

# Practitioner Review: Psychological and Educational Treatments for Autism

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The review discusses various interventions that have been used in the treatment of children with autism. It concludes that no single mode of treatment is ever likely to be effective for all children and all families. Instead, intervention will need to be adapted to individual needs and the value of approaches that involve a functional analysis of problems is explored. It is suggested that many so called “challenging” behaviours result from the child’s fundamental difficulties in communication and social understanding, or from the ritualistic and obsessional tendencies that are also characteristic of autism. Possible ways in which parents and teachers might deal with problems in these areas are discussed. The importance of early diagnosis, and with it early, practical advice for families is stressed.

*Keywords:* Autism, intervention, prevention of problems.

## Background

Autism is a pervasive developmental disorder that is usually apparent from early childhood (Volkmar, Stier, & Cohen, 1985). It is characterised by profound deficits in communication and social understanding and by ritualistic and obsessional behaviours. Although associated with a range of possible causes, genetic factors are probably implicated in the majority of cases (Bailey et al., 1995; Le Couteur et al., 1996).

The condition was first systematically described by Leo Kanner in the U.S.A. in 1943, but a remarkably similar account, written by Hans Asperger in Austria, appeared at much the same time (for an annotated translation of Asperger’s initial paper, see Frith, 1991). Although there continues to be some debate about whether the two conditions described are quantitatively or qualitatively different (Lord & Rutter, 1994), current research suggests that there are few substantive differences, either in early history or outcome, between high-functioning children with autism and those with Asperger syndrome (Szatmari, Bartolucci, & Bremner, 1989; Wing, 1981). ICD-10 and DSM-IV criteria for Asperger syndrome note the same obsessional and social-communication deficits as in autism; the distinguishing features are the presence of relatively normal cognitive skills and the lack of early language delays in individuals with Asperger syndrome.

## Prevalence

Once considered to be a very rare condition, affecting only 3–4 individuals in every 10,000 (Lotter, 1996; Wing

& Gould, 1979), recent studies have suggested much higher prevalence rates. Fombonne (1997), in a recent overview of epidemiological research, found estimates to vary from 0.7 to 15.5 per 10,000. His analysis indicates that although the average figure for children with “classic” autism is around 5 per 10,000, the rates are much higher if children within the wider “autistic spectrum” are included. This term includes individuals who “share a triad of impaired social interaction, communication, and imagination, associated with a rigid, repetitive pattern of behaviour... The triad can be recognised at all levels of intelligence and can occur alone or together with any other physical or psychological disorder” (Wing, 1996). On the basis of this definition, Wing concludes that the prevalence of individuals within the total autistic spectrum may be as high as 91 per 10,000.

Despite the wide variation in these figures, it is clear that children with autistic spectrum disorders are to be found much more frequently than was once thought. Moreover, because of their high rates of behavioural disturbance, such children may make considerable demands on Child Psychiatric or Learning Disability services.

## *The Course of the Disorder*

It is now widely accepted that autism has an onset in infancy or early childhood (Volkman et al., 1985), and many parents have serious concerns about their child’s development in the first year of life (Frith, Soares, & Wing, 1993; Gillberg et al., 1990; Howlin & Moore, 1997; Johnson, Siddons, Frith, & Morton, 1992; Smith, Chung, & Vostanis, 1994). These early anxieties tend to focus around abnormalities in communication, play, or social responsiveness, or on repetitive behaviours.

As children grow older, the pattern of their development is largely affected by their degree of cognitive

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impairment. Although the syndrome of autism can occur in individuals of all levels of ability, the majority (around 70–75%) have some associated learning disabilities and around 50% have an IQ below 50. In those with severe to profound cognitive impairments useful speech is unlikely to develop; this group also tends to develop more disturbed behaviours, such as self-injury, and will almost invariably require specialist education and life-long care. In the 20% or so of individuals who have an IQ within the normal range, outcome is much more variable. Most individuals tend to improve with age (Eaves & Ho, 1996; Gillberg & Steffenberg, 1987; Lockyer & Rutter, 1969, 1970; Piven, Harper, Palmer, & Arndt, 1995), but whereas for some, adolescence brings about an upsurge in problems, for others, notably those who become more aware of their difficulties, it can be a period of remarkable improvement and change (Kanner, 1973). Within this group, some individuals remain highly dependent throughout their lives; others make successful careers, they may live more or less independently, develop friendships or even (in a tiny minority of cases) get married (see Howlin, 1997a, in press for review). Nevertheless, even amongst those who make greatest progress, their communication and social problems continue to affect many aspects of their lives, as first-hand accounts by people such as Donna Williams (1992, 1994), Temple Grandin (1992), or Jim Sinclair (1992) clearly illustrate.

### Treatments for Autism

The fact that some children do show substantial improvements as they grow older has led to claims that particular treatments can significantly affect outcome, or even bring about a “cure”. Among such interventions are “Holding” therapy (Richer & Zappella, 1989; Welch, 1988); music therapy (Trevarthen, Aitken, Papoudi, & Roberts, 1996); scotopic sensitivity training, which involves the wearing of specialist spectacles (Irlen, 1995); auditory integration, which focuses on desensitisation to sounds of particular frequencies (Rimland & Edelson, 1994, 1995; Stehli, 1992); as well as various drug and vitamin treatments (see Howlin, 1997b, for a detailed review of different therapies).

Few if any of these claims are supported by adequate experimental data. One such example, prominent in the early 1990s, was “Facilitated Communication”. This involved physical support (to the hand, arm, or wrist) to help children use communication boards of various kinds. The technique was said to demonstrate that individuals with autism were actually of superior intellect, and was claimed to lead to “Communication Unbound” (Biklen, 1993). Subsequent controlled investigations have consistently indicated that responses are almost invariably under the control of the facilitator, not the client (Bebko, Perry, & Bryson, 1996; Green, 1994).

A variety of teaching approaches has also been promoted as having a significant impact on outcome. These include the Japanese-based “Daily Life Therapy”, with its focus on highly structured, physically oriented programmes, practised in the Higashi schools (see Gould, Rigg, & Bignell, 1991, for details). The “Options” method of Kaufman (1981), which relies on therapists participating in the child’s ritualistic and obsessional

behaviours in order to foster social contacts, also claims “miraculous” results. Another approach, currently receiving much publicity, is the intensive early intervention programme of Lovaas and his colleagues (McEachin, Smith, & Lovaas, 1993; Lovaas, 1993; Perry, Cohen, & DeCarlo, 1995). It is said that 42% of children with autism “maintain normal functioning at follow-up” (average age of 11.5 years) if they are exposed to very intensive (40 hours per week), home-based behavioural programmes from around the ages of 2 to 4 years (Lovaas, 1996). Although the value of behavioural approaches has clearly been demonstrated in many studies, including those of Lovaas himself, these recent claims have aroused criticism concerning possible biases in subject selection, problems of research design, and, most importantly, in the definitions of “normality” used (Schopler, Short, & Mesibov, 1989). Thus, children are claimed to have “recovered” if they are of normal IQ and can be assimilated into mainstream education. Since around 20% of all autistic children are of normal intellectual ability, and many attend mainstream schools despite showing the characteristic triad of impairments, such criteria cannot be used as evidence of normal or even near normal functioning (Mesibov, 1993).

From a practical point of view, too, this approach poses many problems. The programme involves 40 hours of one-to-one intervention a week for at least 2 years and, whereas some families may be able to cope with such demands, the cost for others in emotional, financial, or practical terms is often far too high. Moreover, although programmes of this kind may enhance short-term progress there is little to show that the benefits last beyond childhood. Thus Howlin, Goode, and Rutter (unpublished data) found that, in adulthood, there were few if any significant differences, either in cognitive attainments or in measures of independent living, between individuals who had received home-based behavioural programmes when they were younger, and their matched controls who had not.

### Advising Parents about Different Treatments

To date, there is no good evidence that any cures for autism exist. Many able children do well despite totally inadequate provision, and to a great extent eventual outcome is dependant on innate cognitive, linguistic, and social abilities. However, clinicians are frequently approached by parents who have heard or read about particular “miracle cures” and who, understandably, want to know whether the treatment will work for their own child. Although it is important not to appear unduly pessimistic or dismissive, it is equally important to try to help parents understand that there can be no universal panacea. After all, even within physical medicine, drugs that have brought widespread advantages to many, such as aspirin or antibiotics, may prove ineffective or even harmful for certain individuals. Before parents succumb to the temptation of parting from large amounts of money, or in some cases (as in specialist boarding school provision) from their own child, the clinician should help them to try to obtain as much information as possible, not only about the children for whom the treatment has worked, but also about the characteristics of those for

Table 1  
*The Principal Diagnostic Features of Autism and Their Association with Behaviour Problems*

Area of deficit	Associated problems	
	Less able children	More able children
<i>Impairments in communication and understanding</i>		
Inadequate language	Frustration, aggression; unacceptable attempts to control environment	Inappropriate use of speech (echolalia, verbal routines, obsessional questions etc.)
Poor comprehension	Anxiety, distress, and disruptive behaviours	Apparent lack of co-operation
Lack of internal language	No ability to play or occupy self	Poor imaginative skills; limited self control
<i>Impairments in social understanding</i>		
Lack of social awareness	Withdrawal and isolation. Disturbed/disruptive and inappropriate behaviours in public.	Attempts to socialise often inappropriate; may offend or antagonise others. Inability to "read" others' feelings makes them appear insensitive, callous, even cruel.
<i>Obsessions and rituals</i>		
Obsessional behaviour patterns	Can severely limit the acquisition of other more productive behaviours/skills	May involve other people in routines/rituals; can impose major limitations on other people's activities too
Disruption of routines	Can result in serious distress, disruption and aggression	
Dislike of change	Leads to very rigid and inflexible patterns of behaviour and great distress and anxiety if change is necessary	
Obsessional interests		May be pursued regardless of the consequences. Constant talk about these can antagonise others

whom it has been less successful. (Claims that the treatment works equally well for everyone need to be treated with particular caution.) They should ask whether treatment seems to work better with older or younger children; for those with or without language; or those who are more, or less, cognitively able. Parents should be encouraged to find out what sort of assessments are carried out prior to treatment and what methods (other than selective anecdotal reports) have been used to assess outcome. They also need accurate information about what happens to other children with autism as they grow older, so that reported outcomes following treatment can be judged in the light of what might be expected in the absence of any special treatments. Before jumping headlong into therapy, families should be helped, too, to weigh up the overall cost of treatment; the amount of time that will be involved; any foreseeable pressures or restrictions on other aspects of family life; or the possible impact on the child of having to cope with major change, or even separation from the family. Finally, detailed information should also be provided on *local* facilities, support groups, educational provision, and so forth. These are unlikely to have been widely advertised, nor to have featured in the national press, but may well be able to provide families and children with much-needed, and sometimes highly effective, help. If parents are better informed of what is available within their own area, they may find less need to seek solutions further afield.

The clinician needs to avoid encouraging unrealistic expectations about future progress whilst not giving parents too pessimistic a view of what the child is likely to achieve. Thus, it is now well established that early

intervention, appropriately adapted to each individual child's pattern of strengths and weaknesses, can have a significant impact on minimising or avoiding behavioural problems and in helping to ensure that children are able to develop their existing skills to the full (Howlin & Rutter, 1987).

#### *Understanding the Problems of Children with Autism*

Articles on the association between autism and "challenging" behaviour appear throughout the child psychiatric literature. Similarly, behavioural journals abound with detailed accounts of the techniques that have been successful in modifying aggressive, destructive, and (although to a lesser extent) self-injurious behaviours. However, whereas the seriousness of such problems cannot be underrated, it is also important to recognise that, given the severity of their social and communication deficits and their need for ritual and routine, many children with autism perhaps show far *fewer* challenges than might be expected. Imagine for a moment how any "normal" person might react to a world in which they are able to understand almost nothing of what is happening around them; in which they are thrown daily into an ever-changing and unpredictable environment; where they lack even the rudimentary verbal skills necessary to make their needs known; where they have no access to the internalised, imaginative facilities that are so crucial for dealing effectively with anxiety, uncertainty, and distress. Most such "normal" individuals would rapidly resort to a whole range of retaliatory behaviours, which if simply

responded to by “time-out”, or “extinction”, or even rewards for “incompatible behaviour” would probably escalate dramatically. Of course, problem behaviours in autism, as in any other condition, will be maintained or increased by the attention or reinforcement they elicit, and techniques such as time out, extinction, or differential reinforcement can serve an important role (see Emerson, 1995). However, they are not specific to the treatment of autism. The focus of this article, therefore, will be on the underlying causes of behavioural disturbances and the role that social, communication, and obsessional difficulties play in causing or maintaining these (see Table 1). Intervention strategies, too, will concentrate on the need to improve functioning in these areas, rather than on the direct elimination of problems.

## Developing Intervention Programmes

### *Pre-treatment Assessments*

Before embarking on any treatment programme it is essential to obtain adequate information, not only on the behaviours to be modified, but on the child as well. This is because apparently similar problems can have very different causes in different children, or within the same child at different times. For example, “aggressive behaviour”, may result from a child’s inability to communicate; because he or she lacks more effective strategies to control the environment; because of the attention such behaviours receive; because of frustration, distress, anxiety, or because of disruption to rituals and routines. Moreover, in many instances, a combination of these variables may be operating. Pain or physical illness are other important factors to bear in mind. Certain stereotyped and self-injurious behaviours, for example, have been found to follow minor illnesses including dermatitis and otitis media (Hall, 1997; Oliver, 1995). As children with autism may suffer more frequently from ear infections (Konstantareas & Homatidis, 1987), it is clearly important for the clinician to rule these out as a possible cause of episodic behavioural changes, especially in nonverbal children. Gunsett, Mulick, Fernald, and Martin (1989) also stress the importance of carrying out medical screening *before* any psychological programmes are implemented in patients with profound learning disabilities. In a series of 13 cases, referred for self-injurious behaviours, 10 were found to have a physical basis for the behaviour. These included limb fractures, hernias, urinary tract infections, ear infections, bowel problems, incorrect medication, toxic levels of anti-convulsants, and progressive brain deterioration.

### *Individual Assessment*

As noted earlier, autism is frequently referred to as a “spectrum” disorder (Wing, 1996), in that it can range from relatively mild to profoundly handicapping. Similarly, it can affect children across the entire cognitive continuum, and is found in those who are nonverbal as well as those whose spoken language is apparently unimpaired.

Dealing with the temper tantrums of a nonspeaking 4-year-old child with an IQ of 30 will require very different

strategies to those appropriate for a highly verbal 14-year-old with an IQ of 130. Programmes that are pitched inappropriately high or low will be unlikely to succeed. Thus, standardised cognitive and linguistic assessments can be a crucial component of any intervention, since informal observations alone may give a misleading impression on intellectual ability. Children who appear alert and interested in their environment, or who have one or two isolated skills, may mistakenly be viewed as very intelligent; those who are able to follow simple instructions (often only with accompanying gesture or other cues) may be described, quite erroneously, as “understanding every word you say”; children who have an extensive expressive vocabulary may actually have very limited comprehension skills. Conversely, children whose speech is slow and halting, and who appear to show little interest in the activities around them, may be classified as having severe learning difficulties, when in fact many aspects of their cognitive development lie within the normal range.

Unfortunately, because of the social and communication difficulties associated with autism, it is often believed that traditional psychometric testing has little or no role to play in assessment. Many psychologists, especially within the educational system, still tend to rely on unstructured observations. Although these are undoubtedly important, a relatively brief testing session can reveal unsuspected areas of skill or deficit, which may be very relevant for intervention. Moreover, as long as the appropriate tests are used, cognitive assessments on autistic children are just as reliable as testing in other groups (Rutter, 1985). The Appendix provides information on standardised tests of language and cognition that have proved useful when working with this group of children (see also Marans, 1997).

### *Behavioural Assessment*

Traditional behavioural therapy has long espoused the ABC approach to the analysis of behavioural problems. Thus, following precise delineation of the Behaviour to be modified, attempts are made to identify the Antecedents and the Consequences of that behaviour. However, in the case of many children with autism, a focus on the observed behaviour does not necessarily lead to the most appropriate form of treatment (Emerson & Bromley, 1995). It may also prove extremely difficult to establish, with any degree of certainty, either the antecedents or the consequences of the behaviour *as perceived by the child*. For example, a child might begin to self-injure in a particular setting, because he or she has been reminded of an earlier (but no longer existing) distressing occurrence that had previously ceased when self-injury commenced. In such a case, direct observations will be of little use in identifying the relevant variables.

Because the observed *form* of a challenging behaviour may give few clues as to its real role, recent intervention studies have focused instead on the *function* or “message” of that behaviour. The aim is to establish what it achieves for all the individuals concerned (carers as well as children) and to explore the alternative behaviours that might be encouraged to replace it (Sturme, 1996).

### The Functional Analysis of Behaviour

Highly sophisticated, experimental studies of the “challenging” behaviours shown by children with autism have consistently demonstrated that many such behaviours serve an important communicative function (Durand, 1990). Indeed, analyses of these behaviours suggest that they may sometimes be the only way in which a child with limited linguistic abilities can rapidly, effectively, and predictably control his or her environment.

Five main functions of aggressive, self-injurious, stereotyped, or other disruptive behaviours have been identified (Durand & Carr, 1991; Durand & Crimmins, 1988). These are:

- (1) To indicate the need for help or attention.
- (2) To escape from stressful situations or activities.
- (3) To obtain desired objects.
- (4) To protest against unwanted events/activities.
- (5) To obtain stimulation.

If the primary function of a behaviour can be identified it is then possible to provide the child with alternative means to obtain the same ends. The choice of strategy taught will depend on the child’s cognitive and linguistic ability, but might range from teaching him to push a button, lever, or switch, or to use signs, symbols, pictures, or words and simple phrases (such as “Help me”). As long as the newly acquired behaviour has a rapid and predictable impact on the child’s environment this can result in significant reductions in undesirable behaviours (Durand & Carr, 1991).

Despite the surge in publications emanating from this approach in recent years, it is important to be aware that the majority of studies has been conducted in highly staffed experimental settings. Detailed analyses of the possible functions of undesirable behaviours may require considerable time, expertise, and technology and are often impracticable within mainstream settings. As Owens and MacKinnon (1993) note, “Functional analysis isn’t as easy as ABC”. Emerson and Bromley (1995) also warn of the problems inherent in this approach. Human behaviour will always be determined by many factors, and by different factors at different times, and they found that often it was not possible to determine the function underlying a particular challenging behaviour. In around 25% of cases, no specific function could be identified, and a third of behaviours appeared to be influenced by multiple factors. Hall (1997), in a very sophisticated assessment of self-injurious and stereotyped behaviours in 16 children with severe to profound learning disabilities, was able to identify a consistent underlying function for self-injury in only 4 cases and for stereotyped behaviours in 6 cases. Moreover, knowledge of the function underlying one class of behaviours is not necessarily of any value in predicting the behavioural function underlying other forms of challenging behaviour shown by the same individual.

A further problem with studies employing this methodology is that they do not tend to use random control trials. Most are multiple baseline, single-case, or small group reports, and although those that have been published are certainly encouraging, there is no way of

ascertaining how many unsuccessful studies may also have been conducted.

Despite these difficulties, it is apparent that this approach to assessment and treatment can play a major role in reducing challenging behaviours. A number of rating scales or questionnaires have now been produced to assist carers in identifying the possible functions of disruptive behaviours (see Sturmey, 1996). The most widely used of these is the “Motivation Assessment Scale” (Durand & Crimmins, 1988), which attempts to classify behaviour into four main categories: attention seeking; self stimulatory; escape or avoidance; or as indicating the need for help or assistance. However, there are doubts about the reliability and validity of this scale when used in naturalistic settings, and, more importantly, the four summary categories cannot encompass all the possible reasons for disruptive behaviours. In particular, they cannot identify idiosyncratic or multifunction causes (Sturmey, 1995).

A somewhat less complex questionnaire has been developed by Schuler, Peck, Willard, and Theimer (1989). This can be used by parents or teachers and, by systematically exploring how the child expresses his or her need to do something (sit by someone, get attention, obtain food or other object, protest if something is taken away, etc.), this process can again help to indicate how behaviours that are often viewed as “inappropriate” (screaming; self-injury; tantrums; aggression etc.) can have important communicative functions. This information can then be used to plan ways in which alternative and more acceptable responses might be established. Moreover, by helping carers to appreciate that such behaviours may be a function of poor *communication* skills, rather than being “deliberate” acts of aggression or provocation, this approach can also have a very positive effect on other people’s attitudes and responses towards the child.

In the following sections, strategies for dealing with the problems that appear to underlie many challenging behaviours are described. However, again, although there are many single-case and small group studies, often using multiple baseline or ABA type designs, that testify to the success for these techniques, there are very few randomised treatment trials. Thus, information on overall success rates, or on the types of children or problems for which the treatments are most/least successful, remains very limited.

### Increasing Communicative Skills

Despite some intrinsic problems, the emphasis in “functional analysis” studies on the need to develop effective communication skills has had a significant impact on therapy. It is estimated that around half of all children with autism fail to develop functional speech (Lord & Rutter, 1994), and even amongst those with a good expressive vocabulary there are persisting and pervasive impairments in the communicative use of language, and in understanding complex or abstract concepts.

For younger children, who are able to use some words or sounds spontaneously, individualised language

Table 2  
*Assessment for Communication Strategies (from Layton & Watson, 1995)*

	Signing	Pictures/ Pictographs	Writing
Characteristics			
Easily shaped	Yes	Yes	Fairly
Portability	High	Moderate	High
Permanence	No	Yes	Yes
Speed	Moderate/Low	Low	High/Moderate
Phrases possible	Moderate	Limited	Yes
Iconicity	Some	Yes	No
Reciprocity	Limited	Limited	High
Skills required			
Motor skills	Yes	No	Yes
High co-operation	Not initially	Not initially	Not initially
Demands on others' understanding	Yes	No	No

programmes are important for improving comprehension, increasing the complexity of speech, or correcting problems of intonation or articulation. However, it is essential that such programmes are aimed at a level that is appropriate to the child's cognitive and linguistic development and that the words or concepts involved are ones that are of direct relevance to the child. Language cannot be taught in brief, 1-hour speech therapy sessions, but language therapists can play a crucial role in ensuring that all those living and working with the child use effective and consistent strategies to encourage speech, develop imaginative skills, and improve understanding. Descriptive assessments of the way in which children use and understand language, such as the Derbyshire Language Scheme, the Pragmatics Profile of Early Communication Skills (which is based on a structured parental interview, Dewart & Summers, 1988), or the Social Use of Language Programme (Rinaldi, 1992) can also be used to provide guidelines for improving receptive and conversational skills. As long as the words taught are of practical value to the child, in that they allow him or her immediate access to desired objects or activities, then artificial rewards should not be needed. Indeed, there is evidence that the unnecessary introduction of extrinsic reinforcers may actually interfere with learning (Howlin & Rutter, 1987).

Follow-up studies indicate that most children with autism who have not developed useful speech by the age of 6 or 7 years remain very impaired in their ability to communicate verbally. For them, some form of alternative communication system will be required, and the appropriate choice of system will depend on the child's particular pattern of skills and disabilities. Layton and Watson (1995) provide a useful breakdown of the different skills required for using signs, pictures or written words (see Table 2).

Sign systems, especially those developed for use with children with learning disabilities, have been widely used to augment communication skills. The Makaton system, for example (Walker, 1980), is extensively used in schools in the U.K. This has several different levels of complexity, and now incorporates symbols as well as signs. However, in the case of children with autism, the evidence to show that communication can be significantly enhanced by the

acquisition of sign is, in fact, somewhat limited. Thus, Kiernan (1983) found that although some children had acquired an extensive signing vocabulary (400 sign combinations) or had begun to use speech after 2 to 3 years, others had managed to learn only 1 or 2 signs. Other studies indicate that problems of generalisation and maintenance are similar to those experienced in verbal training programmes. Attwood, Frith, and Hermelin (1988) found that the signing of children with autism was very similar to their use of language—i.e. it was stereotyped, repetitive, and used mainly to achieve the child's immediate needs. Signing was rarely used to share experiences, to express feelings or emotions, or to communicate in a reciprocal and spontaneous fashion.

On the whole, a pictorially based system makes least demands on cognitive, linguistic, or memory skills, although again it is essential that the pictures or photographs used reflect the individual's particular interests or needs. It also seems to be important for the child to take an *active role* in using and handling such materials (e.g. using Velcro or stickers to indicate the activities completed, or to be done, rather than looking passively at charts constructed by others). The PECS (Picture Exchange Communication System) of Bondy and Frost (1996) is a good example of how this can be done.

Once the association between the activity/object and picture/symbol/chart is established, individualized sets of photographs or pictures can be used very effectively to increase both communication and understanding (Quill, 1995). Whatever system is used must be readily available to the child and his carers. Possible ways of ensuring easy access are to have the picture/symbol/word sets on cards in a simple "Filofax" system; attached to the child's belt; in a hip bag; or worn, like an identity badge, on a chain. Materials also need to be strongly bound, and quickly replaceable. Equipment that is forever getting lost, or dog-eared cards that no-one can read, are of little use.

Computerised communicative devices have become steadily more sophisticated in recent years. Some are now specially designed for children with autism, in that they have a specific focus on turn taking and reciprocal interaction. Interchangeable keyboards of increasing complexity make it possible for children to progress gradually from single-symbol boards (with for example a

large red square or circle that will emit a sound to attract attention) to, eventually, the independent use of multi-symbol displays, which are personally tailored to the individual's own environment, needs or interests. Computers can, of course, also be very valuable general teaching aids for more able children who may respond better to visually, rather than verbally, presented material. However, when using computers with this group, care needs to be taken to ensure that some social interaction is also required, otherwise an obsession with the technology may take over.

Some parents understandably express concerns that, by focusing on alternative forms of communication, this will minimise the chances of their child ever learning to speak. However, developing competence in the use of signs or symbols may actually encourage some previously nonverbal children to use speech (Howlin, 1989). And, for those who do not, it is crucial to establish an effective and socially acceptable form of communication as early as possible.

It is also important to be aware that children with no *apparent* language difficulties may also require some augmentative communication systems from time to time. Almost all children with autism, no matter how able, have difficulties with abstract language or in dealing with complex sequences of instructions. Thus, although they may understand the *individual words* spoken, they may well misinterpret or fail to understand the underlying meaning of what is said. If told, "Go and ask your mum if she wants a cup of tea" they may well do so, but are unlikely to bring back any reply! In such circumstances it is essential that the speaker makes sure that the words used adequately convey what is wanted (i.e. "Go and ask your mum if she wants a cup of tea and then come straight back and tell me what she said"). In addition, especially when the task requirements are more complex, checklists of simple instructions, picture or cartoon sequences of the activities to be completed, or symbols designating the tasks to be done, can all help greatly to improve co-operation.

One example of a very successful, visually based instructional system is the TEACCH educational programme, initially developed in North Carolina (Schopler, Mesibov, & Harsey, 1995). This relies heavily on visual cues or "jigs", so that throughout the child's school day, different coloured work areas or different coloured containers are used to indicate where the child should be; what he or she should be doing; where work should begin or be placed when finished; and even where to play. This combination of a highly structured and visually based programme can be very effective in improving work-related skills and reducing inappropriate behaviours. However, as with any treatment package, it is important that the basic components are adapted to suit the needs of the individual and his or her environment. It is also important to plan for the gradual reduction of such cues if the child is eventually to be able to function in less structured surroundings (Jordan & Powell, 1995).

### *Echolalic Speech*

Echolalia, both immediate and delayed, is a common feature of autism. Although often considered as in-

appropriate and noncommunicative, as well as sometimes being extremely irritating, careful analysis indicates that much echoing serves identifiable, and important, communicative functions (Prizant & Schuler, 1987; Rydell & Prizant, 1995). As with any other "autistic" behaviour it is crucial to assess the role that the echolalia serves before attempts are made to modify it.

Echoing may be an indication of children's lack of understanding; it may be important in helping them to consolidate what others say, as well as providing them with the opportunity to practise new words or expressions. Moreover, in that echolalia is likely to increase when children are distressed or anxious, it may signify that they are experiencing undue pressure (Rydell & Mirenda, 1994). Repetition can also play a role in rehearsing potentially worrying situations, in dealing with feelings of anger, or in helping to allay anxiety. Greater understanding of *why* such behaviours may occur, and recognition of the potential importance of these, should lead to more appropriate intervention strategies, with a focus on altering the factors causing the echolalia, rather than on the symptom itself.

Ensuring that instructions or questions are fully understood, by simplifying the language used, or supplementing this with pictures, written instructions, or other cues, may significantly reduce stereotyped and echolalic speech (Rydell & Prizant, 1995). Repetitive questioning (which often tends to escalate the more adults respond to it), may also be reduced by directing the child to charts, pictures, calendars, or lists, which provide him or her with the required information in a more permanent form. Dealing with unnecessary stress, by supplying the child with adequate help in cognitively or socially demanding situations, may also have a considerable impact. Minimising disruption to daily routine, ensuring that daily life is as predictable and as consistent as possible, and that necessary changes are predicted well in advance, can all help to decrease the frequency of repetitive speech.

Stereotyped speech (bombarding visitors with questions about the make of their car; or lengthy monologues about the lighting systems on particular railway networks) may be an indication that, although the child wishes to make social contact, he or she lacks the necessary conversational skills. Again, help to initiate and cope with basic conversational exchanges—perhaps by utilising role-play or drama techniques—is often the most effective way of addressing problems of this kind.

Of course, stereotyped speech may sometimes be used deliberately because of the attention it generates. Repetitive phrases, swearing, or other provocative utterances often provoke a rapid response from adults and other children, and are all too easily reinforced. In such cases, as well as increasing the child's repertoire of appropriate speech, strategies involving extinction (no reinforcement) or "time out" (removal of ongoing rewards) may be necessary. Such techniques, if used *consistently*, can have a rapid and positive effect on behaviour—the problem lies in being consistent. Thus, swearing or other abusive language may be relatively easy to ignore by parents who are relaxed and in control. After a sleepless night; when under stress; or in conditions where they have little control (e.g. in church, on the top of a bus, or in a supermarket queue) it can be almost impossible not

to respond. Intermittent reinforcement of this kind can actually result in an increase in unwanted behaviour, and hence extinction programmes, although highly effective in principle, can prove much more difficult to implement in practice. Parents also need to be given support during the early stages of such programmes when the “extinction burst” (an initial increase in the behaviour when reinforcement is first withdrawn) is likely to occur.

### *Improving Others' Communication skills*

Although, with appropriate help and encouragement, children with autism may show improvements in both their use and understanding of language, the communication deficit is central to the disorder and no amount of therapy will overcome this entirely. Much can be achieved, however, by making the adults in the child's environment more attentive to the language that they themselves use. Instructions should be simple and concise, and every attempt made to ensure that the words used actually mean what they say. Metaphor, slang, and colloquialisms are all best avoided, whilst irony or threats such as “I'll kill you if you do that again” can cause untold distress. Even vague concepts such as “Perhaps”; “I'll think about it”; “We'll see” are liable to produce confusion and anxiety. If the child is required to do something, an unambiguous request such as “Please give me the bread” will be more productive than a phrase such as “Can you pass the bread?” (which might well be answered in the affirmative but without resulting in any action). Other apparently minor changes in wording can have surprising effects. One girl's severe distress at being told, prior to a trip to France, that she would be “going to sleep on the train” changed to pleasure and relief when this was altered to “going to bed in the train”. A teenage boy who became rude and abusive if ever he was asked by teachers or doctors “What year is your birthday?” (the obvious answer, to him, was “Every year”) answered politely if they asked instead, “What year were you born?”

Unfortunately, predicting in advance what particular turn of phrase is likely to give rise to problems is very much a matter of trial and error. However, whenever a request is not complied with, or if a statement meets with an upsurge in echolalia, irritation, or anxiety, the speaker should first assume that what he or she has said has been misunderstood or misinterpreted. Simplifying or changing the words that are used may have a much greater impact than attempts to modify the child's response. And again, the value of written or pictorial cues to augment the words used cannot be over-emphasised.

### *Ameliorating Social Difficulties*

The social impairment in autism affects almost every aspect of the child's functioning, whatever his or her intellectual ability. In children who are more severely handicapped, highly inappropriate behaviours such as screaming, undressing, or masturbating in public may be a major cause of disturbance. In the case of those who are more able, the problems tend to be much more subtle, and include impairments in empathy, social understanding, or reciprocity and synchronisation (i.e. saying or

doing things that in themselves are not unacceptable, but at the wrong time, in the wrong place, or with the wrong person).

In many ways, the more obvious social problems are often easier to deal with. Firm and consistent guidance is needed from the outset about what behaviours are, or are not, acceptable. If, as a small child, there are clear and invariable rules—such as never undressing or masturbating in public, not touching strangers or their belongings—and if the child also learns that disruptive behaviour in response to such prohibitions results in the cessation of more pleasurable activities, then such behaviours are much less likely to give rise to problems in later childhood. Children with autism are, by definition, somewhat rigid in their behaviour patterns, and if acceptable behaviours are established when they are very young these will tend to persist. The converse, of course, is also true, so that once unacceptable behaviours take hold, they will be very difficult to shift in later years, especially as the child grows bigger. Parents, however, may need a great deal of help and support during these early years if they are to develop effective management strategies. Young children with autism are clearly often deeply disturbed and confused, and most parents, unwilling to increase their distress, will tend to give in to many of their demands. Helping parents to understand when it is acceptable or necessary to say “No”, and to recognise when consistency is crucial, can help to avoid future problems. Removing a screaming 3-year-old from a shop because he cannot have what he wants may be embarrassing enough; attempts to remove a screaming 13-year-old will prove far more difficult.

It is also important that parents are made aware of behaviours that, although not necessarily inappropriate in a young child, may become progressively more unacceptable as he or she grows older. A young girl who warmly hugs and kisses everyone she meets, or a little boy who loves the feel of women's tights, may be treated with fond indulgence. The same behaviours in older teenagers or adults will provoke a very different response! Difficulties in social understanding and awareness mean that the child with autism will either be impervious to other peoples' changed reactions or that they will be totally confused by the fact that behaviours that were once tolerated, even encouraged, are suddenly deemed to be “wrong”. On the whole, it is far preferable to introduce simple and invariable rules (you only kiss people in the family; you can only touch mummy's tights) that may be relaxed in later years if necessary, than to have initially very loose guidelines that suddenly have to be made more restrictive. A toddler who has been allowed to take off all his clothes whenever he wanted will find it very difficult to change this behaviour when he begins attending school. On the other hand, a child who has only ever been allowed to take her clothes off in the home can be taught, as she grows older, that it may be acceptable to remove her clothes in other *specified* situations, such as the family doctor's surgery.

The major problem, here, is that social behaviour is not governed by simple rules; if such rules do exist they are highly complex and constantly changing according to the social context. Nevertheless, as far as the child with autism is concerned it is preferable to have consistent (if

sometimes inadequate) rules than no rules at all. It is dealing with more complex and subtle social deficits that presents much more of a challenge. Knowing how to make friends, recognising what other people are feeling or thinking, and reacting appropriately, are fundamental human aptitudes; they are not rule-based skills that are acquired through teaching. Thus, interventions designed to overcome such basic deficits are almost certain to be limited in their effectiveness. There is some evidence that social skills groups, specifically designed for children or adults with autism, can improve certain aspects of social functioning (Mesibov, 1984; T. I. Williams, 1989), but on the whole generalisation to untrained settings tends to be limited. Social skills training is best conducted in each and every situation to which the child is exposed, so that he or she learns how to respond appropriately at home, with relatives, in shops, at school, or with the peer group. Each of these situations will require different social strategies and teaching in situ is far more likely to be effective than teaching in the relative isolation of a "social skills group".

Learning how to interact appropriately with children of their own age is often one of the most difficult and demanding tasks for a child with autism. The "rules" of engagement; of knowing how to enter a group of children; how to join in with their activities; and how to talk to them, are all highly complex, unwritten, generally poorly understood (Dodge, Schlundt, Schocken, & Delugach, 1983), and hence almost impossible to teach. Because of this, some researchers have shifted the focus of attention onto nonautistic peers, systematically teaching them to play and interact more effectively with the child with autism (Lord, 1995a; Wolfberg & Schuler, 1993). Roeyers (1996) has also shown that simply providing nonhandicapped peers with information about children with autism and general instructions about ways to encourage them to play can improve the frequency and style of joint interactions. Programmes of this kind can result in important short-term gains, and are clearly important for improving opportunities for integration. Nevertheless, they do require skilled input from teachers if the interactions are to be effective, and it can prove difficult to maintain peers' co-operation over the longer term (Lord, 1984).

Other recent approaches to the treatment of social problems have focused on more fundamental deficits in "theory of mind". The inability of children with autism to "mind-read", i.e. to understand other people's beliefs, ideas, thoughts or feelings, has received much attention over recent years (see Baron-Cohen, 1995, for an excellent summary). Several studies have found that even after relatively brief intervention programmes involving computers, pictures, photographs, toys, or actors, children with autism do show improvements in their ability to understand beliefs and emotions (Swettenham, 1995; Ozonoff & Miller, 1995; Hadwin, Baron-Cohen, Howlin, & Hill, 1996). Not unexpectedly, given the brevity and limitations of such programmes, generalisation to other, untrained aspects of "theory of mind" is poor. Nevertheless, even this limited success suggests that training packages specifically designed to increase the ability to "mind-read" could be an important and valuable addition to the educational curricula for many children with

autism (Howlin, Baron-Cohen, Hadwin, & Swettenham, in press).

### Coping with Obsessional and Ritualistic Behaviours

Ritualistic and obsessional behaviours are a further major cause of problems in autism. Many different ways of dealing with these problems have been reported in the literature, but generally it seems that a "graded change" approach to intervention is the most effective. For a child with autism, obsessional and ritualistic activities often play a crucial role in reducing anxiety or in providing them with some control over what is otherwise a very confusing and unpredictable world (see Jolliffe, Lansdown, & Robinson, 1992). If an attempt is suddenly made to restrict or prohibit such behaviours, this can lead to unacceptably high levels of anxiety and distress, and because of the resulting disturbance most parents quickly give in. Moreover, without careful planning, children may well develop replacement rituals or obsessions that prove even more disruptive.

In order to maintain parental co-operation and consistency, it is generally more effective to modify the behaviour *gradually*, until it no longer interferes with the child's, or the family's, other activities. Howlin and Rutter (1987) and Schopler (1995) describe a variety of strategies that can be used to reduce obsessional and ritualistic behaviours. However, the crucial goals are to minimise anxiety and distress (for both parents and child); to aim for gradual but achievable behavioural change, rather than dramatic improvements; to weigh up the potential advantages, as well as obvious disadvantages, of the obsession and wherever possible to capitalise on these.

The following guidelines seem to be particularly helpful.

- (1) *Establish clear and consistent rules* for: *Where and When* the activity is permitted; *Who* it can be carried out with; or *How long* it can go on for. This ensures that the child knows not only when the behaviour is *not* permitted, but also when it *is* allowed.
- (2) *Ensure that change is introduced one step at a time*, so that any distress to the child is kept to a minimum. Setting very small goals optimises the chance of long-term success.
- (3) *Explore possible underlying factors*. High levels of obsessional behaviour are often an indication of uncertainty, anxiety, or distress. Such problems can be reduced significantly by ensuring that the child's daily programme is predictable, and appropriately stimulating and structured.
- (4) *Consider possible environmental modifications*. Reducing unnecessary demands on the child, encouraging more flexible attitudes in adults, or making relatively simple modifications to the daily routine or environment can also help to reduce obsessional behaviours. In mainstream schools, for example, many children with autism become very distressed (and hence more ritualistic) if they are forced to take part in group games or "join in" at play times, or when they have to scramble to find

Table 3  
*Stages in Setting Limits on a 3-year-old Boy's Obsession with Thomas the Tank Engine*

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1	Picture calendar, indicating when access to "Thomas" videos and train sets is allowed, produced by parents.
2	Videos made unavailable before school; "Thomas" book read over breakfast instead.
3	Videos restricted to one per evening after school; weekend access unrestricted; unlimited access to train sets.
4	Limits on "Thomas" clothing imposed; school agree that no "Thomas" clothes can be worn there. No restrictions at home.
5	Access to "Thomas" train sets gradually restricted by increasing alternative activities (including "Thomas" books, board games, etc.)
6	New electric train set provided at home; allowed in conjunction with some "Thomas" toys; but not train sets
7	"Thomas" trains moved to grandmother's house; access only available at weekends. Interests in trains, generally, encouraged.

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somewhere to sit at the start of each lesson. Allowing children to avoid such socially demanding situations by letting them spend play/game times in the library or carrying out other tasks, or providing them with a set place in which to sit, may again have much greater impact than a complex behavioural programme.

- (5) *Help children to cope with change.* Although a structured and settled daily programme is essential for progress, it is neither possible, nor productive, to avoid change completely. Fortunately, in many cases it is *unpredictable* change that causes most difficulties. Thus, the solution is to ensure that the child is fully aware of what is going to happen at any time. Since verbal explanations are rarely adequate, visual representations (in the form of picture calendars, symbols, or written lists) of forthcoming activities, or of alterations to the regular routine, are most likely to be effective.
- (6) *Make use of obsessions.* Although it may sometimes be necessary to eliminate certain ritualistic activities entirely, on the whole, once an acceptable level of control is reached, obsessional behaviours and interests can have many positive features. They may serve as extremely powerful reinforcers for developing more productive activities (Howlin & Rutter, 1987); they may also be an essential source of comfort or self-occupation for a child with few other interests or abilities. Follow-up studies suggest, too, that if obsessional skills and interests are appropriately encouraged and developed they can play a crucial role in later social and educational integration (Kanner, 1973).

Table 3 presents an example of how one child's overwhelming obsession with Thomas the Tank Engine trains was gradually overcome by his parents' using several of the strategies described above. By the time he was 3 years old, they realised that the obsession was becoming so pervasive that they had to intervene in some way. At that age their son would wear only Thomas the Tank Engine clothes, spent all his time watching, or re-enacting Thomas videos, and talked of almost nothing else.

### Pharmacological Treatments

Although behavioural approaches to intervention are usually the most desirable form of treatment for younger autistic children, there are times when, because of severe behavioural disturbance (especially self-injury or aggression), sleeping problems, overactivity, anxiety or depression, or marked obsessional and compulsive behaviours, medication may be considered. In the U.S.A. pharmacological interventions are very common, and in a recent survey of 838 carers of children with autism, conducted by Aman, van Bourgondien, Wolford, and Sarphare (1995) it was found that over 50% were taking some form of drug or vitamin treatment. Although most medication was prescribed for specific behavioural reasons, or for physical problems such as epilepsy, some drugs, notably fenfluramine and more recently certain selective serotonin uptake inhibitors (fluoxetine and fluvoxamine; Lewis, 1996; McDougle et al., 1996), have been recommended as a means of reducing autistic symptomatology more generally.

However, evaluations of even the most commonly used drugs are frequently inadequate (Lewis, 1996). Campbell, Schopler, Cueva, and Hallin (1996) conclude that only haloperidol, fenfluramine, naltrexone, clomipramine, and clonidine have been appropriately investigated, and all of these have their drawbacks and unwanted side effects. As for the myriad of other pharmacological treatments that have been tried over the years, Campbell et al. (1996) warn "No conclusions can be made concerning the efficacy and safety of these agents because the findings are based on small sample sizes and open studies without placebo control". (For updates on the effects of other drug treatments see recent reviews by Lewis, 1996; Campbell & Cueva, 1995.)

### Educational Placement

Although there may be no miracle cures for autism, it has long been recognised that the provision of appropriately structured educational programmes is one of the most important aspects of successful treatment (Rutter & Bartak, 1973; Schopler, Brehm, Kinsbourne, & Reichler 1971).

Effective teaching programmes (such as TEACCH; Schopler et al., 1995) stress the importance of appropriate environmental organisation and the use of clear visual cues to circumvent communication difficulties, as well as the need to develop individually based learning programmes. Within this framework, however, there are many different approaches to teaching, some of which involve integrated provision, some segregation, and some a mixture of the two. The essential component is that educational strategies and curricula should be adapted to the specific patterns of skills and disabilities shown by the child with autism (see Jordan & Powell, 1995; Powell & Jordan, 1997 for descriptions of a variety of imaginative and innovative techniques that can be used to enhance learning). It is also generally more productive—and certainly more rewarding for all concerned—to focus on developing the child's existing skills, rather than attempting to overcome fundamental deficits. Equal emphasis needs to be placed, too, on meeting children's social and emotional needs. For more able children in particular, this latter goal can prove difficult to achieve. In specialised schooling it is often not possible to provide them with sufficient intellectual stimulation; on the other hand, unless extra support is provided within mainstream school, teasing and bullying by other pupils, and lack of understanding from teachers, may often result in severe emotional stress.

There is good evidence (Rogers, 1996) to show that the most effective educational programmes are those that begin early (between the ages of 2 to 4), and once the right placement is found this can help greatly to reduce the pressure on families. And if parents, teachers, and other professionals work together, this will markedly improve the consistency of management techniques and help to ensure the generalisation and maintenance of newly acquired behaviours. Thus, for any clinician involved in the treatment of autism, good liaison with Educational services, to ensure that the child receives early and appropriate provision, is a vital component of any package of care.

### Other Approaches to Intervention

The clinician may also need to ensure that the family's needs in other areas are appropriately addressed. Respite care, on a planned and regular basis, can offer parents the rest they often so badly need, provide them with the opportunity to spend time with their other children, and give the child with autism the chance to spend time away from home. Families may also need guidance to ensure that they receive all the benefits to which they are entitled. Money may not improve the child's behaviour, but worrying about the lack of it can certainly interfere with parents' ability to cope. Even apparently minor benefits, such as a Disabled Parking Badge, can make the difference between being able to take the child shopping or not.

Finally, of course, the child with autism may need help in his or her own right. Cognitive-behavioural strategies to help cope with anxiety, fears or anger may prove effective with older, more able children, although these rarely work in isolation and generally require the co-operation of both school and family. For some children

with severe emotional problems, psychoanalytically based interventions may be considered (Maratos, 1996), although there is little good evidence that such approaches are helpful (Campbell et al., 1996). Nevertheless, for older, more able children with autism, individual psychotherapy or counselling may be useful in helping them to deal with anxiety or depression, and the pain that comes from recognising their difficulties and differences. However, experience suggests that this *must* be combined with direct practical advice on how to deal with problems, otherwise children tend to become obsessed with the past, or with other possible explanations for their difficulties, making it almost impossible for them to “move on” in a positive way.

### Help for Children with Asperger Syndrome (or with High-functioning Autism)

Although often described as a “mild” variant of autism, the symptoms of Asperger syndrome are, in many cases, just as pervasive and as devastating as those of less able children. However, because of their relatively high cognitive ability, and their *apparently* competent use of language, this group of children is often least well served or understood. In fact, many have extensive linguistic and comprehension difficulties (especially involving abstract or complex concepts); their understanding of the more subtle aspects of social interaction is often profoundly limited, and their obsessional interests and behaviours also prove a barrier to social integration. Many, too, are painfully aware of their deficits and differences. However, only a minority receive any specialist provision. Most have to cope in mainstream school with little or no help. Their parents may be dismissed as over-protective, or too lax, and can find it very difficult to get the support or advice that they need. Moreover, the children's good vocabulary, and even their well-developed obsessional interests, frequently give the impression that they are capable of far higher levels of achievement than is actually the case. Others' expectations of their social and academic potential tend to be unrealistically high, and when these expectations are not met the children are viewed as negative, unco-operative, unmotivated, or rude and manipulative. Seemingly so close to “normality”, there is constant pressure for them to “fit in” in ways that would never be demanded of a less able autistic child. This can lead to enormous pressure, resulting in extreme levels of anxiety and stress, which in turn further impede social and educational progress.

Because of their very uneven profile of skills and deficits, these children may require even more highly specialised help than those with global learning difficulties. Unfortunately, such help is rarely available, and although provision for autistic children generally has improved markedly over the past few decades, our knowledge of how to help this particular group effectively lags far behind.

### The Need for Early Diagnosis

Despite growing awareness of the need for early intervention and support for children with autism and their families, diagnosis before the age of 3 years is still

rare (Baron-Cohen et al., 1996). In a recent large-scale survey in the U.K. (Howlin & Moore, 1997), the average age of diagnosis for children with autism was 5.5 years; for children with Asperger syndrome the age of diagnosis was considerably later, at 11.3 years. It was also clear from this survey that parents continue to face many delays and frustrations in their attempts to obtain a diagnosis.

It is important, of course, to be aware that early diagnosis has problems as well as advantages. Accurate diagnosis in children aged 2 years or under is known to present difficulties. Judgements based on clinical diagnosis may not always agree with diagnosis based on formal diagnostic criteria, such as the ADI or CARS (Autism Diagnostic Interview-Revised; Lord, Rutter, & Le Couteur, 1994; Childhood Autism Rating Scale; Schopler, Reichler, & Renner, 1986), and there can be particular problems in distinguishing between children with autism and nonautistic, nonverbal children with severe cognitive impairments (Lord, 1995b; Lord, Storuschuk, Rutter, & Pickles, 1993). Nevertheless, even when children are as young as 2 years, diagnosis based on skilled clinical judgement is relatively stable, and by the age of 3 years children tend to meet criteria on a variety of diagnostic measures (Lord, 1995).

Unnecessary delays in diagnosis have important practical implications. There is evidence (Rogers, 1996) to show that the most effective intervention programmes are those that begin early—between the age of 2 to 4 years. It also seems that the establishment of appropriate management strategies in the early years can help to minimise, or even avoid, many subsequent behavioural problems (Howlin & Rutter, 1987).

First, it is apparent that the development of effective, if simple communication strategies from early childhood will almost certainly help to reduce or avoid disruptive behaviours, which may otherwise become the child's principal means of controlling his or her environment (Durand & Carr, 1991).

Second, as already noted, it is essential not to allow or encourage behaviours in young children that will be viewed as "challenging" or unacceptable as they grow older. All too frequently, when the behaviour of an older child or adolescent gives cause for concern, it becomes apparent that the behaviour itself has not changed, and may well have been in existence for many years previously. Problems arise not because the nature of the behaviour has changed, but because other people's attitudes to it have altered.

Third, behaviours may become unacceptable as individuals become more skilled or determined at carrying them out. For example, one young child had a relatively innocuous obsession with watching people's washing machines. Family friends and neighbours were happy to encourage this, but by the time he was 17 he was in constant trouble with the police for breaking into property in order to indulge his obsession.

Fourth, particularly in the case of rituals and obsessions, there is an inverse relationship with many appropriate behaviours (Koegel, Valdez-Menchaca, & Koegel, 1994). Thus there is real risk that if such behaviours are not brought under effective control when the child is young they may steadily escalate until they

interfere with many other activities. Understandably, the bewildered parents of a young infant tend to give in to the screams or tantrums that can occur because they have taken the "wrong" route, or have tried to change the way in which a task is completed. Over the years, however, the child's demands may become increasingly Draconian, until parents find themselves trapped in a web of complex and elaborate routines.

Without appropriate help, parents are unlikely to be able to identify potential problems, or will lack the courage and consistency to respond firmly to these, because of fears that resistance will further distress or damage their child. It is the role of professionals to provide families with the information and support they need, in order to enable them to identify problems at an early stage, and to help them evolve management strategies that will minimise the impact of the child's social, communicative, and obsessional problems in later life.

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## Appendix

### Cognitive and Language Tests for Use with Children with Autism

This is not meant as a comprehensive list, but includes tests that have been found useful in follow-up and research studies. The author and publisher of the tests are given in parentheses.

The tests listed (with the exception of the Play Test) provide standardised scores as well as age equivalents since these are necessary for any comparative studies. However, there are also many other scales available that can be used to inform clinicians about the child's functioning in different areas.

#### *Tests of General Cognitive Ability*

*Bayley Scales of Infant Development* (Bayley, 1993; The Psychological Corporation: Sidcup, U.K.)

Age range: 1–42 months

Normative sample: American

Type: Mainly nonverbal tests; useful for very young or very delayed children. Provides IQ and Mental Age scores.

*Kaufman Assessment Battery for Children* (Kaufman, 1983; NFER-Nelson: Windsor, U.K.)

Age range: 30 months–12.5 years

Normative sample: American

Type: Mixture of verbal and nonverbal tests. Assesses sequential processing, simultaneous processing, and achievement. Supplies helpful profile of skills and difficulties, which can then be used for designing educational programmes. Provides Percentile Ranks, Age Equivalent, and Standard scores.

*Leiter International Performance Scale Battery* (Leiter, 1948 & 1979; NFER-Nelson: Windsor, U.K.)

Age range: 2–18 years

Normative samples: European and American

Type: Nonverbal tests; largely involving matching and sequencing. Developed specifically for children with hearing/linguistic problems; however level of conceptual understanding required can present difficulties for young autistic children. Works best with older/more able group. Provides IQ and Mental Age scores.

*Merrill-Palmer Pre-School Performance Scale* (Stutsman, 1931; NFER-Nelson: Windsor, U.K.)

Age range: 18 months–6 years

Normative sample: American

Type: Verbal and nonverbal tests; credit can be given for omitted items. Despite having very old norms has been shown

to have good predictive validity (as long as child is able to complete several different tasks). Requires little or no verbal understanding; materials tend to maintain children's interest and hence useful for nonverbal children. Provides IQ, Mental Age, and Percentile scores.

*Ravens Progressive Matrices* (Raven; NFER-Nelson: Windsor)

Age range: Child to older adults

Normative samples: American; British and many others

Type: Test of perceptual ability. Requires little or no verbal ability/explanation, but tasks themselves difficult for most very young and/or delayed children. Colour form usually best for young children and Board form (in which pieces attached with velcro) can be particularly useful in this group. Provides Age Equivalent scores.

*Vineland Adaptive Behavior Scales* (Sparrow, Balla, & Cicchetti, 1984; Circle Pines, MN: American Guidance Service).

Age range: 0–19 years

Normative sample: American

Type: Informant based scale; assesses motor, social, communication, and daily living skills. Also contains items on maladaptive behaviour. Useful if co-operation on other tests cannot be obtained. However, cultural differences can lead to some problems when used with non-American subjects. Correlations with other measures of IQ are only modest in Learning Disabled samples. Provides Standard Scores and Age Equivalents for functioning in the different domains.

*Wechsler Intelligence Scale for Children—Third UK Edition* (WISC-III UK) (Wechsler, 1992; The Psychological Corporation: Sidcup, U.K.)

Age range: 6–16 years

Normative samples: U.K. (but many other editions available)

Type: Verbal and nonverbal tests, almost all requiring some verbal comprehension. Supplies helpful profile of skills and difficulties. Assesses Performance, Verbal, and Full Scale IQ. Younger children tend to cope better with the Performance Scale, but older, more able subjects may do better on the Verbal Scale. Provides IQ, Age Equivalent, and Standard Scores.

*Wechsler Pre-school and Primary Scale of Intelligence: Revised UK Edition* (WPPSI-R UK) (Wechsler, 1990; The Psychological Corporation: Sidcup, U.K.)

Age range: 3–7 years

Normative samples: U.K. (but many other editions available)  
 Type: Verbal and nonverbal tests mostly requiring some verbal comprehension. Assesses Performance, Verbal, and Full Scale IQ. Experience suggests that only the most able autistic children in this age group can cope well with the materials. (Merrill Palmer is often more viable option). Provides IQ, Age Equivalent, and Standard scores.

### *Tests of Language and Play*

*British Picture Vocabulary Scale* (Dunn, Dunn, Whetton, & Pintilie, 1982; NFER-Nelson: Windsor, U.K.)

Age range: 2.5–18 years

Normative sample: British (but based on American Peabody Picture Vocabulary Test)

Type: Assesses verbal comprehension. Child is required to identify one picture from a set of four. Not very useful/interesting for very young or very linguistically delayed children. In older, more verbal group, the wide age range is valuable and a short version is also very quick and easy to administer. However, because of very circumscribed nature of task, may not provide very accurate assessment of linguistic functioning within the wider social context. Provides Age Equivalent, Standard Scores, and Percentiles.

*Expressive One Word Vocabulary Test* (Gardner, 1982; Western Psychological Services: Los Angeles, CA)

Age range: 1.1–12 years. Upper extension: to 18 years

Normative sample: American

Type: Assesses expressive vocabulary. Child is required to name individual pictures. Again, not very useful/interesting for

very young or very delayed children. Wide age range is useful, although some items very “American”. Like BPVS, nature of task very circumscribed. Provides Age Equivalent, Standard Scores and Percentiles.

*Reynell Developmental Language Scales: Second Revision* (Reynell & Huntley, 1985; NFER-Nelson: Windsor, U.K.)

Age range: 1–7 years

Normative sample: British

Type: Scored from observations of child and structured tasks with toys and pictures. Even quite young children seem to enjoy the materials. Low age ceiling the main drawback. Provides Age Equivalent and Standard Scores for Comprehension and Expression.

*Symbolic Play Test: Second Edition* (Lowe & Costello, 1988; NFER-Nelson: Windsor, U.K.)

Age range: 1–3 years

Normative sample: British

Type: Scored from observations of child and structured tasks with toys. Enjoyed by quite young children but low age ceiling the main drawback. Provides only Age Equivalent scores.

*Test of Reception of Grammar* (TROG; Bishop, 1989; MRC Applied Psychology Unit: Cambridge)

Age range: 3–11 years

Normative sample: British

Type: Assesses grammatical understanding. Child selects one picture from set of three. Useful for more verbal children; one of few well standardised tests of grammatical ability, although again skills tested rather circumscribed. Provides Age Equivalent, Standard Scores, and Percentiles.



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