Hellenic Journal of Psychology, Vol. 3 (2006), pp. 39-56

SOCIAL SKILLS TRAINING IN HIGH FUNCTIONING AUTISM AND ASPERGER'S DISORDER

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Abstract: The aim of this review is to provide an account of key social intervention strategies that have been employed with the high functioning subgroup of individuals with Autism Spectrum Disorder (ASD), including those with Asperger's Syndrome (AS). These approaches are relevant to children who can employ spoken language. First off, an account of the characteristics of children with social skills deficits is presented, highlighting some of their most compelling problems, including social interaction difficulties, mind blindness and difficulties in interpreting or expressing emotion. As to the pathophysiology of these difficulties, the limbic system appears a prime candidate. The cognitive models of Deficits in Theory of Mind (ToM), Weak Central Coherence, and the Executive Dysfunction have helped to provide useful leads and have stimulated and generated ideas for intervention which can take a behavioural, cognitive or cognitive-behavioural form. They rely on the use of explicit exercises to teach ToM, social stories that address areas of challenge for the child, social groups training, and role-playing and rehearsal. Finally, they rely on efforts to assist the children to perceive the emotional states of others, thus becoming more discriminating as to their own expression of emotion. Many of the techniques require systematic research to clarify their effectiveness, particularly the goodness of fit of the technique to the children's presenting characteristics.

Key words: Asperger's disorder, Autism spectrum disorder, Executive dysfunction, Theory of mind.

It is well recognised that central to Autism Spectrum Disorder (ASD) is the social deficit. In fact, the very name "autism", as coined by Leo Kanner (1943), focused on the social isolation and other social difficulties of the 11

Acknowledgements: The preparation of this paper was supported in part by a Social Sciences and Humanities Research Council grant 410 2001 1517, and a Roeher Foundation grant to Dr. M. Mary Konstantareas.
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children he first identified as being distinct from other psychotic children. Disagreement continues as to the primacy of either the language or the cognitive or the social deficit since all three aspects of an individual's functioning are affected in this population (American Psychiatric Association, 1994; Frith, 2003) and it is difficult to disentangle them from each other.

What is the evidence for the primacy of social deficits in autism? Many researchers have noted that "autistic aloofness" is the only inclusion criterion common across all studies of autistic individuals; language deficits or stereotyped behaviours were secondary characteristics in many studies. These writers also commented that this aloofness was seen in all autistic children, regardless of their cognitive profiles. They provided two additional lines of evidence: (a) The fact that autistic individuals have particular difficulties with tasks that involve social or affective stimuli, even if they can perform the exact same task efficiently with nonsocial stimuli. (b) That the areas of functioning typically impaired in autistic individuals are those that are presumed to be most dependent upon social interactions for their development (i.e., language and pretend play).

In contrast, those domains that are typically intact in autistic individuals, such as visuospatial and sensorimotor processing are least dependent upon social input and social context. Many workers have noted that autistic individuals seem to have difficulty extracting the meaning from social situations and events, as well as storing this information in a manner that allows them to access it later. Based on these types of findings, Dawson, Meltzoff, Osterling, Rinaldi, and Brown (1998) concluded that autistic individuals have a specific deficit in processing social stimuli, and that this may be linked to the functioning of the limbic system. They further proposed that this deficit then leads to all of the other symptoms common to autism, all of which can be seen as somewhat related to a lack of understanding of social stimuli.

Aside from the validity of the notion that social deficits are primary or not, the fact remains, they require remediation in this population. Furthermore, it is imperative that efforts at improving the children's social functioning should be both early and intense (Lovaas, 1987). The aim of this review is to provide an account of some key social intervention strategies that have been employed with the high functioning subgroup of individuals with ASD, including those with Asperger's Syndrome (AS), all children who can employ spoken language. The AS is a subclassification of ASD, which

was only introduced to the North American nosological system for mental disorders, the Diagnostic and Statistical Manual in Psychiatry (DSM IV: American Psychiatric Association, 1994) as late as 1994, while it has been present for some time in the International Classification of Diseases (ICD-10: World Health Organization, 1993). One might well wonder, what is the incidence of this high functioning group and is it worth our attention? The answer appears to be a definite yes. To begin with, it is worth pointing out that the incidence of the ASD has been reportedly increased over the last decade, partly because of greater awareness and sensitivity of professionals and the lay public about the syndrome, and partly due to the inclusion of the AS into the ASD subgrouping (Croen, Grether, Hoogstrate, & Selvin, 2002). There is a considerable number of children whose social skills are not age appropriate, although they may not be very severely deviant. Children with specific developmental language disorders also present social and other deficits as a result of their communication impairments. The approach to follow with them in remediating the social difficulties they encounter, as a result of their language and communication difficulties, may not be as intensive and may need modification to fit their particular needs. However, some of the methodology and techniques employed with children within the ASD may be relevant to them as well since their characteristics appear to lie on a continuum, next to Asperger's disorder, the milder category of ASD (Konstantareas & Beitchman, 1996). Thus, the population for which the social strategies to be discussed apply is sizeable, although difficult to define with accuracy. Some researchers have claimed that as many as 36 and 38 per 10,000 children in Sweden present with ASD (Kadesjo, Gillberg, & Hagberg, 1999) while others tend to subscribe to an estimate of 60 per 10,000, which is a much higher than 4 in 10,000 quoted two decades ago (Frith, 2003).

Key social deficits in individuals with ASD

Table 1 provides a listing of the key deficits in terms of the two age groupings that appear to be most relevant for our purposes here, namely the preschoolers and the school age children and youth. As shown, the characteristics are not invariable across the life span, with some of them continuing to be relevant, e.g., peer social difficulties, while others tend to change after the preschool period, e.g., the misreading of social cues. In fact, early assessment devices, e.g., the Childhood Autism Toddler's scale (CHAT:

Table 1. An outline of specific social deficits for children with autism spectrum disorder by age

Preschool period
Lacks joint attention
Lacks interest in peers
Not interested in imitating others
Inability to play functionally with objects
Lacks protodeclarative pointing
School age to adulthood
Either is disinterested or is unable to play with peers
Poor ability at reading the emotional expressions in others
Lack of interest in others and their feelings
Verbose conversations that are egocentric and stereotypical and ignore the needs of others
Misreading social cues verbal and gestural or facial
Lack of spontaneity in social interactions, particularly when a quick response is required
Limited use of gesture and body language
Gaze poorly coordinated with speech and body movement

Baron-Cohen, Allen, & Gillberg, 1992), are based on most of the characteristics presented in Table 1 for preschoolers. Thus, difficulties in shared attention and lack of interest in imitation or in sharing impressions with others (protodeclarative pointing) are the key items a clinician assesses before arriving at his/her preliminary diagnosis.

Other popular scales, e.g., the Autism Diagnostic Observation Schedule (Lord et al., 2000) also rely heavily on these characteristics for Modules 1 and 2, which are appropriate for young and minimally verbal children. As the child grows older, other features become apparent to the observer and become the focus of clinicians' attention. By the school age period, lack of interest in peers, poor ability to read the emotional expressions of others, lack of social reciprocity, and lack of interest in other people's feelings and emotions are the key social difficulties children with ASD display. Many of the more able children with Asperger's Syndrome are somewhat different since they appear to be interested in interacting with others, which leads to great frustration when the skills relevant to this interest are lacking. At that point, difficulties in reading social cues and problems understanding when to say or not to say something are the most central of the challenges they face. Thus, many of these youngsters may talk a great deal, with good articulation, syntax and grammar but be completely oblivious to the needs of their interlocutor. In one of our early studies on the chronography of conversation of high functioning adolescents and adults with ASD, we found them not to be synchronous either with both their parents or with the

experimenter in elements such as pauses, initiation, termination of speech, and switching pauses, among other aspects of the chronographic analysis we employed. On the other hand, the experimenter and parent were perfectly synchronous (Feldstein, Konstantareas, Oxman, & Webster, 1982).

In the very young children, my observations have shown that there is a great range of interest in peers, from active resistance and distress in their presence all the way to an odd interest in relating to them. Thus, a 4-year-old boy whose program I supervised would begin to scream and have a tantrum when approaching his neighbourhood school, where he was supposed to attend for a brief time period. Even after he was able to enter the school, the proximity of peers resulted in major weeping episodes and an active avoidance and tantrums. By contrast, a child with Asperger's Syndrome was interested in peers and had no difficulty entering the school and tolerating proximity to other children in his own classroom. Furthermore, with a variety of techniques we employed to foster social interaction, he became almost indistinguishable from others in his peer-related behaviour.

Theoretical views on the social deficits

It is as yet unclear what underlying processes are responsible for the social deficits in ASD. However, a number of cognitive psychologists have attempted to provide models for these deficits. Not all children present the same deficits or behave comparably, despite the fact that they meet the cardinal criteria for the disorder. Thus, there is a range of expression as well as a range of severity of these deficits. One of the earliest attempts to account for the variability in social deficits within the group of children with ASD was the research of Lorna Wing and Judy Gould (1979). Based on this research, they divided the children into the Aloof, the Passive, and the Active and Odd categories. The Aloof category included children who fully isolated themselves from others appearing as though they were in a glass bubble. They did not initiate and even actively avoided human contact. They were the children who in everyday clinical experience withdraw when approached and sometimes actively cry. The Passive category consisted of those who did not initiate but accepted other people's overtures, even though they did not reciprocate. These were the children who would not, under any circumstance, give a hug or a kiss to their parents and other family members. The Active and Odd category was comprised of children

who did initiate interaction but did so on their own idiosyncratic and frequently bizarre terms, approaching others to often ask irrelevant and even awkward and embarrassing questions, e.g., "How old are you?" or "Do you like pets?" Clearly, intervention with these three socially different groups, which many clinicians would recognise without difficulty, should take into consideration their distinct presenting characteristics and needs. Not only should this be the case, but the therapist needs to be aware of the developmental changes that occur in the children's characteristics over time. Wing and Gould (1979) found that the Aloof group was later presenting as Passive or Active and Odd, and the Passive could graduate into being Active and Odd. Only those with severe delay tended not to change at follow up.

Aside from the Wing and Gould (1979) simple but useful typology, cognitive psychologists have provided theoretical models and have carried out extensive research on another conceptualisation of the social deficits of individuals with ASD. One of the key ones is the view that children with ASD lack intersubjectivity (Hobson, 1993), i.e., they lack the ability to relate to and appreciate the feelings, thoughts, and behaviours of others. This model has evolved into the Theory of Mind (ToM) Deficit hypothesis (Frith, 2003). Many of the children I have seen are completely unable to process elementary information about the feeling states of others in contrast to much younger typical children or children with other conditions, such as Down's syndrome. Characteristic is a vignette by a mother of an autistic child our team assessed a few years ago who had cut her hand rather severely and urged her 11-year-old autistic son to get help. The child apparently looked at his mom briefly, and then smiled and proceeded to the basement ignoring completely her request. This was a turning point for this mother who had to that point defended against the diagnosis of ASD for her child. Clearly, the child could not appreciate his mother's pain and suffering either on the basis of her facial expression and body posture or the content of her request, hence, according to Hobson (1993), he lacked inter-subjectivity.

Another major difficulty is an inability to initiate, maintain and terminate conversation with others. In contrast to the typical children who are looking out for peers or adults to relate to, children with ASD, even highly articulate and competent children, tend to prefer solitary activities and being alone. A 9-year-old child with AS I recently saw explained to me that he had "fun being alone." When asked what he did while he apparently paced the schoolyard flapping his arms, he answered that he was thinking of

things he liked to think about. When I offered to help him have friends, he made it clear that he did not need friends and is happy to be alone. This child's mother felt that this statement reflected the child's difficulty in making friends rather than his happiness at being alone.

As well, there is a clear inability on the part of individuals with ASD to appreciate the importance of social distancing and nonverbal cues related to the intentions of others. Thus, a 21-year-old university student with AS mistook the human interest of a female co-education student for romantic interest and proceeded to follow the young woman around campus to her grave distress. He felt that the girl was in love with him and was reluctant to tell him, despite the fact that the young lady showed her disinterest in things romantic through a variety of means, including turning her back when he came in and left her apartment. This young man's insistence that the girl considered him her boyfriend eventually resulted in his dismissal from the University. When he came in for therapy, he was quite unaware of why he was being punished and expressed the wish to know more about when people don't want to relate to you. He appeared to have come from Mars. He could not differentiate between having a friend who is kindly to you versus having a romantic attachment to you. Therapy in this case should address the lack of ability to read the verbal, facial, and gestural cues people typically employ to express intentions, thoughts, feeling states, likes and dislikes.

Facial expression 'blindness' is another aspect of the social impairment, with children and adults with ASD showing limited use of the facial configuration and expression to convey feeling states or intentions much as they show this deficit in facial movement comprehension. Many of these children appear serene and nonexpressive and do not use their body to convey affirmation or negation in the typical manner nor do they attempt to gesturally negate what they may say verbally, an ability present in many, even young, typical children. In fact, this is one of the features that are formally assessed through the Childhood Autism Rating Scale (CARS) in order to arrive at the diagnosis of ASD (Schopler, Reichler, & Renner, 1988). For ToM, the social deficits are due to the inability of these individuals to appreciate that (a) other people have minds and viewpoints and (b) their minds and views may not be identical to one's own (Barron-Cohen, Campbell, Karmiloff-Smith, Grant, & Walker, 1995; Frith, 2003). Space considerations preclude the development of all aspects of this position, which provides an elegant account of many of the symptoms of

people with ASD such as their lack of eye contact, lack of interest in others and lack of sharing attention with others, among other social deficits.

Another cognitive view also proposed by Frith (1989) argues that the problem with individuals with ASD is that they have a "weak central coherence", meaning that they can process particular aspects of information but cannot see the forest for the trees. There is considerable evidence in support of this view, most from consideration of the symptomatology of the disorder. Thus, children with ASD are at least just as good and even superior than typical children on the Block Design, a subtest of a key psychometric instrument for assessing cognitive ability, the Wechsler Intelligence Scale for Children (WISC: Wechsler, 1992). This subtest requires copying an abstract pattern with little cubes within a time limit. It shares critical similarities with the Raven's Progressive Matrices and the Seguin Form Board in that they are independent of shared cultural knowledge. As well, the subtest is similar to the Embedded Figures test or Hidden Figures test, where the object is to discover the hidden figure present in a complicated design. Shah and Frith (1983) were able to demonstrate that children with ASD were far superior to typical children of the same mental age in the Embedded Figures test. This field independence of children with ASD, according to the Theory of Weak Central Coherence (Frith, 1998), is due to their inability to think in wholes, or Gestalts. Also, it is due to a corresponding tendency to segment reality and not be subject to the typical individual's tendency to attempt to process things as wholes.

Using an elegant synthesis, Frith (1989, 2003) has attempted to show that the Theory of Weak Central Coherence can account for such ASD characteristics as social detachment, excellent rote memory, stereotypical and obsessive thoughts and behaviours, echolalia, and poor comprehension of language, among others. In the social realm, a weak central coherence might account for the difficulty of individuals with ASD to form relationships with others and to care to relate to them. If they see things in compartmentalised ways, they may not perceive the relationships between people, the crucial connectivity between verbal, vocal and gestural cues in social exchanges, and the ability to see the overall social exchange as a meaningful and coherent whole. From these, it is apparent that the theory of Weak Central Coherence has obvious implications for interventions in the social domain.

A final model that can also account for the ASD children's social deficit is that of Executive Dysfunction (Pennigton & Ozonoff, 1996). Compared to

children with ADHD and conduct disorder, children with ASD are the poorest in executive control; with those with ADHD following them, while the Conduct Disordered group showing no deficit in this process. Executive control or function is the capacity of the brain to engage in playful and goal-directed behaviour. Children with ASD are characterised by obliviousness regarding planning and organising their daily activities or worrying about the future. It is other people who need to worry about them in these aspects of living. In fact, obliviousness seems to be the hallmark of ASD. This lack of interest in organising experience to achieve specific goals, or attempting to impress others through careful planning of activities and so on, has obvious ramifications for the social realm as well since lack of organisational skills would seriously interfere with processing socially relevant information. Specifically, the children may not be able to plan what to say when introduced to someone or how to respond when being reprimanded or how to make themselves agreeable to others, and so on. Intervention strategies aiming at the social domain should therefore also address this executive dysfunction of children with ASD.

As indicated earlier, a key deficit involves issues in peer interaction. Here a distinction needs to be made between lack of interest versus interest and lack of competence. In fact, interest in peers is presumed to differentiate those with AS from those with Autism (Klin, Volkmar, & Sparrow, 2000). Children with AS may be interested in peers, primarily because they are aware of social conventions and the positive value attributed to having friends by parents and teachers. However, once in the presence of peers, they tend to be unable to manage even elementary aspects of social discourse and social reciprocity. They either are unable to initiate and maintain conversation with them, are attributing hostile intentions to peers, brag about their abilities or demand that they dominate what the group is to play or do. Again, there is variability in the form these difficulties may take but the difficulties are there, and frequently culminate in the child with AS being the one to lose the contest when adults become involved. This is primarily because children with AS are not as competent in arguing their case with school authorities and end up assuming most of the blame in situations of bullying and victimisation by others. The bullies are likely to have good ToM abilities and manage to extricate themselves from receiving blame from authority figures.

In one of our studies we found that not a single child with AS was free of being the target of other children's bullying and taunting behaviours (Butzer

& Konstantareas, 2003). Not infrequently as well, children with AS and ASD may themselves misunderstand the intentions of others and aggress against them for ill perceived slights. A 9-year-old boy with ASD we assessed with my graduate students was prevented from accessing the neighbourhood pool after he had pressed the head of a younger typical child down into the water to the point of suffocation. When asked why he did this terrible thing, he explained that the other boy had attacked him. On further questioning it became apparent that the other child's toes had grazed his thigh and he had interpreted this as being intentional. This tendency to react to apparent or real provocation by attributing hostile intent to them is not unique to children with ASD and is, in fact, very common among children with conduct disorder as well (Crick & Dodge, 1996). However, while for the latter group there is intentional targeting of the other children on the part of the child with conduct disorder, in the case of those with ASD there is genuine misunderstanding of the intentions of others. Therefore, there is a need for psychologists in this area to assist School Board personnel to understand these critical issues. Also, to help children with ASD to correctly interpret the intentions of others or to avoid being targeted for bullying by others rather than suspend the children and deprive them of much needed schooling.

Social skills training

That social and communication skills training is a most important component of intervention for individuals with ASD has been recognised very early (Mesibov, 1984, 1986). For a long time, this realisation did not translate into competent intervention approaches but led to parental and teacher frustration as to how to tackle the problem. More recently, there have been a number of new ideas as well as technologies for building social interaction skills (Baron-Cohen & Howlin, 1998; Gray, 1995; Hodgdon, 1995; Koegel & Koegel, 1995). However, there are very few people who are well versed in the implementation of these approaches. Hence, there is a great need for dissemination of information on social skills training (Klin et al., 2000). Furthermore, there is an urgent need for research into the effectiveness of the approaches now in use. One of the key difficulties is that programs need to be tailored to the needs of children and adults who vary in their social difficulties. This highlights the need to ensure that a sufficient number of techniques are available out of which clinicians can draw

elements to implement with their clients. The main techniques currently available in the area and evidence in their support are presented next.

Social stories. One of the recent approaches to help children and youth with ASD to cope with a variety of difficult situations is the creation of a "social story" (Gray, 1995). Social stories involve visual and written materials to assist to manage situations in the child's day to day experience that lead to frustration and lack of understanding. This approach has the advantage of ensuring generalisation, one of the most vexing problems in behaviour management. To the extent that the technique relates to the specific challenges of the child with ASD, there is no need to work further to ensure that he/she applies it to real life and situations since the social story is created around a real life problem. Hence, the social story is likely to be relevant to the real problem as well as to generalise to comparable challenges in the future. Social stories encompass four types of sentences: (a) Descriptive, which objectively describe where a situation takes place, who is involved, and what happens. (b) Perspective, which explain and describes the reactions and feelings of those involved in the situation. (c) Directive, which tell the child what he is to do or say. (d) Control, which relate to oral and written strategies to help the child remember what to do, and can frequently include the child's own special interests or pre-occupations. These four types of sentence need to be balanced so that 0-1 Directive or Control sentences are used for every 2-5 Descriptive and Perspective sentences. Otherwise, for Gray (1995), the social story is reduced to a list of Dos and Don'ts for the child.

A key consideration is the story's level of complexity. The child's age and level of cognitive functioning and linguistic ability should obviously need to be taken into account to assist with this. Pre-readers can listen to the story on an audiotape while older children can read the stories out to themselves. Parents and therapists cooperate in preparing these stories and they may include drawings or pictures to enhance the story's salience. In addition, Gray (1995) describes the use of Comic-Strip type social stories, for children particularly interested in art and graphics and could process more complex information. The intention of the social stories is to ensure that high functioning children with ASD could acquire ToM abilities through instruction rather than by instinct, something cognitive psychologists (e.g., Frith, 2003) believe is present even in young typical children.

An example of a social story we constructed for a 7-year-old boy who had difficulty with transitions, screamed and threw tantrums, is the following: "I

like my music class a lot (Descriptive). We do a lot of fun things and I play the drums (Descriptive). We all know that after music we have to go back to our regular classroom (Perspective). We have to put away our instruments and line up (Perspective). Each one has to join the line and be ready to return to the class (Directive). The line can be like a snake; it slithers (Control). My teachers will be pleased when I go back quietly and don't make a fuss (Perspective)". The snake metaphor was added because this child's special preoccupation at the time was reptiles.

Social skills groups. Social skills groups are relevant to many psychopathological conditions of childhood and adolescence. For the children with ASD their relevance becomes quite obvious and there have been a number of attempts to systematically examine their utility (Mesibov, 1984; Ozonoff & Miller, 1995). First, it is a good idea to prepare a profile with the special strengths and weaknesses of each group participant, with parents and therapists providing input into areas needing improvement. The various difficulties described in Table 1 would be targets of intervention. The reasons behind each participant's difficulties could be analysed and clarified. The group size needs to be small enough to allow for individualised attention and to reduce the total complexity of interaction to a manageable degree. Thus, no more than 6 children are included in some groups. Groups meet once per week in a designated space and a specific time. If possible, typical peers could be included to allow for the typical perspective taking to also be voiced.

Some of the activities of a social skills group are the following: (a) Each participant in turn could present examples of various situations that challenged him/her during the previous week. The group discusses them and members offer alternative ways of handling problematic issues, with the therapist contributing at the end. (b) The therapist may provide general vignettes of behaviours that frequently challenge this population and which are socially inappropriate. He/she can then ask members to identify the character's errors or faux pas. Videotapes can also be used to demonstrate inappropriate social behaviours on the part of the actors. Attwood (1998) suggests that "The Britas Empire" and "Mr. Bean" are good videos of socially inept behaviour that social skills groups could analyse and discuss at some length. (c) Role-playing and rehearsal of specific social skills, such as meeting a friend, refusing to comply with an inappropriate request by a peer, being bullied, visiting a relative one has not seen before, asking directions, and engaging in small talk while waiting for the bus, etc. (d)

Provide direct instruction to each group member on body use and facial expression through filming the individual concerned and then playing back the videotape and offering corrective feedback on verbal and body language use. (e) Instruction on flexible use of eye contact, which is employed by typical individuals to initiate and punctuate key components of conversation (Baron-Cohen et al., 1995). The following approach could be employed in this respect: ensure that the children are aware of the importance of punctuating key components of conversation, i.e., starting to speak, seeking clarification, attempting to stress a point or terminating an utterance (Feldstein et al., 1981). As well, the child with ASD has to learn to read the language of the eyes for the subtle or direct and explicit cues conveyed thereby. A variety of other skills can also be taught in the context of social skills group training, although only recently systematic work has been undertaken in this area, hence, not clear support for the relative efficacy of different techniques or combinations thereof are yet available.

Strategies for recognition and expression of emotion. Here again, little research is available, although most special education classes I have visited feature a chart of emotional expressions. Attwood (1998) recommends that one begin to teach a child with ASD the recognition of one emotion at a time using a scrapbook related to that emotion, beginning with "happy". He recommends that photographs of happy faces be placed next to the events related to being happy, e.g., a birthday party, or winning a prize. As well, the child can be given a mirror and asked to look at the illustrations that make someone happy and try to match his/her facial expression to the photo's happy face. Depending on age and cognitive ability, the children can be asked to generate situations that make them happy and also how one behaves when happy, e.g., receiving Christmas presents. Next, one could explore the opposite feeling, namely feeling sad, and employ the same approach. Finally, one could use the two extreme emotional states as anchors to contrast and clarify them. Following the teaching of these two basic emotions, the therapist can proceed with teaching anger, frustration and anxiety before tackling the subtler forms of emotional expression, such as irony or confusion, for example.

In one of our early studies we explored the cognitive and social decentration of boys of 7-10 years old who presented with social impairment and a variety of diagnoses. We asked each of them to use props to portray specific emotional states. The therapist and the rest of the group provided feedback to the boys in the form of suggestions as to how to improve on the

depiction of the emotional state they were to portray. Most of the boys had major difficulty managing the task and required considerable training and ongoing feedback and modelling by the therapist to be able to correctly portray the relevant emotional expression. One of the children, for example, was asked to portray "lonely". He was absolutely unable to manage the task and kept wrapping his arms around his body and looking bewildered. He could not think of a way to portray that emotion and was confused as to its meaning (Konstantareas & Homatidis, 1984).

Another key issue requiring input and one that parents and teachers are particularly concerned with involves bullying. In a recent study with my student Bethany Butzer (Butzer & Konstantareas, 2003), we found that all, 22 children and youth with AS, had been bullied, most many times a week. What are some useful strategies in this area? In as far as bullying arises in response to these children's obvious awkward and atypical behaviour, any improvement in managing gesture, facial expression, eye-contact and posture should translate into reduction of bullying for the child with ASD. Since, however, progress in these vexing and difficult to alter behaviours is usually slow, other approaches may be needed. Helping children with ASD to learn to recognise the early signs of bullying and to provide assertiveness training to them in how to respond to bullying has been shown to be helpful in clinical work. As well it is important to teach these children how to report the bullying to school authorities and parents, something that most children with AS are reluctant to do for a variety of reasons. Thus, a 10-year-old very bright boy with AS laughed every time he was bullied thinking that the behaviour of his tormentors was funny, something that resulted in further retaliatory aggression on the part of the bully. This youth had to be very painstakingly instructed to assume different reactions to the bullying. Teaching children with ASD to recognise the early signs of bullying is critical for preventing excessive negative experiences and ensuring that children with ASD are not suffering the stress and degradation imposed upon them by the bullies. Assertiveness training towards bullies is another key dimension to intervention. It can be fostered through videotape demonstration or direct coaching of the child as to how to retaliate towards bullies who are of course likely to immediately stop aggressing as soon as they realise that the target child could manage to repel and even hurt them. Role-playing and rehearsal of how to react to bullies and how to feel comfortable reporting them are key components of successful intervention.

Other suggestions for parents and teachers. Parents and teachers need to

constantly instruct children with ASD on how to engage in a variety of social activities involving everyday situations. Age determines the form these instructions may take. For preschoolers, emphasis on shared attention, training at initiation of appropriate greeting behaviours, sharing toys and materials with other children, observing other children in play, parallel play and interactive play as the goal to intervention would be key components of training. For children of school age, there is a need to assist with coping with changes in routine, learning how to interpret the behaviour of peers, how to compliment peers on their achievements and how to initiate, maintain and terminate conversations are key elements to a successful intervention. Because these skills are minimally present or are completely absent in these children, there is a need for considerable repetition and drilling. Furthermore, even if these skills are partially present after explicit instruction, they are not as stable as they are in their typical peers. Under conditions of stress and in real life contexts, children and adults with ASD who have acquired the skills through laborious training may become confused and may break down, being unable to practice their knowledge. This issue has to be appreciated by parents and teachers who may expect full recovery (see also Frith, 2003).

Managing aggression as a result of ill-perceived slights is another area that needs to be addressed by parents and teachers. Social stories and comic strips, teaching recognition of emotional states and interpreting for the child the comments of others in the right light would be some of the approaches one could employ. Since our studies have shown that reactive (aggression in response to provocation) is the most common form of aggression exhibited by children with ASD (Craven-Thuss & Konstantareas, 2005) and as it is, in fact, in children with other disorders –e.g., Tourette's disorder (Wells & Konstantareas, 2005), parents and teachers need to examine situations and behaviours that lead to reactive aggression and attempt to eliminate them as much as possible. As well, from very early on, there is a need to promote tolerance of peers in the form of parallel and onlooking play development (Wintre & Webster, 1974) before one may expect the child to engage in interactive play with peers. Friendships have been shown to protect children with ASD from anxiety and depression (Attwood, 1998). It is therefore crucial that parents invite other children to play with the child with ASD under adult supervision, in the context of what has come to be called "play dates". Once the child can manage to interact with peers under controlled conditions, adult monitoring may progressively be relaxed and greater independence is slowly fostered.

A final point relates to organisational skills development. As suggested by research in executive dysfunction (Pennington & Ozonoff, 1996), children with ASD also need to learn how to organise their activities and plan their goals and tasks. They need to use calendars and tasks lists for what needs to be done and which materials have to be obtained to meet different goals is also critical for effective functioning. For those with AS in particular, there is frequently the need to assist with graphomotor skills through small portable computers or other means to present their thoughts, unencumbered the need to use fine motor control skills which are frequently impaired in this population. Thus, assisted technology may be required for some children to help them manage their life events and schoolwork. For the lower functioning group, using symbol systems to produce pictures of words and concepts is also very helpful. For example, the program "Writing with Symbols" (Mayer-Johnson Inc., 2000) allows children or their teachers to type a word to produce a pictorial representation of that word, something that is particularly suited to the primarily concrete and visual competence of this group compared to their weakness in auditory processing.

SUMMARY AND CONCLUSION

High functioning children with ASD, which includes children with AS, present a variety of social and emotional deficits. These deficits, which for some are central to their diagnosis (Frith, 2003), can be addressed in a multimodal fashion. The same techniques may be suited to all children and adults and different techniques may be needed for the same child and youth across time. The cognitive models of deficits in ToM, weak central coherence and the executive dysfunction provide useful leads in helping stimulate and generate ideas for intervention, which can take behavioural, cognitive or cognitive behavioural interventions. Thus, explicit exercises to teach ToM have been attempted and appear to be effective, although there is some question about their generalization to other everyday situations (Klin et al., 2000). More recently, much better efforts to teach ToM have been made (Baron-Cohen & Howlin, 1998). The techniques outlined above require considerable effort and take time to implement. Furthermore, they can be unstable and may fail under conditions of stress. Many of them are based in the existing literature and common sense. As yet, very few have been subjected to systematic work. It is the task of new research to examine

systematically the relative effectiveness of different approaches and combinations thereof.

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