because it's not that bad compared to other people, but if I had to talk about it I'd probably just call it a small autism to be honest".

In summary, for participants experiencing peer relationship difficulties, their ASD or Asperger's syndrome diagnosis appeared to occupy a more salient and negative position in their lives than for participants reporting generally positive peer relationships.

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Theme 3: Valued qualities in self and others

The attributes and qualities participants considered important varied considerably. Where common traits did emerge, the basis on which these perceptions were formed was frequently very different.Matthew and James both spoke of the importance of respect within peer relationships. Matthew, the only participant to include celebrities in his list of important people, commented on how his favourite wrestlers had the power to demand respect from others by virtue of their physical strength and prowess: "You've got to give them respect because if they are bigger than you and if you disrespect them they are going to knock you down". Mathew, on the other hand, considered his lack of physical prowess to be the main reason why he was not given respect by his peers. James spoke of the importance also of having "self-respect" so that people do not "walk all over you".

For Edward, respect within friendships was very much related to trust, as illustrated in Figure 5, the bipolar construct "Trustworthy/unreliable".

Edward

Element: Best friend

Bipolar construct:

Trustworthy ——————————— Unreliable

| Preference

Trustworthy

Interviewer: "Why is trustworthy better?"

Edward: "Because people can tell you stuff and they have like, they trust you to keep it, like a secret, and they have respect for you so they're willing to tell you things they're not willing to tell anyone else".

Respect ——————————— Unwanted

| Preference

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Respect

Interviewer: "Why is it important to have respect?"

Edward: "So that, if you respect someone else, they'll respect you and they won't treat you badly...I've had friends in the past that I kind of fell out with and never got back to know them again because they would say something and I would find out it wasn't true and then get angry with them and they lost my trust."

Figure 5: Bipolar construct for "Trustworthy/unreliable.

Trust was a salient theme throughout Jenny's interview. She believed being unable to trust affected her ability to make friends and that other people, who were better able to trust, found making friends easier as a consequence: "I suppose for some people it's easier, because they trust people easier, whereas I'm just a bit more wary, only trusting someone 100% when I've known them for a long time". For Jenny, trust was very much linked to understanding: "The more you understand someone, the more trust you can have". Interestingly, Jenny described feeling unable to trust her father due, in part, to his having ASD, which made him harder to understand than non-autistic people:

> I *don't* trust my dad much. I *don't* understand him very well. *He's* autistic, and *he's*
> not strange, *he's* different. So *it's* hard to understand him because I spend most of my
> day trying to be normal and to understand people but with my dad *it's* hard to
> understand him because h*e's* so different. (Jenny)

James also spoke of trust, commenting that his parents' ability to have a good time socially demonstrated this quality: "Having a good time with friends can show you that you can put your trust in other people, and erm, and they can give you their trust".

The use of humour within relationships was highlighted as important by a number of participants. However, participants held different views about the function of humour. For

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Simon, knowing he had made his friends laugh and feel good made him feel good in turn, as described in Figure 6.

Simon

Similarity/shared characteristic for Mum and Friend:

"Good sense of humour"

Bipolar construct:

Good sense of humour ——————— Very serious

↓ Preference

Good sense of humour

Interviewer: "Why is that good?"

Simon: "It just makes me feel good that I've made someone happy, I guess, and it's not all to do with they won't get annoyed and you won't feel bad. You'll feel bad, if you get them annoyed, but you'll feel good, if you make them laugh and you know it's just funny."

Figure 6: Bipolar construct for Good sense of humour / very serious

For Simon, the role of humour was to support an enjoyable and engaging exchange between friends. He emphasised the importance of reciprocity within a humorous exchange and spoke of judging the appropriateness of jokes to situation and audience,"If you play a joke on them [a friend] they'll laugh about it and they can do the same to you and it's all just, in the end, it's all good fun, as long as it isn't anything too serious".

By contrast, Edward and Jenny spoke of humour as a social skill, the use of which could help an individual to feel accepted within their peer group.Edward warned that an individual who lacked a sense of humour would risk not being talked to by peers at school, as illustrated in Figure 7.

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<u>Edward</u>

Similarity/shared characteristic for Friend and Friend:

"Both funny"

Bipolar construct:

Funny ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯ Not a good sense of humour

Interviewer: "And which is better?"

Edward: "Probably funny so that people aren't going to, erm, want to listen to you because what you're saying isn't like very funny, it's just like garbage. No one's going to want to listen to it."

Figure 7.Bipolar construct for Funny / Not a good sense of humour.

James was willing to forgive his friend's less desirable qualities as he considered him to be funny, "Rob, he's a bit slimy, but he's funny and stuff".

Many participants identified bipolar constructs relating to intelligence, with which they positively identified. For Simon, having an expertise in an area of interest opened the possibility of sharing knowledge and engaging with other people who might have special interests relating to the same or different topics. Tom spoke positivity about being "nerdy", "I enjoy being nerdy I suppose. It kind of comes with intelligence maybe. I kind of get the effect that if I'm smart that kind of feels good".

Despite Matthew talking primarily about the difficulties and challenges he was experiencing in life, he maintained a positive sense of his own intelligence and spoke of how being "smart" would help him in the future, "[being smart means] I could get a job, maybe go to uni". Ethan spoke of intelligence not only in terms of academic attainment but also in the context of the bipolar construct "Intelligence"/ "stupidness" revealed (see Figure 8) in relation to understanding the emotional states of others.

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Tom

Similarity/shared characteristic for Girlfriend and Best friend:

"Intelligence"

Bipolar construct:

Intelligence ——————————— Stupidness

  ↓ Preference

Intelligence

Interviewer: "What is important about intelligence?"

Tom: "Well, it's important for grades and understanding the difference between right and wrong"

Interviewer: "And why is that important?"

Tom: "Well say if someone was upset, you could understand their feelings."

Figure 8: Bipolar construct for intelligence / stupidness

Theme 4: The development and maintenance of relationships

Some participants spoke of their effort to develop social skills and their friendship network, whereas others, those who had possibly experienced less difficulty in this regard, spoke of the importance of actively maintaining their existing relationships.

James noted the importance of making an effort to engage with others, which he suggested could lead to greater reciprocity within a relationship. This could be done by providing "complements and [saying] how are you? How are you doing? Stuff like that, because then you are being listened to and you're listening to someone else" (James).The seemingly rote leant style of interaction described by James in this comment is of note.

Edward spoke of the need to invest time in friendships, doing activities with friends in order that he could get to know them better, build a stronger relationship and, ultimately, trust them more. He described having a few close, enduring friendships.

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Jenny recognised how important her sister had been in helping her to develop the skills to build friendships. She described responding to her friends in a rote learned way rather than in a spontaneous manner, "If one of them makes a joke, I know to laugh". Whilst she expressed concern that her lack of understanding of other people limited her social opportunities, she acknowledged that the chance of a "fresh start" at secondary school and her concerted effort to engage in conversations had helped her a great deal:

> Every morning I say hello to at least all of my friends, and that slowly builds up the trust between us and I find that easier. Each day I can talk to them more and I can relax around them more and understand them *more". (Jenny)

Similarly, Matthew recognised that, in recent times, he had put a great deal of effort into developing better relationships at school: "I have a bad problem socialising, but I have started socialising with people". However, Sarah, who had experienced similar difficulties in her peer group relationships, remained unable to initiate or participate meaningfully in conversations at school. "Sometimes it leaves me feeling upset and annoyed because I wish I could do it because something's stopping me from doing it and I just can't make myself do it, it's too hard" (Sarah).

Ethan spoke of the important role his relationship with his best friend had played in helping him to develop the skills and motivation to engage with a wide range of ideas and perspectives. He perceived this relationship as a fertile experience which had helped him to develop new knowledge and understanding.

> *I'm* not going to say *I'm* just damn right brainless, but when I was younger I *wasn't* very smart, and everything just seemed a bit pointless, not pointless to a point as if *"why?", it's* just pointless to a point where I *don't* know how this is going to, you know, affect me, so why bother, but now that I hang out with Max who is very intelligent, I have a better understanding and view of things..... We have very intelligent

conversations, just talking really like. Views on religion for example, both looking at a good perspective and a bad perspective has given me a better understanding of opinion really.

Simon, who reported having a wide social network, spoke of the importance of resolving disagreements with friends to prevent prolonged conflict or causing them to feel sad:

Simon: I *wouldn't* hold a grudge for too long. *I'd* want to resolve things.

Interviewer: Ok, is that important then, not holding grudges?

Simon: Yeah, you should never stay mad at someone or stay hating them because they will just be sad.

Discussion

The study employed a personal construct methodology, sensitive to the social/communication needs of people with ASD, to address two research questions: 1) How do adolescents with high functioning ASD construe interpersonal relationships? 2) From participants' exploration of personal constructs, what can be inferred about the development of successful interpersonal relationships for individuals within this population?

Thematic analysis of the construing interviews revealed that participants often viewed family relationships in terms of the support and protection they afforded. This finding is encouraging given that previous research (Symes & Humphrey, 2010) has identified lower levels of perceived family support amongst adolescents with high functioning ASD when compared to the perceptions of same age peers without ASD. Whilst, in the present study, participants differed in their experience of, and in their relationships with, peers, all

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participants viewed friendships as desirable, reinforcing the findings of Bauminger and

Kasari (2000).

The construing of interpersonal relationships revealed that the participant group

differed in terms of their social skills and ability to establish and maintain relationships.

Molly and Vasil (2010) have argued that higher functioning ASD might be more

appropriately considered a difference rather than a disability. For those participants in the

present study who reported little difficulty in their interpersonal relationships but spoke

instead of valuing the uniqueness or individuality that came with being different, this

distinction could be apt. The experience of other participants, however, resonates more

closely with Firth's (2004) account, that many individuals with high functioning ASD are

often acutely aware of their social deficits and can recognise the comparative ease with which

others are able to interact. For these individuals, the social deficits of ASD can, indeed, be

experienced as disabling. It is of note that both the female participants in the study reported

having experienced particular difficulty in peer relationships at school. Previous research

(Boer, Piji, Post & Minnaert, 2013) indicated that female students with social communication

difficulties may typically be less well accepted than males by their same-sex peers in the

classroom. One participant described attempting to fit in by wearing a metaphorical mask to

hide her difference. Her experience resonates with the research of Carrington, Papinczak and

Templeton (2003) who identified a tendency for adolescents with Asperger's syndrome to

adopt a façade of normality (which they term "masquerading") to enable them to better fit in

at school.

Qualities in self and others construed as being important by participants can be

considered in relation to the theory of mind (ToM) hypothesis (Baron-Cohen, Leslie, & Frith,

1985) which asserts that individuals with ASD fail to impute mental states - such as beliefs,

intentions and desires - to themselves and others. The emphasis placed by participants, in

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particular those who had experienced difficulties in their interpersonal relationships, on committing time to developing an understanding of others in order to establish trust reflects, it could be argued, an attempt to manage or compensate for deficits in ToM.

Whilst humour was considered to be a desirable quality by participants, research by Samson and Hegenloh (2010) has indicated that people with high functioning ASD often struggle to comprehend jokes which require ToM skills. The distinction made by Minihan, Kinsella and Honan (2011) between social skills (learnt behaviours which enable an individual to complete certain tasks) and social competence (the ability to engage in meaningful, emotion-based relationships) is of particular relevance when considering how participants related to humour. For one participant, recognising when to laugh at a friend's joke was a social skill she had acquired, whereas another participant described being able to engage in an emotion-based exchange with friends – sharing a joke and having fun rather than reacting in a rote learnt manner.

Intelligence was similarly described by some participants as a tool for emotion-based communication. Indeed, one participant spoke of developing emotional intelligence, a trait considered by some writers (Montgomery, McGrimmon, Schwean& Saklofske, 2010) to be a core deficits of ASD, through his interactions with his best friend. Attwood (2006), who advocates the use of personal construct based psychotherapy for people with high functioning ASD experiencing mental health difficulties, notes that constructs concerning intellectual ability are often elicited and are of great personal value to clients.

In summary, and to return to the research questions, participants identified that the development of successful relationships required the investment of time and effort. Whilst initiating friendships with, or simply understanding, peers could be challenging, most participants reported positive experiences of relationships. The successful development of

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relationships could be supported, participants identified, by use of humour and shared interests.

Clinical Implications

Social skills training programs are a widely used means of helping young people with ASD developthe tools to establish and maintain relationships (for a review see Cappadocia & Weiss, 2011). However, a limitation of these programs has been the relatively poor generalisation of new social skills outside out the group setting (Laugeson, Gantman, Dillon & Mogil, 2012). One approach to addressing this issue has been to involve peers (other students without ASD) in programs, an addition which has yielded positive outcomes (for example, Bauminger, 2002). The findings of the present study would support the use of peer based learning in the development of social skills for adolescents with high functioning ASD. That siblings were also identified as important role models would further support the conclusions of Castorina and Negri (2011) who found that their involvement had a positive influence on social skills training outcomes. However, given that social skills groups typically involve adolescents with ASD learning together, the comment by one participant in the present study that people with ASD are comparatively more difficult to understand and therefore trust than non autistic people is potentially aissue which would warrant further investigation. It is of note that only one participant spoke of interacting with other people with ASD. Most participants did not comment on the makeup of their friendship group and consequently, no conclusions over preferences can be drawn from this study. However, it is an area that would justify specific investigation in order to determine the optimal social skills learning environment.

Social skills groups – such as the UCLA PEERS program described by Laugeson et al. (2012) – often include guidance on the appropriate use of humour. Considering the emphasis placed on humour by participants in the present study, support in this area would

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appear to be particularly valuable. One might speculate on the extent to which the higher rates of loneliness reported for children with ASD (Bauminger & Kasari, 2000) relates to difficulties joining in with humour based interactions. The research of Miczo (2004) highlights the importance of humour ability in predicting an individual's willingness to communicate with others, their sense of loneliness and perceived stress. Indeed, given the prominence of humour within everyday social interactions, supporting adolescents with ASD to better understand and use humour might help to mitigate some of the reported (Carrington et al. 2003) difficulties this population experience in grasping the subtleties of how people relate to one another. Attwood (2006) notes that, although children with ASD may sometimes struggle to understand the humour of others, or correctly judge the appropriate context or audience for a joke, this does not mean they lack a sense of humour. Rather, it highlights the need for additional support, through, for example, the use of social stories, to help them negotiate this aspect of communication with greater success.

Strengths and Limitations of the study

The benefit of the personal construct methodology employed in this study has been twofold – firstly it privileged the perspectives of the participants, acknowledging that they themselves are the architects of their own reality (Butler & Green, 1998), the enquirer acting only to provide structure to the construing and to summarise what the participant has said. Secondly, the personal construct methodology provided a highly structured interaction, which, it is argued, helped mitigate potential social communication difficulties. This methodology, and a range of similar personal construct methodologies, holds promise for further application in ASD research. For example, PCP exercises have been used in therapy to measure change in how an individual construes themselves in relation to others (often employing a repertory grid: see Winter, 2003). Such approaches could prove a valuable

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measure in research designed to evaluate the effectiveness of social skills programs for people with ASD.

Future research employing a larger sample may help determine whether there are gender differences in the way male and female adolescents with ASD construe relationships, and provide further insight into the experiences of peer relationships in the classroom. Further research might also consider whether there are significant differences in relationship construing in early compared to late adolescence.

There are a number of limitations to the present study which must be acknowledged. As participants self selected to take part in the study and were willing, therefore, to engage in a face-to-face interaction with an individual not previously known to them, they may represent a more socially confident sample of the ASD population. Furthermore, Wainscott et al. (2008) caution that there can be a tendency for adolescents with ASD to offer socially desirable responses during research. Consequently, it is possible that some participants may have presented an idealised account of their friendship network, downplaying any difficulties they had possibly experienced. It should be noted that the present study looked specifically at perceptions of relationships and did not aim to assess for evidence of relationship quality.

The small sample employed in the study and the range of individual differences (for example, age, age at diagnosis and gender) should be taken into account when considering generalisiablity of the research findings.

Conclusions

The recent diagnostic changes within the DSM-5 (APA, 2014) have seen the broadening of the classification of ASD. The present study has focused on what might be considered a fairly discrete group of individuals who would share, under the DSM-5 (APA, 2014), the same diagnosis - ASD without an identified learning disability. The study aimed to provide a first test of a personal construct methodology as a qualitative research tool to

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explore the social worlds of this population. Whilst this exploratory study highlighted some

commonality in terms of perceptions of family support and friendships as protective and

desirable, the participant group differed in their experience of and in their relationships with

peers. However, peers were cited as being very important in the development of social skills

- a finding which has implications for the delivery of social skills training. The ease with

which participants were able to engage with and use the PCP exercise would suggest that the

approach holds much promise for use in future research with this population.

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Section C:
Appendix of supporting material

Section C: Appendix of Supporting Material

Appendix A: Review strategy for research exploring the core cognitive deficits for adolescents with ASD without an identified intellectual disability

A keyword search of electronic databases (Medline; PsycINFO; PsycARTICLES; Web of Knowledge, ASSIA, books@OVID and EBM Reviews) was carried out (final search on the 05/04/2014) using the following search terms:

Primary search term	Combined with	AND
Asperger's syndrome	Deficit	Adolescents
Asperger syndrome	Cognitive	Adolescence
Autism spectrum disorder	Theory of mind	Teenage
Autistic spectrum disorder	Executive function	Child
Autism	Executive dysfunction	Children
	Central coherence	
	Male brain	

Additional papers were found through internet searches using Google Scholar and through manual searches of reference sections. Abstracts were read to screen for relevance. The following criteria were used in the literature search:

- The paper explored cognitive features of ASD

- Participants were aged between 10-19 years

- Participants had a formal diagnosis of Asperger's syndrome, high functioning ASD or ASD without an indentified intellectual disability

- Studies did not included participants with an identified intellectual disability.

- Individuals with a PDD-NOS diagnosis were not included within a combined ASD sample

- Studies evaluating interventions were not included in the review.

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An initial search generated a large number of results (4001). By limiting the search to adolescents (i.e not using "child" as a search term) a more manageable 624 articles were returned. Abstracts were read for relevance. Many of these articles were excluded on the basis that they involved a mixed participant group of individuals with and without intellectual disabilities; individuals with PDD-NOS were included in high functioning ASD groups; or because they were evaluative of interventions aimed at developing/supporting cognitive skills. A total of 14 studies were identified for inclusion in the review. However, on analysing these studies, it was decided that, in order to provide sufficient context for the review, seven additional studies focusing on either adult or child populations should be included. A total of 21 studies were therefore included in the review of cognitive deficit research.

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Appendix B: Review strategy for research qualitatively exploring the social/relational experiences of adolescents with ASD without an identified intellectual disability.

A systematic review was conducted on research exploring the social/relational experiences of adolescents with ASD without an identified intellectual disability. The databases searched were Medline; PsycINFO; PsycARTICLES; Web of Knowledge, ASSIA, books@OVID and EBM Reviews. The final search was carried out on the 05/04/2014. The following search terms were used (no date limits were imposed):

Primary search term	Combined with	AND
Asperger's syndrome	Relation*	Adolescents
Autism spectrum disorder	Peer-relation*	Adolescence
Autistic spectrum disorder	Friendship	Teenage*
Autism	Loneliness	Child
ASD	Social network	Children
	Social world	

Abstracts were screened for relevance and studies included based upon the following criteria:

- The paper explored the individual's perceptions/experiences of relationships.

- Participants were aged between 10-19 years

- Participants had a formal diagnosis of Asperger's syndrome or ASD without an indentified intellectual disability.

- Studies did not include participants with an identified intellectual disability.

- Individuals with a PSS-NOS diagnosis were not included within a combined ASD sample

- Papers employed a qualitative methodology

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As a result of the systematic search of qualitative social/relational research for this

population, three studies were identified which met the inclusion criteria.

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Appendix C: Interview agenda (PCP exercise)

(Environment: Researcher and participants to be sat at a table in a quiet room, free from distraction)

The researcher's approach to briefing and debriefing will take account of participant's level of understanding, age and communication skills. However, within each briefing, the researcher will;

- Welcome the participant and thank them for attending

- Explain the rational for the study and what it will involve. – for example:

"The aim of my study is to find out about how young people with Asperger's syndrome / ASD describe their relationships with the important people in their lives. Taking part in the study would involve thinking of the ten most important people in your life and writing their names on these cards (show participant 10 blank cards). We would then pick pairs of cards and think about ways in which the people may be similar – something that they might have in common with one another.

I would record our meeting using a voice recorder. Using these recordings I would listen carefully to what everybody has said and how they did the task. This will help me to answer my research questions. If you like, you could have a copy of your recording."

- Check consent / withdrawing

"As I said in my letter, it is completely up to you to decide whether or not to take part in my study. If you would like to take part we would be able to stop at any time during our meeting if you change your mind."

- If consent given, the research will ensure the participant knows they can withdraw at any time during the meeting

"If at any point you want to stop the meeting we can do. Even after our meeting, if you decide that you don't your contribution to be included in the study, you only need to email or phone me and I'll take it out".

- Anonymity

"All audio recordings and transcripts (written copies of the recordings) will only be accessible to myself and my supervisors and will be kept in a safe place. After I have met with all the participants, I will write a report about the study, which will be published in a journal that lots of professionals like psychologists read, so that they can learn about what I have found out. Although in this report I will write about what people told me, I will not use anyone's real name. You will be welcome to see a copy of my report. I will also write two separate summaries of my findings – one to be sent to everybody who took part in the study and one to be sent to the charities who helped me to organise the study".

- Participant distress

"If at any point you feel upset or unhappy during our conversation we can stop. We might then invite (name of guardian) into the room so that we can all have a chat."

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PCT exercise
Construct elicitation method taken from Hare, Jones and Pain (1999):
"I would like us to write the names of the most important people in your life." (Each element is written on a separate card, including a card with the participant's name on it)

The cards are place face up on the table in front of the participant.

The participant is presented with pairs of cards (elements) and asked "In what way are these too people similar – in what way are they alike". This technique elicits the bipolar construct. The two poles are then written down. The participant is asked:

"Which end would you prefer to be at?" The participant indicates preferred pole.

Describing self:

"If I were to ask you to describe yourself in three ways, what would you say?"

"Thank you, now I wonder what would be the opposite of ….?" Or – "if you were not …… what would you be?"

Describing self from the third person:

"Who knows you really well?"

"I wonder how (person who knows participant well) would describe you?" or "What might (person who knows participant well) say about you?"

"Thank you, now I wonder; if you were not …… what would you be?"

"How would you like other people to see / describe you?"

Each bipolar construct identified will be explored using the *laddering* technique (described by by Fransella, 1970). The following, taken from Fransella (1970), illustrates how the laddering technique might look in practice:

Interviewer: What are the advantages for you of being (*construct pole* – e.g. "a nice person")?
Participant: People enjoy being with you
Interviewer: Whereas those who are disinterested in other people?
Participant: Are not enjoyable to be with
Interviewer: Why is it important to you that people enjoy being with you?
Participant: They are likely to open up to you – you get to understand them
Interviewer: Whereas (looking at opposite pole)
Participant: They remain a closed book
Interviewer: That is very interesting. I'm just wondering why you like people to open up to you?
Participant: Because it shows people are relaxed with you and trust you and respect you."
Interviewer: Whereas, if they were a closed book?

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Participant: You never get to know them – <u>people rarely open up to stutterers</u>.
(superordinate construct)

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Appendix D – Participant information sheet

Canterbury
Christc Church
University

Information about the research
Date:_____

Project title: How do young people with *Asperger's* syndrome / autism spectrum disorder (ASD) describe their relationships with the important people in their lives? `

Hello. My name is Mark Murphy and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study. Before you decide whether or not to do so, it is important that you understand why the research is being carried out and what taking part would involve.

What is the study about?

I am hoping to find out about how young people with Asperger's syndrome / ASD describe their relationships with the important people in their lives. You have been invited to take part because you are between the ages of 13-17, have a diagnosis of Asperger's syndrome / ASD and are known to ▮▮. ▮▮▮▮▮▮▮▮▮. It is up to you to decide whether you would like to take part in the study.

What would taking part involve?

Taking part in the study would involve completing a task in which I would ask you to think of words to describe people that you know. We would then, as part of the task, talk about ways in which people might be similar to each other and ways in which they might be different. We would probably need to meet for about an hour to complete this task. This meeting could be at ▮▮▮▮▮▮ or at your home – whichever you would prefer.

I developed this approach with the help of a teenager who also has a diagnosis of Asperger's syndrome. After completing the task, he said that he had found it enjoyable. There are no wrong answers and it would be up to you how little or how much you say. If at any point during our meeting you wanted to stop or take a break you would only need to say so. We would then only continue with the task if you wanted to.

I would record our meeting using a voice recorder. Using these recordings, I would listen carefully to what everybody has said and how they did the task. This will help me to answer my research questions. If you like, you could have a copy of your recording.

If, having met to complete the task, you decide that you do not want your contribution to be included in the study you would simply need to contact me on 07929763799 or email mm533@canterbury.ac.uk for it to be removed.

What are the possible benefits of taking part?

Although I cannot promise the study will help you directly, by taking part you would be contributing to the development of better support for young people with Asperger's syndrome / ASD. You would also receive a £10 Amazon voucher in appreciation of you time.

What will happen after the meeting?

All audio recordings and transcripts (written copies of the recordings) will only be accessible to my supervisors and me and will be kept in a secure place. After I have met with all the participants, I will write a report about the study, which will be published in a journal that lots of professionals like psychologists read, so that they can learn about what I have found out. Although in this report I will write about what people told me, I will not use anyone's

real name. You will be welcome to see a copy of my report. I will also write two separate summaries of my findings – one to be sent to everybody who took part in the study and one to be sent to the charities who helped me to organise the study.

What if there is a problem?
If you have any worries or complaints about any aspect of this study, you, or your parent, can speak to me on tel: 07929763799 and I will try to resolve the matter. If you remain unhappy and wish to complain formally, you can do this by contacting Professor Paul Camic, Research Director, Department of Applied Psychology, Canterbury Christ Church University, Salomons Campus, Tunbridge Wells, Kent, TN3 0TG, Tel: 01892 507 773 email: paul.camic@canterbury.ac.uk

Who is organising and funding the research?
This research is being funded by Canterbury Christ Church University.

Who has reviewed the study?
All research conducted through Canterbury Christ Church University is looked at and approved by the University's Research Ethics Committee.

Further information and contact details
If you would like to take part in the study or you have any questions about taking part, please do not hesitate to contact me on 07929763799 or by email mm533@canterbury.ac.uk

Thank you for taking the time to read this information sheet.
Many thanks.
Mark Murphy
Trainee Clinical Psychologist
Canterbury Christ Church University
Salomons Campus at Tunbridge Wells
Broomhill Road
Southborough
Tunbridge Wells
Kent
TN3 0TG

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Appendix E – Ethical Approval

Canterbury
Christ Church
University

Salomons Campus at Tunbridge Wells

Mr M Murphy
1 Fairlight Road
HYTHE
Kent CT21 4AD

Date: 24th July 2012

Direct line   01892 507773
Direct fax   01892 507660
E-mail   paul.camic@canterbury.ac.uk
Our Ref   PC/dc/083/dissertations

Dear Mark,

I am writing to inform you that the Independent Research Review Panel has approved your research project proposal. Please include a copy of this letter in your ethics application.

Information for Ethics Panels: I am writing to confirm that funding has been secured for the doctoral-level research project of Mark Murphy who is a clinical psychology trainee at our institution. This research project is in partial fulfilment of the Doctor of Clinical Psychology degree awarded by Canterbury Christ Church University. Each trainee is assigned a Lead and Second Supervisor who will closely monitor the scientific and ethical components of this research project.

All research in the clinical psychology doctoral programme at Canterbury Christ Church University is carried out in accordance with the Research Governance Framework for Health and Social Care 2005. The University provides insurance coverage, against negligent harm, for our postgraduate students while undertaking research. A copy of our insurance letter is attached and this is automatically renewed each year.

All doctoral dissertation proposals are independently vetted by two members of the clinical psychology programme faculty before being given approval. Only those research projects that are deemed to be of significant clinical and scientific merit are approved.

The above mentioned clinical psychology trainee is employed full-time by Surrey and Borders Partnership NHS Trust and is bound by the requirements of the Research Governance Framework (RGF). They are also required to adhere to the *Code of Ethics and Conduct* of the British Psychological Society.

Department of Applied Psychology
Faculty of Social and Applied Sciences

David Salomons Estate
Broomhill Road Southborough Tunbridge Wells Kent TN3 0TG (UK)
Tel +44 (0)1892 515152   Fax +44 (0)1892 539102
www.canterbury.ac.uk

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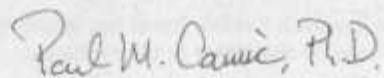
Professor Robin Baker OMG, Vice-Chancellor and Principal

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The Department of Applied Psychology at Canterbury Christ Church University stores research data for 10 years in a locked filing cabinet in the department's office. The office is in a building with 24 hour security. The custodian is Debbie Chadwick, a member of the administration staff. We store only anonymised data on a CD and may consist of transcribed interviews or numerical data from questionnaires. We do not store paper copies, audio or video files. Audio and video recordings should be destroyed after transcription and final analysis unless otherwise stipulated in the ethics application.

Yours sincerely,

Paul M. Camic, Ph.D.

Prof Paul M. Camic, Ph.D.
Research Director

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Appendix F– Participant consent form

Canterbury
Christ Church
University

Project: How do young people with ASD/Asperger's syndrome describe their relationships with the important people in their lives?

Please initial your consent to each area below.

I confirm that I have read and understand the Information Sheet dated .... for the above study, have had the opportunity to ask questions and understand what I am expected to do as a participant.	**....... (initial here)**
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	**....... (initial here)**
I understand that interviews will be audio recorded.	**....... (initial here)**
I agree that anonymous quotes from my interview may be used in published reports of the study findings.	**....... (initial here)**
I understand that identifiable data (e.g. audio recordings) will be stored securely on a password protected computer and will be accessible only to the researchers.	**.......(initial here)**
I understand that I may contact the Mark Murphy if I require further information about the research, and that I may contact Professor Paul Camic, Research Director Department of Applied Psychology, Canterbury Christ Church University, if I wish to make a complaint relating to my involvement in the research.	**....... (initial here)**
I agree to take part in the above study	**....... (initial here)**

Date : ....

Name of Volunteer	**Date**	**Signature**
....	....	....
Researcher	**Date**	**Signature**
....	....	....
Witness	**Date**	**Signature**

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....

Appendix G – Parental consent form

Canterbury
Christ Church
University

PARENTCONSENT

Parent/guardian consent form

Study: *How do young people with Asperger's syndrome describe their relationships with important people in their lives?*

Name of parent or guardian:

Name of child:

I am the legal guardian of _____. I give consent for him/her to participate in the above research project research project conducted by Mark Murphy, Trainee Clinical Psychologist, Canterbury Christ Church University.	………(initial here)
I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had any questions answered satisfactorily.	………(initial here)
I understand that, in the course of an interview, my child will be asked questions about his or her interpersonal relationships.	………(initial here)
I understand that the research interview will be audio recorded.	………(initial here)
I understand that all information obtained in this project will be kept private and stored securely.	………(initial here)
I agree that anonymised quotes may be used in published reports of the study findings.	………(initial here)
I understand that participation in this project is voluntary and my child and I have the right to withdraw at any time.	………(initial here)
I understand that I may contact Mark Murphy on 07929763799 or mm533@canterbury.ac.uk to discuss any concerns or queries I have about this project. I understand that, if I have a complaint about the study, I may also contact Professor Paul Camic, Research Director, Department of Applied Psychology, Canterbury Christ Church University	………(initial here)

Name of parent/guardian   Date   Signature

…………………………..   ………………………..   ………………………..

Name of researcher   Date   Signature

…………………………..   ………………………..   ………………………..

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Appendix H – Extract from research diary

The following excerpts have been reproduced from a hand written research diary
March 6th 2013 – discussed project with colleagues on placement

I am a little concerned about the feasibility of the project following a discussion with placement colleagues. Although enthusiastic about the study, one colleague cautioned that adolescents with ASD might be unable to engage in the PCP task given its complexity. I do feel, however, that the description of the PCP task I gave lacked clarity – possibly owing to my still being little unclear about PCP theory. The issue of analysis is also of concern. I have been unable to find a precedent within the PCP literature for the use of thematic analysis. I feel it's essential that participants select their own elements in the task, but this rules out content analysis as used in previous PCP research (as these methodologies have assumed "fixed" elements). Furthermore, lots of interesting data might be lost when using this approach. I want the PCP exercise to act as a platform for discussions as I believe that the conversation it would help to facilitate could be where the important data lies. I shall not make any changes to the interview agenda until after I've trailed it in the pilot study.

March 20th 2013 – pilot study

Ran pilot study today. Feeling reasonably encouraged by the experience. P was more able to engage in the task than I had anticipated. Interestingly, he spent a lot of time positioning and repositioning the element cards on the table. He seemed concerned to get cards into the right "groups" before we could proceed with the task. It might be worth photographing card placement? Maybe this could form part of the analysis? P became quite distracted during the task. Very keen to talk about computers and a game called "Mindcraft". One of the elements he selected was an individual who produced videos about this game for Youtube. It's curious that one of the ten important people in his life should be an individual he has never before met. Yet it was this individual that P spoke most enthusiastically about. P described Mindcraft as a game in which you create a world – an online platform. Both he and his mother were surprised that I had not heard of this game. P had no difficulty identifying bipolar constructs. This came as a relief given my concerns in this regard. However, I will have to reconsider how I execute the task as I spent a lot of time fiddling about with paper, which felt a little chaotic. I'll practice the interview before my first participant. Comments in PCP literature about laddering being a skill that is developed over time are ringing true at the moment! Instead of using the laddering task only in the second half of the interview for a

selected number of constructs, I think it will be more appropriate to immediately ladder each bipolar construct as it's elicited. PCP emphasises suspending (as far as possible) assumptions about the individual. Today's experience really emphasised how difficult this is in practice – or, indeed, whether it is at all possible. Whilst the structure of the exercise helps, it was very tempting to slip into interpretation when mirroring/summarising what P said. What is more, I caught myself slipping into therapist mode at times (possibly owing to the PCP exercise being primarily a clinical tool). I'm seeing a lot of similarity between laddering and downward arrowing in CBT.   Being a researcher feels foreign territory at the moment, though I am hoping that I shall feel more comfortable/confident in this role as the project progresses.

P gave some very useful feedback regarding the participant information sheet. Reading through it with him really emphasised how inaccessible the language is that I've used. It is very easy to lose sight of the reader when you're trying to ensure that all the required information is included! We ran through some alternative phrasings together.

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Appendix I – Summary of bracketing interview

Reflections on bracketing interview

The bracketing interview was conducted with a colleague, "Debbie" (pseudonym), prior to the analysis. Several subsequent meetings took place with the same colleague to discuss the progress of the research. In the following extract taken from my research diary I reflect upon the bracketing interview:

Debbie and I discussed factors which may have contributed to my wishing to peruse this particular project. I realise that my interest in this area has been informed by my own experiences during adolescence. Having received classroom support throughout secondary school due to problems with dyslexia, I have vivid memories of feeling different from my classmates. Being shy and having only a small circle of friends during this period added to my feelings of difference. I became interested in group dynamics in relation to child/adolescent development, and I am aware that these interests subsequently informed my choice of career. Within the present project, I have been mindful not to approach participant interviews with the expectation of finding peer-relationship difficulties. Indeed, this expectation could have influenced the direction of my questioning. As such, the highly structured format of the PCP exercise has been very beneficial. I must, however, remain mindful of my childhood experiences when analysing the data.

I have been very interested in the recent changes to the diagnostic criteria for ADS. Debbie and I discussed how, prior to the participant interviews, I had an expectation that the loss of Asperger's syndrome as a diagnostic category would be lamented by participants. I was surprised when this proved not to be the case. Given my previous work experience with adolescents with high functioning ASD, we discussed how any perceived similarities between participants and past clients may have influence the interactions and the course of interviews, and indeed what I expected to find in the research. Furthermore, we spoke about my relative inexperience as a researcher and how, at times during the interviews, I was very aware not be a therapist to my participants, but to remain in the researcher role.

We discussed my expectations for the research – managing the pressure to produce a "good" project that would meet the requirements of the course and lead to a publication. We thought about how this pressure to find something of significance within the research might affect how I approach my data.

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Appendix J – Example of theme development: Valued qualities in self and others

Theme	Subtheme	Initial coding relating to subtheme	Example quote	Source
Valued qualities in self and others	Respect	The importance of respecting others	"That's why I like him, because he respects everyone"	Matthew
		The importance of self respect	I: "So what's so bad about people taking advantage?" J: "Because that sucks, I mean if you let people do that then you have no self respect and stuff like that."	James
		The reciprocity of mutual respect in friendships	"...if you respect someone else, they'll respect you and they won't treat you badly...I've had friends in the past that I kind of fell out with and never got back to know them again because they would say something and I would find out it wasn't trust and then get angry with them and lost my trust."	Edward
		Consequences of disrespecting others	"...you've got to give them respect because if they are bigger than you and if you disrespect them they are going to knock you down"	Matthew
	Trust / understanding	Best friend = the most trusted friend	I: "What makes him your best friend, why do you feel he's your best friend?" E: "Because he's probably the most trustworthy out of them all"	Edward

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		The more you understand somebody, the more they can be trusted	"I think if you trust someone you like, you like understand them enough and you know they won't do anything to upset you. Like if you told them something they wouldn't go and use that information to hurt you in any way or to upset you. If you trust someone that's the basis of that relationship with someone, trust."	Jenny
		People with ASD harder to understand and therefore harder to trust	I don't trust my dad much. I don't understand him very well. He's autistic, and he's not strange, he's different. So it's hard to understand him because I spend most of my day trying to be normal and to understand people but with my dad it's hard to understand him because he's so different.	Jenny
		Parents having a good time with friends, demonstrating trust	"Well, it can show you that you can put your trust in other people and erm, and they can give you their trust"	Tom
		Trust = willing to look out for each other	"(trust) shows that you are willing to look out for each other"	Sarah
	Humour	Humour as part of a reciprocal relationship – shared enjoyment	"well if you play a joke on them they'll laugh about it and they can do the same to you and it's all just, in the end, it's all good fun as long as it isn't anything too serious, it's all just fun I suppose"	Simon

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		Humour as a redeeming characteristic	"...and positively wise he's (father) very funny at least". "(name of best friend), he's a bit slimy, but he's funny and stuff"	James
		Relationship with grandparent	"...Pops, he's funny, has a laugh"	Matthew
		If you're not funny, peers won't listen to you / won't be interested in you	"...people aren't going to, erm, want to listen to you because what you're saying isn't like very funny, it's just like garbage. No one's going to want to listen to it."	Edward
		Humour and social cohesion. Mirroring	"Around my friends, if one of them makes a joke I know to laugh"	Jenny
	Intelligence	Intelligence = making the right life choices	"Yeah, and it (intelligence) makes you, smart also gives you the right choices"	Tom
		Role of parents to impart knowledge	So you can learn how to be and, just learn general knowledge things	Sarah
		The importance of emotional intelligence	"Well say if someone was upset you could understand their feelings, you could understand, like say if my friend was talking to me about something they enjoyed and I understood it I'd be like yeah that's good."	Tom
		Importance of pushing yourself to learn	"So you widen you're vocabulary when you're at school so that you don't use words that you use every day. Like ones that you're experimenting with to see if it goes well"	Edward
		Intelligence and the future	(the importance of being smart) "So I could get a job, maybe go to uni, have a better life"	Matthew

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		Positively identifying as being intelligent / being intelligence feels good.	"I enjoy being nerdy I suppose, it kind of comes with intelligence maybe, if I'm, I normally just get the effect that I'm smart and it just kind of feels good I suppose."	Simon
		Intelligence as a salient characteristic of friends	I: "Ok, (name of girlfriend) and your brother. Ok, again, think about their characters, is there any similarity there?" T: "Well they're, again they're very smart"	Tom
		Self identifying as clever	"...my school is a grammar school and it's like, I'm not like, it's a school for clever people as my mum says"	Jenny

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Appendix K – Example annotated transcript

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Appendix L - An example list of constructs identified by a participant ("Jenny"), together with a photograph depicting their placement of element cards

Participant: Jenny
Element card placement

(Pseudonyms used to protect identity)

Bipolar constructs

Element	Similarity	Bipolar construct (text in bold font indicates preference)	Laddering
Teacher / Mother	Trust	**Trust** / Mistrust	I think if you trust someone you like, you like understand them enough and you know they won't do anything to upset you. Like if you told them something they wouldn't go and use that information to hurt you in any way or to upset you. If you trust someone that's the basis of that relationship with someone, trust = the more you understand them the more trust you can have
Brother / Sister	Making friends easily	**Making friends easily** / Making enemies	Making friends easily = I suppose it can help you because then you can understand things quicker, you find things in common that you have, and if you make friends with people and you find people you have things in common with you can become more friends with them, and then other's can just stay as friends and you can become close friends with the people you have more in common with, because then it's easier. It's harder for me to get to

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			trust someone I've only just met.
Friend / Friend	Confidence	**Confidence** / No confidence	= I suppose, it helps you, it could push you towards opportunities, and you'd have more courage. You could do more things, like, if you're confident you seem more relaxed like if you're around other people, I suppose. Because we were doing a presentation thing and if you had more confidence you could present your presentation well on the Powerpoint, whereas if you're not so confident it can really show, and you're like hiding and you're like all tense. Being more confident can help you.
Teacher / Teacher	Authority	**Authority** / Bottom of the social scale	= But not at the top of the social scale = it's easier being told what to do rather than having to figure something out for yourself but also you could tell other people what to do
Sister / Friend	Making friends	**Making friends** / making enemies	= I'm just a bit more wary, only trusting someone 100% when I've known them for a long time or something like that, and I suppose if you make friends more easily you would probably make more friends than you would enemies, because you'd get to know more people, but if you didn't make so many friends it would be easier to make enemies, because if you have a whole class and you are sort of friends with most of them you'd have to get really right on their nerves for them not to like you anymore. If you've only got a little bit on their nerves they wouldn't like you so much, but if you didn't know any of them then suppose you really annoy them then they would dislike you quicker.
Mother / Head Teacher	Being assertive	**Being assertive** / being passive	= because if you're passive you can get yourself into situations which you don't want to be in, for example if you were nominated to be a leader in the play and you really don't want to be it if you're passive you'd let yourself be in it and you really didn't want to, you'd be uncomfortable. If you were assistive you'd say you really don't want to do this, please may I have a

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			smaller part, then people probably might listen to you and respect you because you stood up for yourself and said you didn't want to do this = if you're passive people will walk all over you like a door mat
Self	unhappy sometimes	Unhappy sometimes / appear happy and smiling	
Self	Shy	Shy / Confident	Middle = maybe not like really shy but a little bit half way towards being chatty, but not too chatty.

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Appendix L – Example Mind Map used in theme development

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Appendix M - Feedback letter to be sent to participants

Canterbury
Christ Church
University

Dear (name of participant)

Project title: How do young people with *Asperger's* syndrome / autism spectrum disorder (ASD) describe their relationships with the important people in their lives? `

As you may recall, a few months ago you were kind enough to take part in my study. Now that all my data has be collected and analysed, I am writing this summary to tell you about what I found.

The aim of my study was to find out about how young people with Asperger's syndrome / ASD describe their relationships with the important people in their lives. In total, eight people (participants) took part in my study. They all completed the same task, which involved identifying the ten most important people in their lives and thinking of ways in which pairs of individuals were similar to one another. By completing this task together we were able to have really interesting conversations about your experiences of relationships.

Findings

The process of analysing my interviews involved looking to see whether participants had spoken about similar things. I found that most participants spoke about the importance of the support they received from their families. Whilst friendships were also seen as offering support, a number of participants had experienced difficulty making friends. Some participants spoke about seeing similarities between themselves and the important people in their lives, whilst others spoke of feeling very different.

A number of qualities were seen as being important in relationships. For example, participants spoke about the importance of feeling able to trust other people. Often, this trust would develop over time as participants got to know and understand the other person better. Sharing a joke with friends and having a good time were also seen as important. I found that on a number of occasions participants spoke about the importance of intelligence - both in terms of recognising intelligence as a specific quality in themselves, but also a quality they recognised and valued in their friends.

Participants spoke about the importance of learning social skills from other people, including friends and family members. Developing social skills was seen as taking time and practice, but a number of participants gave positive accounts of how they have overcome anxieties when interacting with others. For some participants speaking with people at school, particularly those they did not know well, could at times prove challenging.

I hope you enjoyed taking part in the study. Your contribution has been enormously valuable and very much appreciated. I am hopeful that this study will be helpful to professionals working with people with ASD and also that it will encourage further research using an approach you have shown to be so productive.

If you or your family have any questions about the study, please do not hesitate to contact me on 07929763799.

Yours sincerely

Mark Murphy

Trainee Clinical Psychologist

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Canterbury Christ Church University
Salomons Campus at Tunbridge Wells
Broomhill Road
Southborough
Tunbridge Wells
Kent
TN3 0TG

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Appendix N – End of study letter to be sent to Salamons Ethics Panel

Dear _____

Project title: **Using personal construct psychology to explore relationships for adolescents with high functioning autistic spectrum disorder**

Background

Adolescence has been identified as a particularly challenging period for individuals with high functioning Autism Spectrum Disorder (ASD), with numerous studies reporting a higher prevalence of loneliness (e.g. Whitehouse, Durkin, Jaquet & Ziatas, 2009) and mental health problems (e.g. Bellini, 2004) amongst this population compared to that experienced by other adolescents. A literature review highlighted that, whilst there is a large body of research exploring the deficits associated with ASD, little consideration has been given to how relationships are actually experienced by this population. The present study aimed to address this gap in the literature by exploring the relationships of individuals with high-functioning ASD using a personal construct psychology framework. The study represented a first test of the personal construct approach as a qualitative research tool to explore the social worlds of adolescents with ASD but without an identified intellectual disability.

Method

Eight adolescents (aged between 13-16 years) with a diagnosis of Asperger's syndrome or ASD without an identified intellectual disability engaged in a structured interview based around a personal construct psychology exercise exploring constructs for interpersonal relationships. Interviews were transcribed and subjected to a thematic analysis.

Findings

Analysis revealed that most participants viewed their family relationships in terms of the support and protection they afforded. Whilst participants viewed peer relationships as desirable, they differed in terms of their ability to establish and maintain these relationships. Participants held a range of perspectives regarding their perceived similarity to, or difference from, the important people in their lives. Some participants identified positively with a sense of difference, some were less comfortable with their perceived differences, whilst others strongly identified with a sense of similarity to friends / family. Trust, humour and intelligence were identified by participants as important qualities in relationships. A number of participants spoke of being able to trust people better once they could "understand" them. Dedicating time to understand others was considered by the researcher in light of the Theory of Mind hypothesis (Baron-Cohen, Leslie, & Frith, 1985)**.** Participants spoke of a range of different approaches to developing and maintaining friendships. A common feature of participant accounts was the significance they placed on learning social skills from friends - whether basic conversational skills or higher order emotional intelligence.

Implications

The findings of the present study would support the use of peer based learning in the development of social skills for adolescents with high functioning ASD. However, given that social skills groups typically involve adolescents with ASD learning together, the comment by one participant, that people with ASD are comparatively more difficult to understand and therefore trust than non autistic people, is potentially a significant issue and one which would warrant further investigation. The personal construct psychology methodology employed in the study provided a highly structured interaction, which, it is argued, helped mitigate potential social communication difficulties. The methodology, and a range of similar personal construct methodologies, holds promise for further application in ASD research.

Yours sincerely

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Mark Murphy
Trainee Clinical Psychologist
Canterbury Christ Church University
Salomons Campus at Tunbridge Wells
Broomhill Road
Southborough
Tunbridge Wells
Kent
TN3 0TG

References

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? Cognition, 21(1), 37-46.

Bellini, S. (2006). The development of social anxiety in adolescents with autism spectrum disorders. Focus on Autism and Other Developmental Disabilities,21(3), 138-145. DOI: 10.1177/10883576060210030201

Whitehouse, A. J., Durkin, K., Jaquet, E., & Ziatas, K. (2009). Friendship, loneliness and depression in adolescents with Asperger's Syndrome. Journal of Adolescence, 32(2), 309-322. DOI: http://dx.doi.org/10.1016/j.adolescence.2008.03.004

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Appendix O – Publication guidelines for the journal "Autism"

$SAGE

Manuscript Submission Guidelines

Autism: *The International Journal of Research and Practice*

Autism provides a major international forum for research of direct and practical relevance to improving the quality of life for individuals with autism or autism-related disorders.

1. Peer review policy

Autism operates a strictly anonymous peer review process in which the reviewer's name is withheld from the author and, the author's name from the reviewer. The reviewer may at their own discretion opt to reveal their name to the author in their

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review but our standard policy practice is for both identities to remain concealed. Each new submission is carefully read by one of the Editors to decide whether it has a reasonable chance of getting published. If the Editor thinks it does not have this chance, at least one other Editor will be consulted before finally deciding whether or not to send the manuscript out for review. *Autism* strives to do this within two weeks after submission, so that authors do not have to wait long for a rejection. Feedback is also provided on how to improve the manuscript, or what other journal would be more suitable. Each manuscript is reviewed by at least two referees. All manuscripts are reviewed as rapidly as possible, and an editorial decision is generally reached within (e.g.) 6-8 weeks of submission.

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2. Article types

The Journal considers the following kinds of article for publication:

1. **Research Reports.** *Full papers* describing new empirical findings;

2. **Review Articles.**
(a) general reviews that provide a synthesis of an area of autism research;
(b) critiques - focused and provocative reviews that may be followed by a number of invited commentaries, with a concluding reply from the main author.
Both full Research Reports and Review Articles are generally restricted to a maximum of 6,000 words, including all elements (title page, abstract, notes, tables, text). Editors may ask authors to make certain cuts before sending the article out for review.

3. **Short Reports.** Brief papers restricted to a maximum of 2,000 words with no more than two tables and 15 references. Short reports could include other approaches like discussions, new or controversial ideas, comments, perspectives, critiques, or preliminary findings. The title should begin with 'Short Report'.

4. **Letters to the Editors.** Readers' letters should address issues raised by published articles. The decision to publish is made by the Editors, in order to ensure a timely appearance in print. Letters should be no more than 800 words, with no tables and a maximum of 5 references.

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3. How to submit your manuscript

Before submitting your manuscript, please ensure you carefully read and adhere to all the guidelines and instructions to authors provided below. Manuscripts not conforming to these guidelines may be returned.

Autism is hosted on SAGEtrack a web based online submission and peer review system powered by ScholarOne Manuscripts. Please read the Manuscript Submission

guidelines below, and then simply visit http://mc.manuscriptcentral.com/autism to login and submit your article online.

IMPORTANT: Please check whether you already have an account in the system before trying to create a new one. If you have reviewed or authored for the journal in the past year it is likely that you will have had an account created. For further guidance on submitting your manuscript online please visit ScholarOne Online Help.

All papers must be submitted via the online system. If you would like to discuss your paper prior to submission, please refer to the contact details below.

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4. Journal contributor's publishing agreement

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4.1 SAGE Choice and Open Access

If you or your funder wish your article to be freely available online to non subscribers immediately upon publication (gold open access), you can opt for it to be included in SAGE *Choice*, subject to payment of a publication fee. The manuscript submission and peer review procedure is unchanged. On acceptance of your article, you will be asked to let SAGE know directly if you are choosing SAGE *Choice*. To check journal eligibility and the publication fee, please visit SAGE Choice. For more information on open access options and compliance at SAGE, including self author archiving deposits (green open access) visit SAGE Publishing Policies on our Journal Author Gateway.

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5. Declaration of conflicting interests

Within your Journal Contributor's Publishing Agreement you will be required to make a certification with respect to a declaration of conflicting interests. *Autism* does not require a declaration of conflicting interests but recommends you review the good practice guidelines on the SAGE Journal Author Gateway.

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6. Other conventions

We would prefer to use the term 'people with autism' or 'people with autism spectrum disorders or conditions'. We would also prefer the term 'typically developing' rather than 'normal'.

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7. Acknowledgements
Any acknowledgements should appear first at the end of your article prior to your Declaration of Conflicting Interests (if applicable), any notes and your References.

All contributors who do not meet the criteria for authorship should be listed in an `Acknowledgements' section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance, or a department chair who provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance.

7.1 Funding Acknowledgement
To comply with the guidance for Research Funders, Authors and Publishers issued by the Research Information Network (RIN), *Autism* additionally requires all Authors to acknowledge their funding in a consistent fashion under a separate heading. All research articles should have a funding acknowledgement in the form of a sentence as follows, with the funding agency written out in full, followed by the grant number in square brackets:

This work was supported by the Medical Research Council [grant number xxx].

Multiple grant numbers should be separated by comma and space. Where the research was supported by more than one agency, the different agencies should be separated by semi-colon, with "and" before the final funder. Thus:

This work was supported by the Wellcome Trust [grant numbers xxxx, yyyy]; the Natural Environment Research Council [grant number zzzz]; and the Economic and Social Research Council [grant number aaaa].

In some cases, research is not funded by a specific project grant, but rather from the block grant and other resources available to a university, college or other research institution. Where no specific funding has been provided for the research we ask that corresponding authors use the following sentence:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Important note: If you have any concerns that the provision of this information may compromise your anonymity dependent on the peer review policy of this journal outlined above, you can withhold this information until final accepted manuscript.

For more information on the guidance for Research Funders, Authors and Publishers, please visit:http://www.rin.ac.uk/funders-acknowledgement

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9. Manuscript style

9.1 File types

Only electronic files conforming to the journal's guidelines will be accepted. Preferred formats for the text and tables of your manuscript are Word DOC, RTF, XLS. LaTeX files are also accepted. Please also refer to additional guideline on submitting artwork and supplemental files below.

9.2 Journal Style

Autism conforms to the SAGE house style. Click here to review guidelines on SAGE UK House Style.

9.3 Reference Style

Autism operates a Sage Harvard reference style. Click here to review the guidelines on SAGE Harvard to ensure your manuscript conforms to this reference style.

9.4. Manuscript Preparation

The text should be double-spaced throughout and with a minimum of 3cm for left and right hand margins and 5cm at head and foot. Text should be standard 10 or 12 point. SI units should be used throughout the text.

9.4.1 Keywords and Abstracts: Helping readers find your article online

The title, keywords and abstract are key to ensuring that readers find your article online through online search engines such as Google. Please refer to the information and guidance on how best to title your article, write your abstract and select your keywords by visiting SAGE's Journal Author Gateway Guidelines on How to Help Readers Find Your Article Online.

9.4.2 Corresponding Author Contact details

Provide full contact details for the corresponding author including email, mailing address and telephone numbers. Academic affiliations are required for all co-authors. These details should be presented separately to the main text of the article to facilitate anonymous peer review.

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9.4.3 Guidelines for submitting artwork, figures and other graphics

Artwork, figures and other graphics such as tables should be uploaded through SAGE's Online Submission System alongside the main body of the text, as a seperate file to ensure best quality in production. For further guidance on the preparation of illustrations, pictures and graphs in electronic format, please visit SAGE's Manuscript Submission Guidelines.

9.4.4 Guidelines for submitting supplemental files

This journal is able to host approved supplemental materials online, alongside the full-text of articles. Supplemental files will be subjected to peer-review alongside the article. For more information please refer to SAGE's Guidelines for Authors on Supplemental Files.

9.4.5 English Language Editing

Non-English speaking authors who would like to refine their use of language in their manuscripts might consider using a professional editing service. Visit English Language Editing Services for further information.

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10. After acceptance

10.1 Lay Abstracts

Upon acceptance of your article you will be required to submit a lay abstract of your article to the Social Media Editor, Laura Crane (journalautism@gmail.com). Lay abstracts are brief (max 250 words) descriptions of the paper that are easily understandable. These abstracts will be made available to researchers and clinicians, as well as the general public (including individuals with autism spectrum disorders and their families).

These abstracts should avoid both technical terminology and the reporting of statistics. Examples of lay abstracts are provided in recent issues of the journal.

10.2 Proofs

We will email a PDF of the proofs to the corresponding author.

10.3 E-Prints

SAGE provides authors with access to a PDF of their final article. For further information please visithttp://www.sagepub.co.uk/authors/journal/reprint.sp.

10.4 SAGE Production

At SAGE we place an extremely strong emphasis on the highest production standards possible. We attach high importance to our quality service levels in copy-editing, typesetting, printing, and online publication (http://online.sagepub.com/). We also seek to uphold excellent author relations throughout the publication process.

We value your feedback to ensure we continue to improve our author service levels. On publication all corresponding authors will receive a brief survey questionnaire on your experience of publishing in *Autism*with SAGE.

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10.5 OnlineFirst Publication
Autism benefits from OnlineFirst, a feature offered through SAGE's electronic journal platform, SAGE Journals Online. It allows final revision articles (completed articles in queue for assignment to an upcoming issue) to be hosted online prior to their inclusion in a final print and online journal issue which significantly reduces the lead time between submission and publication. For more information please visit our OnlineFirst Fact Sheet

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11. Further information

Any correspondence, queries or additional requests for information on the Manuscript Submission process should be sent to the Editorial Office as follows:

Katie Maras
Department of Psychology
University of Bath
Claverton Down
Bath BA2 7AY
United Kingdom
Email: katie.l.maras@bath.ac.uk

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