

Management of Autism Spectrum Disorders and Associated Disabilities in Schools

**A Source Book for Resource Teachers
and Master Trainers**

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Chapter 1

Autism Spectrum Disorders : Diagnostic Criteria and Specific Difficulties in Different Aspects of development

Dr S Ramaa

Introduction

Autism is a perplexing life-long mental handicap. Autism is a wide umbrella term. Children with autism have different levels of intelligence. However, all of them share certain common characteristics.

The 10th revision of the World Health Organization's International Classification of Diseases and Related Health Problems (ICD - 10), 1992 and the American Psychiatric Association's Diagnostic Statistical Manuals DSM - III (1980), DSM-III-R (1987) and DSM-IV (1994) included autism under Pervasive Developmental Disorders. In DSM-III-R Pervasive Developmental Disorders are treated as a subcategory under - Developmental Disorders whereas in DSM-IV (1994) they are included under the majority category - Disorders of Psychological Development. Pervasive Developmental Disorders imply deviance rather than delay in development, although they involve some degree of delay (DSM-IV, 1994).

Diagnostic Criteria for Autism

Nearly 75% of autistics have mental retardation of different degrees. It is difficult to distinguish a child with autism and mental retardation, from a mentally retarded child who is not autistic. Certain sets of criteria are essential for diagnosing autism. Four main sets of diagnostic criteria are specified by ICD-9 and 10 (WHO, 1978 and 1987), DSM-III, DSM-III-R (APA, 1980 and 1987). Rutter (1987) has made these

criteria and descriptions further more explicit and clear. They are given below.

Onset Before 3 years of age

Occasional cases of autistic like disorders do occur after the age of 3, but they are rare and usually due to acquired brain disease or genetic disorders of later manifestation – such as the cerebral lipidoses.

Deviance in the Development of Social Relations

More specifically,

- a) failure to use eye-to-eye gaze, facial expression, body posture and gesture to regulate social interaction;
- b) rarely seeking others for comfort or affection;
- c) rarely initiating comfort to others or responding to other people's distress or happiness;
- d) rarely initiating interactive play with others;
- e) rarely greeting others; and
- f) no peer friendships in terms of sharing of interests, activities and emotions – despite ample opportunities. (In each case, these have to be considered in relation to mental age).

Abnormalities in Communication

These features include :

- a) delay in, or total lack of development of spoken l that is not compensated for by use of gesture or mime as alternative modes of communication (often preceded by a lack of communicative babbling);
- b) failure to respond to the communication of others, such as (when young) not responding when called by name;
- c) relative failure to initiate or sustain conversational interchange in which there is a to and fro responsivity to the communication of other person;

- d) stereotyped and repetitive use of I;
- e) use of you when I is meant;
- f) idiosyncratic use of words;
- g) abnormalities in pitch, stress, rate, rhythm and intonation of speech;
- h) lack of creativity and spontaneity not only in the use of social I but also in the preverbal skills; and
- i) lack of varied/ spontaneous "make-believe" play.

Restricted, Repetitive and Stereotyped Patterns of Behaviour

They include :

- a) encompassing pre-occupation with stereotyped and restricted patterns of interest;
- b) attachment to unusual objects;
- c) compulsive rituals;
- d) stereotyped and repetitive motor mannerisms;
- e) pre-occupations with part objects or non-functional elements of play materials; and
- f) distress over changes in small details of the environment.

It is interesting to note that the criteria and sub-criteria are all observable and specific behavioural symptoms. No single clinical symptom is considered for diagnosis. There are different clinical types of mental retardation, different types of cerebral palsy, varied types of mental disorders, different kinds of learning disabilities. Autism seems to be different from the above kinds of disabilities in the sense that it is not possible to identify clear-cut subtypes within this major category of handicap. DSM-III-R (APA, 1987 - cited in Gillberg, 1990) suggests that out of the 16 symptoms suggested in the document at least 8 should be fulfilled, in order to treat a child as autistic. This implies that autistic children can have the above mentioned symptoms in any combination

which results in a lot of heterogeneity among them, which in turn makes it extremely difficult to categorise them into different sub-groups.

Gillberg (1990), argues that it is not appropriate to distinguish "infantile autism" from the umbrella concept of "autistic spectrum disorders". His important arguments are :

- As evidenced in the Wing Studies (Wing and Gould, 1979) though it is possible to identify "Kanner autism" from among the wider group of cases, they do not have a unifying biological or psychosocial background;
- Children with autistic behaviour with and without demonstrable neurological dysfunction do not differ from the behavioural point of view.
- Even among high level autism cases which comply clearly with the clinical descriptions provided by Kanner (1943), diverse conditions such as tuberous sclerosis and the fragile X chromosomal abnormality can be noticed (Gillberg et al., 1987); and
- There is considerable overlap between "typical" Kanner autism cases and cases now diagnosed as suffering from Asperger Syndrome (Wing, 1981; Gillberg, 1989).

However, Gillberg (1990) thinks that the notion of Asperger Syndrome - or 'high level autism' - is important. Gillberg and Gillberg (1989) suggest the following characteristic features for Asperger Syndrome :

- severe impairment in reciprocal social interaction;
- all-absorbing, circumscribed interests;
- imposition of routine or interest;
- speech and language problems in spite of superficially excellent expressive language skills;

- non-verbal communication problems; and
- motor clumsiness.

According to Gillberg (1990) the concept of Asperger syndrome is important mainly because such disorders are much more common than as believed previously. However, unlike the case of typical autism they do not often lead to psychiatric consultation until adulthood. The need for psychiatric intervention is realised when it gets superimposed with problems such as depression, paranoid symptoms, confusion (under stress) and suicidal attempts (Tantam, 1988). This implies that psychiatrists dealing with adult patients need to be competent in diagnosing and handling autism spectrum disorders, including Asperger syndrome (Gillberg, 1990).

From the discussion above it seems that autism has four dimensions: Social Indifference, Communication Problems and Deviant "Personality Traits" as three symptomatic dimensions and Age of onset (Course of Development) as the fourth dimension. The picture of autism seems to be more or less complete with all these four dimensions. The absence of any one of these aspects may give a diagnostic picture which is different from autism. Anyhow it appears very strange to notice that while conceptualising autism, the Sensory Deviation which is so obvious among them is neither taken into consideration nor made explicit.

Sensory Deviation refers to the following unusual responses to sensory stimuli (Wing and Wing, 1965; cited in Mittler, 1968).

Vision

- Inability to recognise things seen, mainly because of pronounced difficulty in differentiating figure from the ground.
- Use of peripheral vision, resulting in difficulty to recognise stationary objects, while readily recognising moving objects/organisms.

- Visual avoidance.
- Some visual stimuli are sought after.

Hearing

- Apparent non-reaction to noise is typical at some stage. May fail to react to a loud noise behind but responds to rustle of a thin paper.
- Special interest in certain noises, like echoes, tapping, the noise of a flywheel, etc. Music is particularly enjoyed.
- Auditory avoidance is common, particularly loud noises or to speech.

Other Senses

- Indifference to pain, cold, etc.
- Inability to localise a sensation.
- Unusual tastes or interests in unusual smells.
- Identify objects through licking, tapping, etc. rather than through sight or hearing.

In fact these appear to be more fundamental and relatively persistent problems among autistics. So it is highly essential to include them along with the salient characteristics of autism. In that case autism is not a "triad syndrome" as usually referred to but a "tetroid syndrome".

There appears to be a high correlation between various symptoms falling under each major criterion and also between those of other criteria which are thought to be the cardinal features of autism. However, one should be very careful in understanding the nature of such a relationship, as correlation need not necessarily imply causation on the one hand and a circular reaction on the other hand. This suggests the following :

- The various symptoms can exist relatively independent of each other to a certain extent; thus there is scope for quantitative

variation as far as the extent of occurrence of the particular symptoms are concerned.

- There can be a greater degree of mutual influence among the various symptoms of autism.

- The above two factors, in addition to the level of "global intelligence" are responsible in making a particular child relatively more autistic or less autistic at any stage of development and across the course of development.

- Therefore, an attempt should be made to understand and explain each symptom or each set of symptoms separately and also in relation to other symptoms.

Table 1.1 DSM-IV-TR definition of autism

A. A total of six (or more) items from (1), (2) and (3), with at least two from (1) and one from each (2) and (3).

- 1. Qualitative impairment in social interaction, as manifested by atleast two of the following :**
 - a) Marked impairment in the use of multiple non-verbal behaviours, such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction.
 - b) Failure to develop peer relationships appropriate to developmental level.
 - c) A lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. by a lack of showing, bringing, or pointing out objects of interest).
 - d) Lack of social or emotional reciprocity.

 - 2. Qualitative impairments in communication as manifested by at least one of the following :**
 - a) Delay in, or total lack of, the development of spoken language (not accompanied) by an attempt to compensate through alternative modes of communication such as gesture or mime).
 - b) In individuals with adequate speech, marked impairment in
-

-
- the ability to initiate or sustain a conversation with others.
- c) Stereotyped and repetitive use of language or idiosyncratic language.
 - d) Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level.
- 3. Restricted, repetitive and stereotyped patterns of behaviour, interests and activities as manifested by at least one of the following :**
- a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.
 - b) Apparently inflexible adherence to specific, non-functional routines or rituals.
 - c) Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole body movements)
 - d) Persistent preoccupation with parts of objects.
- B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age of 3 years: (1) social interaction, (2) language as used in social communication, (3) symbolic or imaginative play.
- C. The disturbance is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder.
-

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Table 1.1 DSM-IV-TR definition of Asperger's syndrome

-
- A. Qualitative impairment in social interaction, as manifested by atleast two of the following :**
- a) Marked impairment in the use of multiple non-verbal behaviours, such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction.
 - b) Failure to develop peer relationships appropriate to developmental level.
 - c) A lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g. by a lack of showing,
-

bringing, or pointing out objects of interest).

d) Lack of social or emotional reciprocity.

B. Restricted, repetitive and stereotyped patterns of behaviour, interests and activities as manifested by at least one of the following :

a) Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.

b) Apparently inflexible adherence to specific, non-functional routines or rituals.

c) Stereotyped and repetitive motor mannerisms (e.g. hand or finger flapping or twisting, or complex whole body movements)

d) Persistent preoccupation with parts of objects.

C. The disturbance causes clinically significant impairment in social, occupational or other important areas of functioning.

D. There is no clinically significant general delay in language (e.g. single words used by age 2 years, communicative phrases used by age 3 years).

E. There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behaviour (other than in social interaction), and curiosity about the environment in childhood.

F. Criteria are not met for another specific pervasive developmental disorder or Schizophrenia.

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Specific Difficulties experienced by Children with Autism

The knowledge of specific difficulties experienced by individuals with autism is helpful in planning intervention program for them. The

Association of Head Teachers of Autistic Children and Adults (1985), UK, has described the specific difficulties of children with autism in detail.

Impaired Relationships and Self-image

d) *Lack of self-image*

- Suffers a lack of personal identity and an impairment of his own self-image.
- He is "asocial" tending to remain isolated, occupying himself with his own obsessional or ritualistic activity and having an impaired sense of his own appropriate personal territory.
- Being unaware of himself, his actions and his effects on others, he is likely to display a lack of inhibition in his general behaviour.

d) *Difficulty in relating to other people*

- Impairment of the awareness of other people and their needs.
- An inappropriate social response to, and communication with others.
- An impairment of the ability to recognise human characteristics.

d) *Difficulty in Perception of Meaningful Relationships*

- Impaired ability to see sequences of growth, time, action, etc.
- Impaired ability to see similarities or differences, like and unlike.
- Impaired ability to see a whole picture or a whole anything.
- Impaired ability to relate properties, eg. Fire will burn.
- Impaired ability to generalise or transfer learning.
- Lack of awareness of the reality of what cannot be seen and an impaired ability to separate reality from fantasy.
- Impaired awareness of the relationship of objects to each other, to themselves and to other people, eg. As seen in an inability to comprehend the use of preposition.
- Lack of judgement.
- Inability to be selective in the processing of information.

- d) *Difficulty in relating to outside stimuli*
- Impairment of motivation lacking the desire to learn new skills and the desire to please.
 - Impairment of the sense of touch, smell, taste.
 - Impairment of the use of sight where he may be fascinated by visual stimuli such as lights or bright lights, and be uninterested in the rest of his environment.
 - Inappropriate reaction to sounds.
 - Inappropriate emotional response.
 - Lack of awareness of real danger and a phobic response to harmless objects.
 - Lack of awareness of cause and effect.
 - Inappropriate reaction to change.

Deficiency in Adoptive Behaviours

- a) Ritualistic, compulsive, obsessional behaviours.
- b) Extreme irrational fears or phobias.
- c) Rigidity of thought and action – this manifests itself in pre-occupation with sameness and difficulty with change.
- d) Poor perception of reality – There is often confusion between inner and outer worlds.
- e) Extreme Anxiety States, or “High Arousal”.

Impairment Language and Communication Skills

Cognitive Skills

- a) Difficulty in language
- b) Patchy development of skills – No normal development of cognitive skills. Having a particular skill does not imply that ‘earlier’ skills will be present.
- c) Specific difficulties in problem solving.
- d) Play may be stuck at early stages of development.

- e) Tend to have poor imitation skills.
- f) Difficulty in directing attention to certain meaningful features of the environment.
- g) Motivation and self-directed action are often lacking.
- h) Time and causality are difficult ideas to autistic children.
- i) Poor sequencing ability.

Deficiency in perceptual –motor skills

- Lack of body awareness, body control and perceptual control.

As implied in the specific difficulties discussed above, autism is a complex learning disorder. In order to help children with autism a multidisciplinary approach is essential. The specialists from the field of psychiatry, paediatrics, clinical psychology, special education, physiotherapy, speech and language therapy should plan a well coordinated programme for helping them. Autism is viewed from different disciplinary point of view in isolation. But for planning and executing intervention programme, there is a need to understand autism from multidisciplinary perspective. Hence an attempt has been made in the following chapters to discuss the important findings of recent research work in the area of autism. These research works are based on certain theoretical assumptions. Therefore, these research findings are discussed under different theoretical perspectives.

Chapter 4

Explanations for the Sensory and Movement Differences of Individuals with Autism Spectrum Disorders

Dr S Ramaa

Although there are lot of differences among students with autism, they do share some general characteristics with reference to sensory and motor functioning. Various therapists and investigators have attempted to elicit explanations from the individuals with autism regarding the difficulties/ differences experienced by them as far as their sensory and motor functioning are concerned. These explanations throw lot of light about their problem and also help in planning intervention programmes. Below are given such explanations. Explanations are reproduced as revealed by them.

A. Sensory Differences

People with autism tend to have unusual sensory experiences. Their sense of hearing, touch, smell, sight or taste may be more sensitive or less sensitive than is typical. They have difficulty in interpreting a sense. A person with autism may avoid being touched. Some of them may be able to tolerate only some types of touch. A range of noises and sounds may cause a person with autism anxiety including those which seem normal to the average person. Many people with autism also have trouble understanding conversation or verbal directions because they have trouble processing sound. Vision can also be affected, they may be sensitive to certain types of light, colours or patterns. Students with autism may also have a heightened or otherwise different sense of smell. The individual with autism may find some smells unbearable and others pleasant, helpful or calming.

Explanations for Sensory Differences

Q1. What is the common effect of heightened senses on autistic people?

A: One common effect of these heightened senses is that autistic people are vulnerable to sensory overload with continued low-level bombardment. This may also result from too much emotional or social stimulation. Autistic people may become overloaded in situations that would not bother (or might even entertain) a normal person. When overloaded, autistic people have trouble concentrating, may feel tired or confused, and some may experience physical pain. Too much overload may lead to tantrums or emotional outburst. Another result of too much overload may be "shut down", in which the person loses some or all of the person's normal functioning. Shutdown may mean different to different people, but is extremely unpleasant (Jared Blackburn, 1997).

I hear things that many people cannot hear. For example, I can be in one room of the house and hear what my mother is saying on the telephone even when she has the door shut. There are also certain sounds that are painful to listen to like the microwave, the telephone ring, lawnmowers, leaf blowers, the blender, babies crying, vacuum cleaners, and my mom's WV vanagon when it just starts up. (Fihe, 2000).

Q.2 What is your problem with sounds ?

A1. I hear things that many people cannot hear. For example, I can be in one room of the house and hear what my mother is saying on the telephone even when she has the door shut. There are also certain sounds that are painful to listen to like the microwave, the telephone ring, lawn movers, leaf blowers, the blender, babies crying, vacuum cleaners [Fihe, 2000].

A2. I can detect all sounds that the neurotypical person can hear, including very low and very high-pitched sounds. I have always had a strong aversion to loud music or high volume on the TV set. As a result of this, I often find it awkward to ride with those who crave loud music in their cars, particularly heavy metal or rap. I have always loathed crunching and chewing sounds while other people are eating. Our family has meals in the family room with trays rather than the conventional dinner table gathering. I can tolerate restaurants and cafeterias because the background noise suppresses these bothersome sounds. (Hamrick, 2001).

A3. When I was little, loud noises [were] a problem, often feeling like a dentist's drill hitting a nerve. They actually caused pain. I was scared to death of balloons popping, because the sound was like an explosion in my ear. Minor noises that most people can tune out drove me to distraction. When I was in college, my roommate's hair dryer sounded like a jet plane taking off. (Grandin, 1995, p.67).

A4. I have strong sensitivities to sound. When I was in grade school, my classmates used to call my name as softly as they could to see if I could still hear them - I could hear them from across the room and often even into an adjacent classroom. One time a teacher did something similar. He stood behind me and barely whispered my name. I still sensed his presence and looked around. The whole class, teacher included, had a good laugh. (Shore, 2001, p.1).

Q3. Can you tell a common example for noisy situation in the classroom which can annoy an autistic individual ?

A. You know that horrible nails-on-a chalkboard sound? Even thinking about such an unpleasant noise makes some people wince. For some individuals with autism, nails-on-a-chalkboard discomfort happens every

day with even the most common of sound (Grandin, 1995; Jackson, 2002; O'Neil, 1999; Robinson, 1999; Shore, 2001; Stehli, 1991; Waites and Swinbourne, 2002).

Q4. Give an example where you and your sibling (who is not autistic) react differently to sound ?

A: One evening he was seated on my lap on the hall floor while [his brother] bounced and punched a very large balloon around him. Suddenly the balloon burst by Grant's side, which sent my heart into a flutter. However, Grant did not flinch or even turn his head to the noise. Later when I had my electric whisk in operation, he ran screaming from the kitchen and I had to stop what I was doing to find and console him. He had the same reaction to the Hoover and other loud electrical equipment.

Q5. List out some sounds which you cannot bear.

A: The following are just some of the noises that still upset me enough to cover up my ears to avoid them : shouting, noisy, crowded places, polystyrene being touched; balloons and aeroplanes; noisy vehicles on building sites; hammering and banging; electric tools being used; the sound of the sea; the sound of felt-tip or marker pens being used to colour in and fire works (Jolliffe et al., cited in Attwood,1998, p.15).

Q6. What strategy do you adopt to reduce your anxiety due to sounds?

A. Tunes and music or a gentle low-pitched voice can temporarily relieve moments of fear and anxiety. You will still catch me humming, singing, whistling, and even talking out loud in an attempt to dispel confusion or unease due to change. The strategy enables me to think and calm down. (1998, p.4).

Q7. What sights make you feel anxious?

A. It may be because things that I see do not always make the right impression that I am frightened of so many things that can be seen : people, particularly their faces, very bright lights, crowds, things moving suddenly. Large machines and buildings that are unfamiliar, unfamiliar places, my own shadow, the dark, bridges, rivers, canals, streams, streams and the sea. (Jolliffe et al., as cited in Attwood, 1998, p.137).

Q8. What kinds of lights you feel impossible to bear?

A. Bright lights, mid-day sun, reflected lights, strobe lights, flickering lights, fluorescent lights, each seemed to sear my eyes....my head would feel tight, my stomach would churn, and my pulse would run my heart ragged until I found a safety zone. (1999, p.26).

Smell

The boys paused, not knowing which Luke belonged to whom. To solve this dilemma.....Jimmy held each one up to his nose, took a quick sniff, and immediately told the other boy, "This one is yours". (Echo Fling, (2000, the mother of Jimmy, a young man).

Although this illustrates potential benefits of a heightened sense of smell, this sensitivity can also be a struggle. As one individual with autism describes, smells can often be overwhelming and cause extreme discomfort.

Q9. What can you say about your experiences with smell ?

A. I still have trouble with [animals]....dogs and cats and smells like deodorant and after-shave lotion, they smell so strong to me I can't stand it, and perfume drives me nuts. I cannot understand why people wear perfume and I can smell hand lotion from the next room. (Stehli, 1991, pp.197-198).

Liane Holliday Willey (1999) brings her own "smell adaptation" with her wherever she goes. She has suggested putting a bit of favourite smell (if such a thing can be found in a liquid or paste) on the end of a cotton ball or on the inside of the arm. This way, when the person with autism gets overwhelmed by certain smells they can minimize the impact by sniffing the cotton or their arm and inhaling something pleasant.

B. Movement differences

Movement differences describe symptoms which involve both excessive, atypical movement and the loss of typical movement. Individuals with movement differences may

- walk with an uneven gait,
- engage in excessive movements (e.g. rocking, hand flapping)
- produce speech which is unintentional,
- stutter or struggle to make changes from room to room or situation to situation.

Many of the above difficulties are constantly present among individuals with autism. They are affected by these difficulties.

A movement difference can lead to difficulties with the dynamics of movements such as in starting, executing (speed, control, target and rate), continuing, stopping, combining or switching movements.

The complexity of disturbed movements may range from simple to those affecting overall levels of activity and behaviour.

Sometimes the movement disturbances are associated with internal mental processes such as perception, attention, consciousness, motivation and emotion.

Different ways of moving is highly frustrating for those people who experience them and confusing for those who observe them. Atypical movements often mask the competence of an individual to communicate and relate to others.

Delay in responding or inability to regulate movements lead to difficulty in changing attention from one event to another in a proper time sequence. This also leads to difficulty in using gestures or conventional signs of communication.

Examining the Concept of movement differences can bring new understanding of the struggles, abilities and perhaps the gift of people with a range of disabilities.

Explanations for Movement Differences

Q:1 What is your difficulty in movement control ?

A1. I never really know when sounds are coming out of my mouth or when my arms need to move or when my legs need to run and jump [Fihe, 2000, p.1].

A2. Stereotypical movements are not things I decide to do for a reason. They are things that happen by themselves when I am not paying attention to my body. [Cited in Donnellan and Leary, 1995, p.53].

A3. How to conduct myself when the body is constantly trying to find some stability ? By this I mean to say that some times I felt that my body was made of just my head while sometimes I felt that it was made of just my legs. It was very difficult to feel the complete body when I was not doing anything (Mukhopadhyay, 2000, p.73).

A4. At school, I was more direct in how I expressed my irritation and scorn, getting flushed, giggling uncontrollably, running around the room and biting my hand. (Blackman, 2001, p.127).

A5. Sometimes, I am just not able to control my actions and myself. Ninety percent of an autistic person's efforts while in public are spent trying to avoid inappropriate behavior that "normal" people seem to be able to easily suppress. One place where I had a terrible time trying to sit still and not make noise in the small theatre watching the play of the Diviners.

I did not have a terrible time at the play, quite the contrary. In fact, I loved this play, ...Dey into the drama, I related my gnarl and was soon noisy, rocking back and forth in my seat, spectator. [Weatherbee, 1999, p.2].

A6. Constantly asking questions was another of my annoying fixations, and I would ask the same question and wait with pleasure for the same answer over and over again. If a particular topic intrigued me, I zeroed in on that subject and talked it to the ground [Grandin, 1996a, p.35].

A7. But I am not hurting anyone when I scream and I need to do it so much to get my balance. Perhaps one day I won't need it but now I am sure it is still important (Sellin, 1995, p.216).

Q.2 Why do you have difficulty in focusing attention ?

A. I have a hard time controlling my thoughts when someone is not helping me focus. My mind is very active and thoughts jump around like popcorn being popped. I have very interesting thoughts. It is just that they keep firing off so that it is hard to stop them unless someone helps to focus my attention on something.

Q.3 What difficulty do you have in seeing ?

A. My eyes are unable to move up and down and left to right at will without me moving my head in the directions I am facing. I can see things really well from the corner of my eyes.

Q.4 Why do you avoid looking at people ?

A. When I look at someone facing me sometimes I see three eyes instead of two and it looks scary [six]. So I avoid directly looking at people sometimes. This makes it hard for people to know whether I am paying attention.

Understanding the sensory and motor differences among individuals with autism helps the teachers in creating appropriate learning situation in the classroom as well as in other settings.

References

- Attwood, T. (1998). Asperger's syndrome: A guide for parents and professionals. London : Jessica Kingsley Publishers.
- Blackburn, J. (1997). Autism ? What is it? Retried from <http://www.autistics.org/likbrary/whatis.html>.
- Blackman, L. (2001). Lucy's Story : Autism and other adventures. London : Jessica Kingsley Publishers.
- Donnellan, A., & Leary M. (1995). Movement differences and diversity in autism/ mental retardation : Appreciating and accommodating people with communication and behaviour challenges, Madison, WI : DRI Press.
- Fihe, T. (2000, November). Speech in an Abnormal Psychology class. Paper presented at University of California in Santa Cruz.
- Fling, E. (2000). Eating an artichoke : A mother's perspective on Asperger syndrome. London : Jessica Kingsley Publishers.
- Gradin, T. (1995). Thinking in pictures and other reports from my life with autism. New York : Vintage Books.
- Grandin, T. (1996a) Emergence : Labeled autistic. Boston : Warner Books.
- Hamrick, D. (2001, May 4). Living with the challenges of autism. Keynote presentation handout from the meeting of the Autism Society of Wisconsin, Green Bay.

- Jackson, L. (2002). *Freaks, geeks and Asperger syndrome : A user guide to adolescence*, London : Jessica Kingsley Publishers.
- Mukhopadhyay, T. (2000). *Beyond the silence*. London : National Autism Society.
- O'Neill, J. (1997, Spring). A place for all. *The Pennsylvania Journal on Positive Approaches*, 1(2),
- Robinson, W. (1999). *Gentle giant*. Boston : Element.
- Sellin, B. (1995). *I don't want to be inside me anymore : Messages from an autistic mind*. New York : Basic Books.
- Shore, S. (2001). *Beyond the wall : Personal experiences with autism and Asperger Syndrome*. Shawnee Mission, KS : Autism Asperger Publishing Company.
- Stehli, A. (1991). *The sound of a Miracle* New York : Avon Books.
- Waites, J., & Swinbourne, H. (2002). *Smiling at Shadows: A Mother's journey raising an autistic child*. Berkeley, CA : Ulysses.
- Weatherbee, I. (1999, March). The view from Huntington College, *Facilitated Communication Digest*, 7(2), 2- 6.
- Willey, L.H. (1999) *Pretending to be normal : Living with Asperger's syndrome*. London : Jessica Kingsley Publishers.

Chapter 5

Conducive Learning Environment for Students with Autism Spectrum Disorders

Dr S Ramaa

Sometimes students are unsuccessful because they are uncomfortable or feel unsafe or even afraid in their educational environment. Providing an appropriate learning environment can be as central to a student's success as any teaching strategy or educational tool. Students with autism will better learn in places where they can relax and feel secure. In order to create environments that are most conducive to learning for students with autism and their peers without disabilities, teachers may need to examine ways in which classroom spaces are organized. Specifically, teachers should evaluate learning atmosphere, seating options, and the use of space.

Teachers also spend a lot of time cultivating a classroom atmosphere that inspires certain behaviours. Teachers want students to work hard, participate in activities, help each other, and pay attention to the lessons. In order to see these behaviours in all students, teachers may need to evaluate their classroom atmosphere and make adjustments to lighting, sounds, smells or temperature.

Management of light related problems

Children and adults with autism have reported problems with fluorescent lights in particular. Florescent lighting, the most common lighting used in classrooms can affect learning, behaviour and the comfort level of students with autism. In order to determine whether florescent lights are problematic for a student with autism in your classroom, you may want to turn off the overhead light for a few days to see if the change seems to benefit the student. If the fluorescent lighting does

seem to be a concern for the student, you may need to experiment with different ways of using light :

- Try lower levels of light, if possible.
- Use upward-projecting, rather than downward-projecting lighting (Williams, 1996).
- Experiment with different types of lighting, turn on the front bank of lights but not the back, or turn on alternating banks of lights. In one classroom, teacher strung white holiday lights around their whiteboards and plugged night lights into different sockets around the room in order to give the classroom a more calm and peaceful feeling (Kinney and Fischer, 2001).
- Try different colours of light. Take one corner of the room and experiment with a pink or yellow lamp.
- Replace fluorescents with incandescent bulbs.

If the fluorescent lighting cannot be changed, try the following strategies.

- some students find the use of sunglasses helpful. Glasses might be worn during recess or can even be tried indoors (especially near florescent lighting). Wearing a baseball cap can also a student avoid direct exposure to light.
- Move the student's seat. Sometimes the problem is not the lights themselves, but the reflection of light on a wall or other surface.
- Florescent bulbs tend to flicker more as they age. If you must use florescent lights, use the newest bulbs possible.
- Some students find that it is particularly difficult to use white paper under fluorescent lights. Students may be bothered by the glare from the paper. Using coloured overlays can minimize or eliminate the glare.
- Some students are more distracted by the sound than the sight of fluorescent lighting. In these cases, the student may want to

use earplugs while studying. In some instances, simply moving the student farther away from the noise may help.

Management of Sound related problems

- Once a disturbing sound has been discovered, helping the students can be as simple as moving him or her as far away as possible from the sound source.
- Use a soft voice when possible. Instead of shouting to get a student's attention, try whispering.
- Try earplugs or headphones for some activities or for use in some parts of the school building (e.g. gymnasium).
- Reduce classroom noise : Echoes and noise can be reduced by installing carpeting. Carpet remnants can sometimes be obtained from a carpet store at a low cost. Some teachers cut tennis balls open and place them on the bottoms of the chair or desk legs; this adaptation muffles the scraping sounds created when furniture is shuffled around (Grandin, 1998).
- Change the sound, if possible. For instance, if a student cringes when he hears clapping, students could develop another system of appreciation for student presentations, birthday celebrations and assemblies.
- Prepare the student for the sound. If you know the school bell is about to ring, cue the student to plug his or her ears or simply tell the students to get ready.
- In noisy or chaotic environments allow students to listen to soft music using headsets or play soft music (e.g. classical, environmental) for all students.

Management of Smell related problems

- Many individuals with autism report that perfume and other personal products cause problems. If a student seems to avoid a particular person or if she will only interact with that person

occasionally, consider that the student may be reacting to that person's perfume, lotion, hair gel, aftershave, cologne or shampoo. If a student is very sensitive to these types of smells, teachers and other professionals working in the classroom should avoid – as much as possible – the use of products with heavy smells.

Food smells are incredibly distracting for some students with autism. One of my former students could smell a sweet treat two classrooms down from ours. Although he loved the smell of chocolate and baked goods, once he smelled them he could not focus on his work. In order to support him, all teachers in our hallway agreed to serve birthday treats at the very end of the school day. Parents agreed to bring all treats to the office and the school secretary offered to hold our brownies, cookies and cakes until 2:45 in the afternoon.

In rooms that have strong smells (e.g. art room, cafeteria, science lab), students might be seated near the door or an open window. Or a student might be able to use a small personal fan to minimize the impact of the smell.

If students seem to rely on their sense of smell to learn or learn or to explore the environment, allow them to do so when it is possible and when the behaviour does not hurt or disturb others. When Echo Fling's (2000) son, Jimmy, was smelling her hair one day, she asked him, "What are you doing?". He replied "I am remembering you". Realising her son's need to smell, she did not forbid or discourage this interesting behaviour. She simply instituted a social rule for Jimmy at school : Don't sniff people without their permission (p.147).

Ask custodians and administrators to order and use unscented cleaning materials and products when possible.

Providing appropriate seating

Having a few different seating options in the classroom can potentially improve the educational experiences of all learners. Seating that may appeal to learners with and without autism include

- rocking chairs
- seat cushions (the type that can be tied on to the rungs of the chair can be purchased for a few dollars at discount stores).
- Reading pillow (large cushion with arms that props the user upright).
- Floor/exercise mats (individual mats can be made cheaply by sewing a stack of newspapers in between two large sheets of vinyl) or large floor pillows (also easy to make with stuffing from a fabric store and a few yards of materials).
- Lawn chairs
- Old car seats
- Couches, loveseats, armchairs or large footstools
- Body or exercise ball

Organising Learning Space

Make quiet study areas available for any student: Students with autism often need time away from the noise and chaos of the classroom to meet their needs.

Keep some students Moving: Although many students have the need for quiet, others need movement, activity and interaction.

Create different areas for different activities : Many students with autism learn best in spaces that are highly organized. One way to make the classroom extremely easy to navigate is to set up different areas for different activities.

Keep learning spaces free of congestion : A student with autism may become frustrated if students are constantly walking past his desk or crossing in front of a chalkboard he or she is trying to read.

Manage materials: Look around a typical classroom and you must find 20-35 desks, a few globes and a pull-down map, crates full of student portfolios, a few computers, dozens or hundreds of books, two bulletin boards filled with student work, a handful of tape recorders, a television and a videocassette recorder, and may be a few plants or a hamster in a habitat. Although all of these materials are central to teaching and learning, it is important that they are well organized, easily accessible and visually manageable.

One way to support learners with autism is to avoid visual clutter. Ask students to be especially conscientious about keeping the classroom neat and about storing their materials in their desks and lockers. Younger students might need a desk map to find and replace items independently (Goodman, 1995). The teacher or the student can draw a map of all items in the desk on a small index card or a sheet of paper. The map can then be taped to the top of the student's desk or attached to the inside "ceiling" of the desktop. A similar type of map can be created for the classroom in general, or for a student's locker. Because many struggle to organize materials, you might provide all students explicit suggestions for keeping things orderly. In order to make the maintenance of the classroom as easy as possible, you can give all students classroom jobs.

Finally, to keep the classroom working efficiently, keep important information posted clearly. You might keep a calendar, a clock, and a daily schedule in one area of the classroom (especially important for students with autism who seem to need this information readily available). Students of any age can be held responsible for writing the

date daily, changing the calendar when needed and even writing out the schedule and other information (e.g. stock quotes, weather) each morning.

Chapter 8

Intervention Programmes for Individuals with Autism Spectrum Disorder – An Overview

Dr S Ramaa

Introduction

The Ministry of Law, Justice and Company Affairs of Government of India passed an Act known as the National Trust for Welfare of persons with Autism, Cerebral Palsy, Mental Retardation and Multidisabilities Act in December 1999.

In this Act, "Autism" means a condition of uneven skill development primarily affecting the communication and social abilities of a person, marked by repetitive and ritualistic behaviour. Reports on disabilities in India indicate different prevalence figures. The report of the National Sample Survey Organisation (NSSO 2002) reveals that the number of disabled persons is estimated to be 18.53 million that constituting about 1.8 percent of the total population of the country. From the report it also to be understood that about 10.63 persons with disabilities have more than one type of disability. This survey has not covered disabilities like cerebral palsy, autism and learning disability. Different research studies in India reveal that 3 – 7% of school going children experience learning disabilities in different academic areas.

WHO states that one in every 500 persons suffers from autism. The presence of autism may be 0.1% and Asperger syndrome 0.2 to 0.5%. Rett syndrome may be 5-15 and childhood Disintegrative Disorder may be 1-4 for every 1,00,000 individuals. If all the categories of Autism Spectrum Disorders are considered the prevalence may be estimated as 0.3 – 0.7%. This speaks about the magnitude of the problem in a country

like India with more than one billion population. To help individuals with autistic spectrum disorder, there is an urgent need to train all the concerned professionals as well as parents through intensive programmes. It is also essential to establish service centres – medical / psychological / educational with fairly good infrastructure. Research works have to be encouraged in this area – both theoretical and applied.

Though no epidemiological studies have been conducted in India, detection of cases of autism spectrum disorders is on the higher level compared to earlier days. Around one in 500 cases are diagnosed to be affected by any type of autism spectrum disorder instead of the earlier figures one in 10,000.

Status of Services in India

Recently there is an increased awareness about the nature and problems as well as special needs for individuals with autism. The service facilities and conditions are also improved. This can be mainly attributed to the tremendous efforts made by parent self-help groups and dedicated professionals and academicians working in NGOs. Government Institutions and organizations have started showing some concern now-a-days. The Rehabilitation Council of India acknowledged the importance of specific training for teachers in 2002 and designed a Diploma level course on Autism. Some well established NGOs and National Institutes for the Handicapped started offering such courses.

There are about 10 schools in India which are offering Special Education exclusively to Autism. Some other centres started offering services in Special Schools meant for mentally retarded or cerebra palsied children. There are few attempts to mainstream high-functioning children with autistic spectrum disorder (Asperger syndrome).

The acceptance of autism as a spectrum disorder is an important turning point in India. This had led to proper diagnosis of children with pervasive developmental disorder.

At present, the teachers who are trained in handling mentally retarded children and adolescents only handle students with autism. Many of them, however, have received inservice training in the education of children with autism. Depending upon the level of symptoms – mild, moderate or severe, the individuals with autism are placed in regular schools or special schools exclusively meant for autistic individuals or meant for mentally retarded individuals. However, the educational/training facilities are very much inadequate in the country. There is an urgent need in meeting the needs of autistic individuals in our country. The parents and all the concerned professionals including media professionals have to realise their roles and responsibilities in this direction.

Autism Spectrum Disorder

Autism is a complex biological disorder which persists throughout a person's life. It occurs during developmental period more specifically before 3 years of age. It affects people differently. Individuals with autism have a lot of commonality and differences. It is not one condition. Instead, it is a group of conditions with a range of similar features. Now-a-days, it is accepted as a "spectrum disorder" in different parts of the world including India. The term "Autism Spectrum Disorder" (ASD) is used in the place of "autism", and describe people with mild to severe level of symptoms. Autism is also considered as a 'Pervasive Developmental Disorder' as there is a deviation by different aspects of development of an individual. The change in the conception of autism has led to better diagnosis and intervention of this condition by different professionals concerned including special educators. Though initially

there was disagreement to some extent among psychiatrists, psychologists and pediatricians in India as far as the set of criteria essential for diagnosis of 'autism', they have accepted the classification systems given by Diagnostic Statistical Manual of Mental Disorder (DSM IV, 1994) published by American Psychiatric Association and World Health Organisation's International Classification of Diseases and Related Health Problems (ICD - 10), 1992. The Autism Spectrum Disorder (ASD) includes other categories like Childhood Disintegration Disorder, Rett Syndrome and PDD-NOS in addition to Classic Autism and Asperger Syndrome.

Characteristics of Autism Spectrum Disorders

In order to diagnose a child to be suffering from autism (Autism Spectrum Disorder) he/she must exhibit at least six of the twelve symptoms included in the definition given by Diagnostic and Statistical Manual of Mental Disorders and Statistical Manual of Mental Disorders, Fourth Edition, Text version. A child must have at least two symptoms included under qualitative impairment in social interaction and one among the symptoms relating to qualitative impairment in communication and one from among the symptoms relating to restricted repetitive and stereotyped patterns of behaviour, interests and activities.

Children with autism exhibit certain typical symptoms as follows :

- Lack of eye contact
- Difficulty in expressing needs or wants verbally or non-verbally.
- Repeating words or phrases rather than responding to questions.
- Making repeated self-stimulatory movements such as rocking or hand or finger flapping or twisting, or complex whole body movements.
- Displaying a strong preference to routine, disliking any change in a daily routine.

- Displaying emotions, pleasure or distress for no apparent reason.
- Unusual response to sensory stimuli.
- Not responding to questions by appearing not to hear.
- Displaying no interest in playing with children of the same age.
- Lack of imaginative or 'make believe' play.
- Apparently inflexible adherence to specific, non-functional routines or rituals.
- Sometimes engaging in self-injurious behaviour
- Persistent preoccupation with parts of objects.

Diagnosis of Autism Spectrum Disorder

Unlike other developmental disorder, autism does not have exact methods of early diagnosis or intervention. Though it remains as a life long disorder, the individuals affected by autism can learn and function productively through a comprehensive training programme and treatment.

In evaluating a child, behavioural characteristics which are listed in DSM – IV R are useful. However, it has to be understood that all the characteristics may not be apparent in the same time. Some of them appear in the first few months after birth. Still others may appear at any time during the early years.

The diagnosis requires a two-stage process. The first stage involves developmental screening by using different checklists. The second stage should consist of a comprehensive evaluation by a multidisciplinary team, who aim at assessing the strengths and weaknesses of each child with autism in detailed manner. It is necessary to identify different types of ASD for the sake of proper intervention programmes.

Distinguishing Features of Children with different types of Autism Spectrum Disorder:

The classification is based on the onset, number and extent of autistic features among the individuals.

- a) Childhood disintegrative disorder is characterised by normal development for at least 2 years followed by loss of previously acquired skills in different aspects of development.
- b) Rett disorder is characterised by normal development for 7-18 months followed by rapid deterioration of mental status and behaviour; deceleration of previously normal head growth; loss of previously acquired skills; the appearance of poorly coordinated gait or trunk movements and psychomotor retardation; abnormal sleep pattern at the age of 4 months is evident.
- c) Asperger disorder can be considered as a milder version of autism. They demonstrate much less impairment in cognitive development and have no significant general delay in language development. Some of them may possess extraordinary abilities in certain areas eg. Mathematical skills.
- d) PDD-NOS is diagnosed when a severe and pervasive impairment in relation to others is obvious. In addition to that either (i) verbal or non-verbal communication difficulties or (ii) stereotyped behaviours or interests are also evident.

Early indicators of Autism Spectrum Disorder

Early diagnosis and intervention can enable the child to develop expected adaptive skills to a greater extent. In addition to the specific disorders included in DMS IV - TR, the following observations made in genetic studies may also be useful in early detection of probable cases of autism spectrum disorder.

- i) Many family members of autistic persons exhibit a) less severe stereotyped repetitive behaviours, b) more subtle social deficits, c) normal intelligence and language development, d) lack of association with epilepsy, e) presence of autism in siblings in 2-6% of the cases.

So the families who have members with the above characteristics may be alert to the possible symptoms of autism spectrum disorder among their children. Any deviation from the normal development should be considered seriously in such cases. Asperger syndrome may follow a familiar transmission. Seizures are less common in them.

- ii) Physical appearance may be normal except in cases with comorbid disorders like fragile X syndrome or Tuberous sclerosis.
- iii) Head circumference may be either greater than 97th percentile (in the case of children with classic autism) or lesser than the normal as in the case of Rett disorder.
- iv) Motor clumsiness may be observed especially in the case of Asperger syndrome.
- v) An estimated 3 – 9% of those with autistic traits have chromosome aberrations, and these abnormalities have been reported on every chromosome.
- vi) Most frequently fragile X syndrome can also be noticed in about 2-4% of individuals with autism. Tuberous sclerosis seems to be the next most common chromosomal anomaly in autism which is estimated to be present in 1-4% of the cases.

Concomitant autism – fragile X (AF RAX) has been reported to occur mainly in boys, but it may occur in girls also. Among males, the following characteristics may be noticed.

- Tend to have a long narrow face with a high forehead and long low set ears.

- Have a high arched palate.
- Show poor muscle tone with delay in fine and gross-motor development.
- After puberty have larger sex organs.

In the case of girls with (AFRAX) the physical characteristics are as follows :

- Slight mongoloid slant of eyelids, big ears, adherent ear-lobes.
- Thin feet
- Squint, slight sight problem but refuse to wear glasses.
- Fusty hair
- Presence of epilepsy
- Mental retardation is present

vii) Neurological examination can help in detecting possible inborn metabolic errors and degenerative diseases. Parents of autistic children stress alimentary problems among their children. Neurophysiological examination may reveal increased levels of urinary bioactive peptides (compounds formed by the union of two or more amino acids).

Reichlet and his associate have identified three types of autistic syndromes based on onset and inborn defects in metabolising either/or wheat (gluten) and milk (casine) during early developmental period. Salient features of different types of ASD are as follows :

Type A :

- Typically starts after a period of normal development.
- Shows increased galvanic skin conductance fluctuations.
- Very high levels of spontaneous fluctuations and
- Very poor habituation to sensory stimuli.
- Benefited by gluten-free/ gluten reduced diet.

Type B :

- Characterised by neonatal onset of hypotonia, which gradually worsens,
- The autistic symptoms are less dominant
- Benefited by both gluten and milk free / reduced diet.

Type B2

- Present from the early neo-natal period onwards.
- Shows increased skin conductance, on average, lower than type A.
- Exhibits poor sensory habitation.
- Benefited by milk free / mild reduced diet.

Dietary treatment help in reducing not only some autistic features, but also reduces the frequency of epileptic fits. The problems due to allergies like skin rashes, itching may also be totally eliminated.

viii) Abnormal electrocephalogram can be found in as many as 43% of individuals with autism, particularly in those with lower IQs.

Mental retardation is present in 75% of affected individuals. So children with mental retardation have to be screened for presence of autism also.

Treatment Options

There is no single best treatment package for all children with Autism Spectrum Disorder. Early intervention can produce very rewarding results. Most individuals with ASD respond well to highly structured, specialised programs.

Among the many methods available for psychological treatment and education of people with autism, Applied Behaviour Analysis (ABA) has proved to be an effective method. ABA methods are very effective in reducing inappropriate behaviour and in increasing communication, learning and socially appropriate behaviour. They help in understanding their learning style. Children above 3 years of age should have school-based, individualised special education.

Relatively new intervention technique for children with ASD in the

Developmental, Individual Difference, Relationship-based Model (DIR):

The treatment programme based on such a comprehensive model should include the following principles and strategies.

- follow individual education plan
- build on the child's interests
- functional academics
- provide scope for predictable schedule
- systematic task analysis and appropriate chaining
- enabling the child to focus attention in highly structured activities
- regular reinforcement of behaviour
- parental training and sustained involvement
- provide counselling to parents by following self-help group models which can offer inspiration, hope, encouragement and support to them.
- Target specific deficits in academic learning, language, imitation, attention, motivation, compliance and initiative of interaction.
- include behavioural methods, communication, occupational and physical therapy as well as social play intervention and include socially useful productive work.

- Include physical activities like games, recreational activities like music, dance, etc.
- Emphasise social skills training, community living, using public transport in later stage
- Provide scope for placement in either or in special school, integrated school or inclusive school depending on availability of opportunity, feasibility and possibility.
- Scope for academic Learning for Higher-functioning of children.
- Yoga therapy for emotional strength and stability.

Other Interventions

In addition to psychological and special educational interventions, the dietary treatment are also essential medication and effective in certain cases. Medicines are used for treating anxiety and depression, behavioural problems, seizures, inattention and hyperactivity.

Living arrangements for the Adults with ASD.

- a) Independent/ semi-independent living
- b) Foster homes and skill development homes
- c) Supervised group living
- d) Institutions