Training Module on
Autism Spectrum Disorders

शिक्षा का अधिकार

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Contents

Introduction to Autism Spectrum Disorders

Autism Spectrum Disorder (ASD) is a condition that has for long been misdiagnosed and misunderstood. As a result, intervention for ASD has muddled along from psycho analytical approaches to the pharmaceutical to the current more appropriate educational practices. For many educators, ASD is seen as an enigmatic condition that is best skirted.

ASD manifests as behaviours that are often odd, unusual, 'inappropriate', different from what are seen as accepted social norms, and so on. Hence someone who does not understand the condition finds the child with autism perplexing and therefore difficult to teach.

There are of course differences in the way children with autism develop: in their play, their communication, their social understanding, among others. Teachers who have not had the opportunity of getting informed on autism often feel unnecessarily scared and frightened of a child who shows unusual behaviours; when in reality the child is perhaps merely trying to convey distress, confusion or a basic need, through that behaviour. And as a result, instead of helping the child, such teachers end up aggravating the situation through their own fearful responses to the child's behaviour.

A good and insightful teacher soon learns that children with autism are children like all others. They have the same need for appreciation and support and like all children they **have to be taught in a manner so that they can learn**. The teacher will come to understand that children with autism may not always show the same signs of external pleasure that non-autistic children do when they receive appreciation or achieve/acquire a skill; but will instead learn to watch out for, recognise and acknowledge the signs to express enjoyment and achievement that the child shows.

If we can show appreciation to children in a manner that speaks to them, they then can blossom and grow. Every child with autism has the potential to learn and progress. How much of this potential the child reaches depends on great measure on a willing and understanding teacher and a welcoming and accommodating school.

For the teacher the journey to help the child with ASD has to start with an open mind and a desire to understand the condition called ASD and to understand the child. Helping the child with ASD to learn is a challenge and for that very reason one of the most rewarding areas of work.

Coined by Eugen Bleuler in 1911, the term 'Autism' is derived from a Greek word *'autos'* which means *'self'*. Although several descriptions of the same are available in history, Autism as we now understand was first described by Leo Kanner in 1943 and by Hans Asperger in 1944. Autism is not a mental illness and is different from mental retardation – now called Intellectual Disability. It is classified as a Pervasive Developmental Disorder (PDD) a term meant to indicate severe disturbances in areas of development. According to the internationally used diagnostic criteria Diagnostic Statistical Manual (DSM) IV-Text Revised PDD is not a specific diagnosis, but an umbrella term which defines five specific diagnoses: Autistic Disorder, Asperger's Disorder, Pervasive Developmental Disorder Not Otherwise Specified (Including Atypical Autism), Rett's Disorder and Childhood Disintegrative Disorder.

With the advances in understanding, the new criteria being developed has now combined all these five diagnoses (Autistic Disorder, Asperger's, Rett's etc) into one diagnostic category called Autism Spectrum Disorder.

Understanding the Autistic Spectrum

Autistic Spectrum Disorder (ASD) is a heterogeneous group of neuro-behavioral syndromes. It manifests as differences in development in three main areas: verbal and non-verbal communication, social interactions and imagination, which can be seen in repetitive and restricted leisure or play activities. This is referred to as the *triad of impairments.*

Autism may occur alone or may be accompanied by sensory processing difficulties, mental retardation, hyperactivity, motor difficulties, seizures and/or learning disability. But regardless of the other accompanying conditions, it is autism that requires attention.

Autism is known as a '*spectrum disorder,*' because symptoms can range from a mild learning and social disability to more complex needs with multiple difficulties and often very unusual behavior. Autism results in *qualitative impairments*. What this means is that in a person with autism, skills are present (not absent) but do not develop age appropriately. Therefore different skills develop at different pace in different people with autism. Another characteristic and perhaps the most confusing feature of autism is an *uneven skill development* (see Figure 1). If a child were at the biological age of 4 years, his overall development would be of a 4-year child. In autism however, a 4-year child, may have speech development like that of a 2-year, gross motor skills developed like an 8-year, fine motor skills of a 6-year and self-help skills of a 3-year child. So a person is able to do basic arithmetic but not speak; or may know the alphabet, numbers and nursery rhymes, but may not be able to ask or tell his/her needs or desires.

Because of all these characteristics, no two people on the autistic spectrum look or behave the same. They have certain common set of social, communication and sensory issues that affect their behaviour in predictable ways. Their language skills may range from those who do not speak

to those who display complex, grammatically correct speech. Some individuals may show only slight delays in language and greater difficulties in making friends. Some may have no sensory difficulties while for others every day is too much of sensory information. However, each person has his or her own strengths and limitations and like all individuals, each person with autism has a unique personality and combination of characteristics.

Thus, two children, both with the same diagnosis, can act very differently from one another and have varying skills; but they can learn using the same techniques.
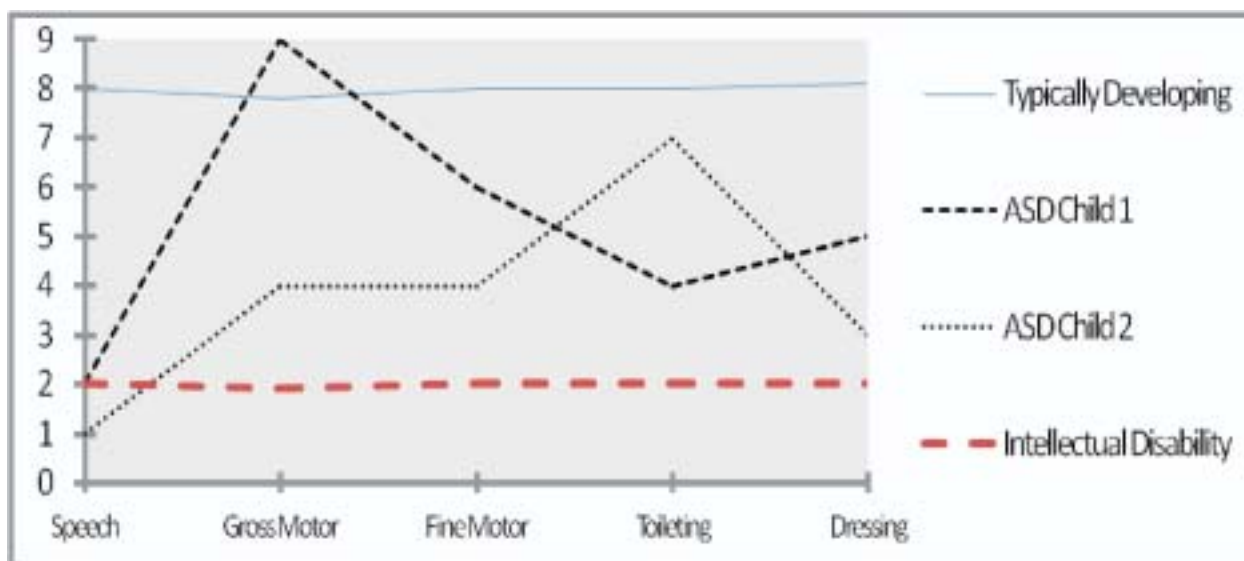

Figure: Uneven Skill Development (age and skills)

Is Autism same as Mental Retardation?

Autism is very different from mental retardation. While some people with autism may also have mental retardation, many of them do not. However, because of limited understanding of the spectrum, many people are wrongly diagnosed as mentally retarded. Autism does not affect the intelligence of a person. It affects the learning style of a person. A person with autism can and will learn if they are taught using the right techniques – which are simple adaptations of existing classroom techniques.

How common is Autism?

Contrary to what many believe, autism is not a rare or uncommon disorder. It is the *third most common developmental disorder*, more common than Down syndrome. With increase in understanding and awareness levels, professionals are beginning to understand that some of the people, who were diagnosed with mental retardation, hyperactivity, or as badly behaved children, may actually have autism.

Recent international studies show that about *1 in 110* people have autism. The overall incidence of autism is believed to be *consistent around the globe*, which, if true, means that there are over 40 lakh people with autism in India. This also means that we all have come across at least one person with autism in our lives – but we never realized she or he had autism.

Autism is four times more common diagnosed in boys than girls. It knows no racial, ethnic, geographical or social boundaries. Family income, lifestyle and educational levels do not affect the chance of autism's occurrence. Doctors, politicians, and rickshaw drivers alike may all have children with autism.

How is Autism Diagnosed?

Autism is present at birth but the symptoms are visible well before the age of 3 years. Autism can be recognized in children as young as 18 months and diagnosis can be made with reasonable accuracy at 24-30 months of age. A diagnosis requires a sensitive and experienced professional to observe the person very carefully, ask the parents about the development of the person and then objectively follow internationally recognized criteria to come to a conclusion. At present, there are no medical (e.g. blood tests, EEG, MRI etc.) or genetic tests that can diagnose autism.

People with autism do not always have a history of delayed milestones of development. A person with autism may or may not have met all the physical developmental milestones such as neck holding, rolling over, sitting, crawling and walking. Some may start developing language, but then may abruptly stop or decrease talking at 18-36 months of age. In others the speech development may be inappropriate to age. In some children, hints may be apparent from birth but it is easy to be missed. In most cases, autism becomes more noticeable as the child slips farther behind other children of the same age. If the child is diagnosed early, effective strategies can be put in place early which will help the child's development. Of the children who are able to cope with mainstream school and college education go undiagnosed and grow to be 'strange' or 'quiet' or 'reserved' adults. They may experience difficulties in their married life and in making friends. Some may also have difficulty in coping with the demands of a job.

How is severity, degree or level of autism measured?

Traditional understanding of autism gave terms like 'mild autism', 'atypical autism', 'features of autism' etc. Based on a test, professionals ask questions from parents to assess the presence and absence of behaviours. Very often a score is given to categorise the person into mild, moderate or severe autism. However, with the new and improved understanding of autism, professionals are beginning to understand that a person either has autism or not. This is the reason that as mentioned before, all separate diagnosis including Autism, high-functioning autism, and Asperger's are becoming meaningless now and being grouped together in one category.

With support children with autism make progress. Likewise, if the intervention is not provided, the person with autism faces greater difficulties. If a person has autism, then the way she or he learns, understands, communicates and interacts with people is different. But simple changes in existing classroom techniques and environmental adaptations make teaching autism-friendly.

What about IQ tests?

Measurement of IQ is not a true measure of skills or potential of a person with autism. This is because the tests that are currently developed are not suitable or appropriate for people on the spectrum and do not accurately measure the intelligence of a person with autism. What is instead useful to do is 'Functional Assessment' of the person. This measures the person's development on a variety of skills as described in Figure 1. While IQ will give a score and say average or borderline intelligence; a functional assessment of a person helps determine the existing skill sets and the future goals for every person with autism. Given the variability on the spectrum as well as the unevenness in skill development, it is very useful for the person with autism, the family and the professionals working with him/her to get a functional assessment every year.

In addition to a medical evaluation to rule out any associated physiological conditions, a comprehensive evaluation also includes sensory assessment and an auditory evaluation to check the hearing frequencies for persons with autism.

What causes autism?

Research is being done on this and the exact causes of autism are not yet fully known. It is proved that about 10% of all cases can be accounted for genetically. We know that there is no one single gene for autism but several genes in combination are involved. Without knowing the cause of autism, there is no way to prevent it.

It is well established that autism is NOT caused by bad parenting, neglect, an unhappy home environment, both parents working, mental stress during the pregnancy, poor handling by the mother, an emotional trauma, stress or any other psychological factors. A parent or home environment cannot cause a person to have autism.

Do medicines help?

The western medicines that are very often used do not cure autism. Several traditional Indian medicines such as Ayurveda and Homeopathy also are being tried to treat autism. However, there is no scientific evidence to prove that these medicines help reduce or improve the symptoms of autism.

Those people with autism, who have other conditions such as depression (in adolescents and adults), hyperactivity or seizures certainly benefit from medicines for that specific condition, but not to cure or improve autism or symptoms of autism.

What are the treatment options in autism?

In addition to medication, several alternate forms of intervention are being practiced. Some of these include religious practices, yoga, aroma therapy, colour therapy, use of oxygen chambers, reducing metals from body, going on specific diets, taking vitamins, minerals or other supplements. While they may be useful in other conditions, there is not enough scientific evidence to prove that they help people with autism. Recent research shows that some of them may actually be harmful and often dangerous for any person.

The only consistently effective treatment for autism is a structured behavioural training program; therefore, a combination of a supportive classroom practices and specialised education is the best known treatment that can maximize skill development and achieve full potential. Some of the scientifically proven effective techniques include:

Treatment and Education of Autistic and related Communication handicapped Children Method (TEACCH) emphasizes on using skills that children already possess to enable them to become independent. Organizing the physical environment, developing schedules and work systems, making expectations clear and explicit and visual materials are effective in developing skills and allowing people with autism to be independent of direct adult prompting.

Applied Behaviour Analysis (ABA) emphasizes on one-to-one sessions in discrete trial (DTT) format to develop cognitive, social, behavioral, fine motor, play, social and self help skills. The technique involves structured presentation of tasks from most simple to more complex, breaking them down into small sub-skills and teaching each sub-skill, intensely, one at a time. It involves repeated practices with prompting and fading of prompts to ensure success. It uses rewards or reinforcement to help shape and maintain desired behaviours and skills.

Verbal Behavior Analysis (VBA) is an addition to ABA and is also based on breaking down and teaching language in functional units unlike the teaching of language based on grammar. In addition to teaching at the table top, teaching in (and with) the natural environment (NET) is important.

Picture Exchange Communication Systems (PECS) is built on the fact that non-verbal children with autism may attempt to spontaneously use objects to communicate. People with autism tend to be visual learners and visual means of communication can help them to understand and use the process of communication. PECS aims to teach spontaneous social-communication skills by means of symbols or pictures and teaching relies on behavioural principles, particularly reinforcement techniques. Behavioural strategies are employed to teach the person to use functional communicative behaviours to request desired objects. The requesting behaviour is reinforced by the receipt of the desired item.

Although research is being done on this, at this point since we do not know what causes autism, we cannot fix or cure it either. There are no medications or injections which can make autism go

away. Autism is a lifelong condition but that does not mean that a person cannot learn or improve. All children with autism can and do make significant progress if the intervention that they receive is appropriate, consistent and autism-friendly.

Do people with autism have special gifts or talents?

Some people with autism display remarkable abilities and skills far out of the ordinary. At a young age, when other children are drawing straight lines and scribbling, some children with have exceptional arithmetic skills. An excellent 'photographic' memory for places or things is often described in children with autism and is not too uncommon. Some show Hyperlexia - characterized by a preoccupation with print noted before the age of three years. In some cases hyperlexic children can read beyond their developmental age and even before they can speak. While a majority of such children are usually diagnosed with an autistic spectrum disorder. Contrary to what is usually believed, all children with autism do not have these *savant skills.*

What is meant by sensory difficulties?

All of us combine our seven senses (sight, smell, sound, touch, taste, balance, body in space) in order to make sense of and learn from our environment.

> **Try this:** Think about the experience of eating a mango.
>
> Remember the colour of the ripe mango, feel of the smooth skin as you picked it up, its sweet smell as you bring it close to your mouth, the juices running down your face as you eat it and the sweet-tangy flavours in your mouth.
>
> **Now try this:** Imagine you pick up a mango, when you hold it, it feels like an orange, so you smell it and it smells like grapes, and when you eat, it tastes like a banana. Confused?

When sensory information is faulty the world can be confusing. Although it is present in other conditions as well as typically developing people, persons with autism often have trouble learning to integrate and process all the information coming from multiple sources in the environment. Their senses may be too acute (hypersensitivity) or not working at all (hyposensitivity) or there may be a combination.

Thus many of the routine activities of daily living can be a sensory nightmare to an individual with autism. Consequently some experience difficulties in motor planning, posture, fine motor skills. Some of the common symptoms of sensory issues are:

■ *Visual* - looks from the corner of the eye; spin themselves or other objects; watch things that go round and round (e.g. fans, wheels)

■ *Olfactory* – likes to smell objects such as toys, hair; actively seeks out specific smells such as smell underarms; avoids certain smells

- *Auditory* - puts finger in ears or cover ears on hearing loud noises or for no apparent reason; distracted in a loud environment; distressed by pressure cooker whistles or mixer-grinders

- *Tactile* – prefers certain clothes; difficulty in tolerating shoes, socks, seams and labels of clothes; tooth brushing, nail cutting or hair cutting may be difficult; walks on toes

- *Gustatory* - have difficulties in chewing; may have a preference for or avoid certain textures of food items. e.g. may only eat soft food like *dal-chawal,* avoid anything crunchy, or vice versa

- *Vestibular* - difficulties in going down the stairs; may not enjoy swings, jumping and climbing activities

- *Proprioceptive* - may hold things too tight or too gently; difficulties in writing.

Sometimes the sensory dysfunction results in self stimulatory behaviors such as unusual finger or hand movements, rocking, mouthing, spinning etc. Some people may not feel hurt or cry when injured. Many different combinations of behaviours may be seen and reasons for the same behaviour vary from person to person. For many people with sensory difficulties, world is an uncertain, ever changing place.

> **Try this:** Think of a time when on a rainy night in a busy road/market, you tried to cross a huge puddle of water by stepping on a series of unsteady stones.
>
> Do you remember walking slowly; looking hard to see; carefully balancing yourself to avoid slipping; while at the same time being careful of not dirtying your clothes, watching the traffic on the road, and other people trying to cross at the same time. While you are doing all this, your friend asks you the time. Will you be able to shift your attention to look at the watch and tell the time immediately?

Unless they receive appropriate intervention, some people with autism live every minute of their life like this while also trying to follow the instructions being given to them.

An occupational therapist trained in sensory integration techniques can assess the person for the presence of and nature of sensory difficulties. The assessment is made on the basis of interaction with and observation of the person and through careful interview with the parents. Based on the assessment, an intervention program is prepared and implemented which is different for every person. The therapist works together with the special educator to develop an intervention programme that includes a range of activities to meet the sensory needs as well as set of tasks to teach. Although a sensory session may seem like play to an outsider it is not just play. At the same time a sensory session never involves forceful completion of activities. It is always person-directed and involves active participation of the person with autism.

What happens to people with autism when they grow up?

Since autism is a spectrum and people have varying skill levels, future is not the same for all people with autism. A lot of children who are able to cope with mainstream school /college education go undiagnosed and are successful at jobs, marry and raise a family, but maybe considered quiet or reserved adults by their family, friends and colleagues.

Several adults on the spectrum who have been diagnosed and been in a supportive environment in their childhood, have written books which has facilitated and enhanced the understanding of the condition. We have examples of people who are professionally very successful. Some have gone on to become famous authors and won the Nobel Prize. Some advocate and speak for themselves and for other people with autism in the community.

Some of those who are fully independent in their everyday life may find it difficult to sustain the demands of a job and work environment. Some are married and some choose not to.

Some of those who are married face difficulties in forming relationships with their spouses and carry out responsibilities that come with marriage and having a family and may continue to need support of another person in planning and carrying out the activities in running a house.

As in every other condition, some people on the spectrum will always need support in life and will always require a high level of support. As yet, in India, there are few schools which have an environment or the attitude to accommodate the special needs of people on the autism spectrum. Vocational centers and employment opportunities are even lesser.

For most parents struggling with getting services for their child with autism, one of the biggest worry is *'what after us?'* As yet, there are not enough and appropriate lifespan services for people with autism where they can lead a life of dignity and respect.

However, with support from people around them including the family, friends, neighbours and teachers all of them can lead a happy and meaningful life.

Why do people with autism not make eye contact or avoid looking at people?

> **Try this:** Think of anybody who closes his eyes or looks up towards the ceiling when he is thinking or trying to focus or remember something?
>
> Could you think of at least one person? In the process did you close your eyes or look away from this text?

Similarly, many people with autism find it easier to concentrate when they are not looking at other people. By not looking a person with autism is not being rude or ignoring. She or he can still pay attention. Most of them are unable to combine and understand all the information coming from words, gestures, face expressions, tone of voice and end up feeling confused. Many get fascinated

by novelty of the situation and may look better at new people or objects or activities while others may be scared or overwhelmed by the newness and need time to get more familiar. Some others may give a quick look and then turn away, while many prefer looking from the corners of their eyes, using their peripheral vision. Some may avoid directly looking at people but may be more at ease looking at objects around them.

Many people with autism make eye contact and many can be taught over time to make and sustain eye contact. While we can teach them to make eye-contact, by not forcing them to look at another person, we can help them learn and work better.

Do people with autism have speech delay? Can they talk? How do they communicate?

Since autism is a spectrum disorder there is a huge variation in the development of speech among people with autism. While some people with autism never speak, others start speaking late. Some begin to speak on time but then the language does not develop age appropriately. Many speak in one – two words, others in short sentences and some can fluently talk, can talk in long sentences using age appropriate speech. Describing anything can often be difficult for many verbal people. Many who use spoken language face difficulties in linking words (e.g. in, on, because) and may leave them out. Some may struggle with the correct use of grammar such as plurals, pronouns (e.g. I, me, you, s/he, them) and prepositions.

> **Try this:** See in how many different ways you can say 'No' e.g. gently requesting, telling firmly, saying angrily, and asking as a question.
>
> Did you observe the difference in how you say the same word based on how you feel and what you mean?

Many people with autism have an unusual way of speaking. Some talk like their favourite cartoon character on television, some talk like they are singing, some may have a flat, mechanical or robotic tone of voice with no emotional up and down e.g. pleading voice when asking for something that's not allowed; a sorry in the voice when apologizing; excitement when narrating a happy moment. Some speak too loudly or too softly.

Some people also create new words; some may repeat what is said to them. For e.g. a question 'what is your name?' is answered with 'what is your name'. Some may narrate dialogues from a favourite movie or rhyme. For many verbal people with autism, use of language is limited to what they have learnt by rote. So when the person wants food s/he would say "want rice", whereas typically developing people may use different words like "Is dinner ready?" or "Is there something to eat?" or "What is for dinner today?". Many people find it difficult to answer a question, but may be able to ask for what they want.

As social people we often discuss our opinion of a movie we saw, a party we went to, a holiday we are planning, other people's clothes, an accident we saw yesterday; how we feel stressed or

tensed about tomorrow's meeting etc. We share about our likes and dislikes, dreams and plans, feelings, enjoyments and our achievements. People with autism who are able to use words often talk only about things they need or want. Some others may talk about the few things they like and may want to talk only about those things. Therefore 'chatting' with others is usually difficult for them. Unless asked, some people on the spectrum are able to share their likes, dislikes, enjoyments and achievements. Fewer can learn how to share their feelings, dreams and plans.

Another important aspect here is receptive language – how we receive the language. It involves being attentive and to listen to what is said, the ability to understand the message, the speed of processing the message, remembering the message and being able to follow a series of instructions. It also includes understanding the language 'as we say it' as well as sometimes interpreting the abstract, hidden meaning and intention such as when we use metaphors, jokes, or are being sarcastic.

Additionally, we combine the words with use of body language or non-verbal communication - use of eyes, head, hands, body, gestures and facial expressions to understand the full meaning. A smile, a pat on the back or on the head are all examples of communication without using words. Things get more complicated because gestures often have different meanings in different circumstances, depending upon various factors: cultural, geographical, social, etc.

> **Try this:** Think about how you will ask for water, describe a headache or ask time from someone sitting across the room – without saying anything.
>
> Did you try any of these – raise your thumb, curl your hand and bring it towards your mouth or simply point at water; touch your temples or press your forehead/head; point to your wrist with a quick raise of eyebrows - another person watching you is almost certain to understand.

Regardless of their speech development, people with autism have an impairment – a deficit in using non-verbal communication. As a result they are unable to use their body or face expressions to describe what they are feeling or ask what they want. As a spectrum, the variation is enormous. Those who cannot point may grab others by the arm and guide it towards the object they want (but cannot reach) or to carry out an action for them. Some can point and some can shake head to say yes/no; very few will be able to successfully complete the above exercises and unless specifically taught, very few are able to raise their hand when they want to give an answer in a class.

People with autism find it difficult to spontaneously use AND understand nonverbal communication – gestures, read face expression when other people use them.

So a child may not understand when a teacher looks angrily. He just gets confused. Often they find it difficult to understand that they are being scolded or being made fun of. For instance calling someone 'crazy' with an accompanying smile is different from saying it without a smile. The

accompanying tone of voice and the face expression tells us 'how' it is being said and what the other person means.

Those who somewhat understand, may not know how to respond appropriately. Asking for help or asking questions is difficult for most of them, so even when they do not understand what they have been told, they do not know what to do. As a result many are considered disobedient or rude.

All people with autism can learn to understand language, communicate and appropriately express their needs and desires. Some people with autism can learn to speak to communicate; others can learn to use signs, objects, pictures or written means of communication.

Our people with autism not like other people? Can they make friends?

Given the nature of deficits in development of verbal and non-verbal communication, people on the autism spectrum find it hard to interact with others and make friends. Many want to make friends but are unable to do so because they do not understand 'how' to make friends.

Even with adults, individuals with autism (both verbal and non-verbal) often find it difficult to spontaneously show another person things of their interest e.g. a monkey, a dog, an airplane. Verbal kids may fail to come home and excitedly narrate some extraordinary incident at school without being questioned about it. A person with autism may come home and show the note in the diary or the birthday gift, but not be able to describe what happened or the feelings s/he may have experienced. Many children with autism may show affection, smile and laugh and demonstrate a variety of other emotions, although in varying degrees. Like other children, they respond to their environment in both positive and negative ways.

The way people on the spectrum interact with others range from being perceived as aloof to being perceived as stilted and overformal.

There are people with autism seem 'aloof', in a world of their own, absorbed in their activities and show little interest in another person. Some behave as though other people do not exist. They may not come when they are called, not respond when spoken to and they may look through people and pull away when touched or cuddled. Young children in this group seem indifferent to or uncomfortable around other children of same age. Interactions are initiated to meet their needs, rather than to make friends or play.

There are others who are not aloof, but rather passive in their interaction. These are people with autism who enjoy watching other children play and may be comfortable playing alone in the same room as other children. When approached, they do not move away from others but will not approach others themselves.

Some people on the spectrum actively enjoy but appear distinctly odd in their interaction. They make active approaches to other people on their own, but may do so in an odd, inappropriate,

repetitive way such as hugging or pushing others. Individuals in this group have limited understanding of how to interact socially with other people and are unable to change their behaviours according to the response they get from other people.

Then there are others who are seen as stilted and over-formal. They have fluent language in adolescence and adult life. They may be excessively polite and formal in their behaviour and try to behave well and cope by sticking rigidly to the rules of social interaction. They may not always really understand these rules and often show difficulties with adapting to the subtle differences in behaviour expected in different situations. The lack of understanding of other people's thoughts and feelings is evident, even when there is a desire to be kind and helpful.

Often, children with autism enjoy watching other children and may want to be near them but may feel hesitant, unsure and even scared to join them in their activities. Some others may be comfortable and even enthusiastically approach, but may lack the spontaneity to initiate play. Their play behavior may include only repeating what others are doing, e.g. running after one another, playing ring-a-ring-of-roses. As they grow older, they find it difficult to understand and follow social rules of games, such as getting 'out', taking turns or participate in make-belief play. As a result, individuals with autism have none or few friends of their age. They find it easier to relate to older people who can tell them what to do and or with people younger to them who will do as told. In both situations the expectations from and responsibilities on the individual with autism is less.

However, with the guidance of a supportive adult, children on the spectrum can learn ways to interact with other children appropriately.

How does autism affect play?

People with autism have an impairment that can be characterised as a deficit in imagination.

Try this: Spend the next few minutes planning your next holiday.

Most of us are able to generate a list of things that we will either like to do or that we will have to do on a holiday.

Individuals with autism, unless taught or told, are unable to think of or imagine things that they can do in their free time. Consequently many of them spend their time doing the same activities, or simply running around or jumping about. Amongst children, imagination or creative thinking is most easily observed through the variety in drawings, comprehensions/ essays, play behavior or things they do in their free time.

Many children show little or no interest in toys. Some may handle toys and other objects purely for physical sensations e.g. to bang, put in mouth, for the sound it makes or a light that flickers. Some enjoy concrete play such as puzzles or computer/video games. A common activity for children

with autism is lining up or stacking similar objects like pencils, blocks, toy cars, glasses, bottles etc. Some others use objects for their obvious purposes, such as toy broom for sweeping, or rolling cars back and forth. Some develop a sequence of events which appear to be play but close observation shows the sequence is often repetitive and not built upon or modified. The impairment in the age-appropriate pretend play. A car is a car and does not become an airplane, fly in the air or climb the walls.

Some children with autism are able to learn basic pretend play behaviours, but the stories are repetitive or revolve around his/her special interests and stories do not differ, grow and develop for e.g. when playing 'house', 'doctor', or 'teacher'. Some children appear imaginative by enacting a character, perhaps from television or everyday life. An interesting feature here is that the person seems to be imitating that character more than pretending it. For example a five-year-old boy pretends to be riding a scooter when he is on his tricycle. He tilts it on one side the way his father tilts his scooter before starting it. The boy only does this and is unable to build creative stories around 'what happens when I was riding a scooter'. Another little girl may learn to bathe her doll but she refuses to dry the doll with a small hand towel. She insists on using a regular towel. After the bath she may go on to dress, comb and feed the doll. But here play does not progress beyond the bath routine, for instance she never places the doll on a toy car pretending to take her for an ice-cream.

Consequence of this impairment is a narrow range of focused interests. Often all activities including play revolve around those special interests. For instance, some may enjoy transportations and may look at pictures, advertisements and collect toys or talking on this theme. Sometimes, these special interests can revolve around unusual objects such as strings, brooms, pebbles, wrappers, or any household objects or activities like scribbling, drawing or tearing paper. Sometimes they take form of routines taking the same route from house to the park; wearing a specific shirt with a specific pant; keeping things in exactly same place; following a specific sequence of activities e.g. come home-change clothes-have food. Any changes from these routines can be a distressing experience for people with autism.

Many people with autism have extreme difficulties in coping with the demands of the changing environment or set of expectations, or in generating rapid and appropriate responses to new experiences. Once they have found a comforting or pleasurable experience some repeat it endlessly so that their interest seems narrow and their behavior lacks flexibility or variation.

While these routines can be strength for people with autism and facilitate learning, using techniques discussed in later sections, individuals on the spectrum can learn to cope with changes and expand their leisure time activities.

What are Neuro-cognitive Theories?

There are three basic theories:

Theory of mind

Theory of mind (ToM) is the ability to infer other people's mental states - such as their thoughts, beliefs, desires, intentions, and the ability to use this information to interpret what they say, make sense of their behaviour and predict what they will do next. ToM enables us to understand that what others know, think, feel can be different from what goes on in our minds; put ourselves in other's shoes and guess 'what' goes on in other minds.

> **Try this:** You know your colleague has kept some papers in a drawer of a table. One day, when your colleague is absent, you use those papers and then keep them in the cupboard. The next day when your colleague comes, where will s/he look for the papers?
>
> Drawer? Because **you** know that the colleague does not have the information you have – that the papers have been moved – and so you can predict his/her behaviour.

People with autism have an impaired ToM. Therefore, they believe that the information, knowledge, feelings, desires that they have, is what everyone else has. Therefore, everybody knows and understands how s/he is feeling and what s/he needs. As a result, they are unaware of others feelings, thoughts and desires and often appear insensitive to other people's *feelings.*

They do not understand that other people can have different thoughts. So they are unable to understand 'why' people do things they do and find it difficult to predict other people's behaviours.

> **Try this:** You have guests coming to your house for the first time. Do you wear special clothes? You prepare special food? You clean your house?
>
> We all do this because **we** know that **they** will notice all this and based on that **they** will form an opinion about **me**.

People with autism are unable to anticipate what others might think. Most usually understand that others are talking about them in not-nice ways. But do not understand the reasons or what they can do. Similarly, when they talk only about things of their interests, they are unable to 'guess' that other people might be getting bored. A typically developing child will tease another child only when the teacher is not looking. This is because they 'know' that if the teacher sees them, the child will be punished. People with autism do not have this understanding. Therefore, when some other child teases them, they retaliate in public, without trying to hide and get into trouble.

When someone walks in late, sometimes we sarcastically say, 'you have come very early'. People on the spectrum are unable to understand the intention and sarcasm in other person's mind and will be confused. They understand the language literally, so they find it difficult to understand the

'hidden' meaning in jokes or metaphors. This is also the reason why people on the spectrum are unable to lie or understand deception; why individuals on the spectrum are unable to 'hide' appropriately in a game of hide-and-seek.

Thus if the environment is not sensitive to and supportive of their needs, everyday life and social interactions are difficult, because of course others will not behave how people on the spectrum 'expect' them to and a person with autism cannot predict what others around him/her will do. Routines and sameness in environment create that predictability.

Central Coherence

This is the ability of making sense of an entire situation, person or object (as a whole) without stopping on details. People with ASD have a weak central coherence (WCC). This means that they often focus on details and are unable to attend to the overall meaning.

> **Try this:** Imagine standing inside a forest. What do you see?
>
> You probably imagined lots of trees around you. You can see the grass, the wooden trunk of trees, the twigs, may be some animals.
>
> **Now try this:** Imagine standing on a mountain-top and looking down at a forest. What do you see?
>
> One of the first things that come to mind is the large area of the forest and not the little details like the grass, the animals and the wooden trunks.

Due to WCC this ability to see the larger picture is impaired in people on the spectrum. This makes learning concepts, emotions and social contexts difficult as the focus is on parts of objects e.g. motif on clothes or a wheel instead of the whole toy train. Some may make specific cause and effect associations with events. e.g. mother wore long silver earrings when the family had an ice-cream. Next time when mother wears the same earrings the child expects 'ice-cream'.

Executive Function Deficit

This refers to our ability to understand, integrate, plan, organize sequences and problem-solve to achieve any goal. This also requires self-correcting when things do not go according to plans, being flexible to changes; using past and present experience to solve problems and to regularly check if the goal is reached.

> **Try this:** Think about how you come from home to your place of work? Now suppose one day you find one road is blocked. What do you do? You take another road?

This is using your executive function. Due to executive function deficit (EFD) children may get confused when performing the sequences and may need to start from the first step all over again. They also have difficulty in learning from their mistakes and may continue to make the same

mistakes. Due to impaired imagination, they cannot think of other options. However, simply helping the child by telling them 'what' to do and 'how' to do it, helps them reach their goal successfully.

As a result of deficit in Executive Function, some children continue to find it difficult to copy from the blackboard. When they make a mistake they have to erase it and rewrite the whole thing again. This is also the reason why many children do not understand and learn when punished or when people say 'no'. Similarly, ridiculing children or rebuking them by telling them that they cannot do simple things only makes them feel sad and bad. It does not teach them anything. As a result, when reprimanded thus they do not know what they are expected to do in place of what they were already doing. Instead they end up indulging in rituals, repetitive actions or activities that generate predictability.

> **Try this:** You are unable to solve a simple problem. One of your seniors sees this and starts laughing at you, makes fun of you and tells all your colleagues how you could not solve a simple problem. How do you feel? Would you like to work with this senior?
>
> How will you feel the next time you are stuck and this senior is in the same room?
>
> **Now try this:** You are unable to solve a simple problem. Another senior sees that you are having trouble and comes and helps or teaches you to solve it. Then this senior goes on to tell you that she he is happy and proud of you for trying to do things that are difficult. How do you feel? Would you like to work with this senior?
>
> How will you feel the next time you are stuck and this senior is in the same room?

Children with autism are often labeled stubborn, disobedient, inattentive and rude.

We forget that people with autism, cannot lie, always tell the truth and are completely honest. They do not make fun of others or deceive others. Unlike most other children, when clearly explained children with autism will follow rules and regulations. It is their ability to focus on details and carry on doing the same thing for long time (that most others find boring) that can help them excel in activities.

Using simple adaptations such as having things in different pictures or written text rather than just oral, telling children what to do rather than what not to do and rewarding them with social appreciation instead of making fun of them or punishing them, we can help them in mainstream education.

These strategies help the child with autism develop interest and learn the subject at hand. Equally important is that other children in the class are respectful of this child with special needs and do not bully or make fun of the child with autism – thus making the classroom environment more positive and a pleasant experience for everybody.

Teaching strategies as discussed in the following sections can be used with every child in the same class with equal success. Children with autism learn well in a sensitive and positive environment and can progress along with other children.

■■

Teaching and Learning

Understanding Behaviours and Addressing Behavioural Concerns

There are many behaviours that one may want to teach, maintain or change in children with autism. Behaviour modification is a procedure that is used to analyse, teach and modify behaviours. It is important to keep in mind that when discussing ways of modifying behaviours to teach children with developmental disabilities, we do not view behaviours the same way as we do in the broader social context. But first we need to be clear about what denotes behaviour.

A.   Behaviour is anything that we say or do: So scratching one's head. Switching on the light, talking on the phone, saying 'Hi' to a friend, flapping one's hands are all behaviours.

B.   Any behaviour needs to be specific: When we define a behaviour we need to be specific about exactly what a person is saying or doing. So instead of saying that the person is angry, (that is just labelling an emotion) one needs to say exactly what he is doing, is he screaming or has he stormed out of the room, what exactly has he said or done.

C.   Behaviours are observable and can be measured: Behaviors can be measured by one or more dimensions:

   i.   Frequency: The number of times the behaviour occurred in a given period of time- (e.g. Tara scratched her head 5 times in 15 minutes)

   ii.   Duration: The time elapsed between the starting and ending of one instance/ episode of the behaviour- (e.g. Ravi spoke to his boss on the phone for 10 minutes.)

   iii.   Intensity: The physical force (if any) that is involved in the behaviour (Tarun lifted a 5 kg bag of rice)

D.   Behaviour has an impact on the environment

   i.   On the physical environment- When one turns on the tap, water comes out

   ii.   On other people- When you call out someone's name, they turn around and respond

   iii.   On yourself- You recite a phone number from your phone book so that you can remember it whilst dialling the number

E.   Behavior is lawful: Behaviours are the result of a person's current environment and his past history or learning. On a very hot day, we turn on the fan (current environment) because we have learnt from our past experience that by turning on the switch the fan will go on and we will feel cool. If the fan did not go on by turning on the switch in the past, we would have the behaviour of turning on the fan, just as we would not do so in other situation, for instance on a cold winter day.

It is important to remember that if a behaviour is happening, it must have a **function.** There has to be a reason for it, whether it is evident to the observer or not.

Analysing behaviours

In order to address any behavioural concerns, it is important to carry out a functional analysis of the behaviour in order to understand why the behaviour is happening. To do a functional analysis of a behaviour we need information about three things: Antecedent (A), something that happens before the behaviour; Behaviour (B), that which a person says or does and which is observable, specific, and measurable; and Consequence (C), that which follows the behaviour. This is often referred to as the ABC of behaviour.

Examples:

Teacher says "Touch head" **–** Sunny touches his head **–** Teacher says "You are so smart!"

A (Antecedent) **– B** (Behaviour) **– C** (Consequence)

Ravi puts on loud music – Rita covers her ears – Ravi turns the volume down

A (Antecedent) **– B** (Behaviour) **– C** (Consequence)

Antecedent: This can refer to some or all of the following: When and where does the behaviour usually occur? Who are the people present during the situation most of the time? What do people say or do before the behaviour occurs? Are there any other behaviours that take place before this specific behaviour? When, where and with whom the behaviour takes place the least number of times?

Behaviour: Whilst collecting information on behaviours we need to look at the behaviour very carefully and record exactly what the individual does/ says in specific and measurable terms.

Consequences: Whilst collecting information on Consequences we need to observe: What follows on after the behaviour? What do people in the environment do when the behaviour occurs? Does the child get anything after the behaviour occurs? Does the child get out of or avoid anything as a result of the behavior?

The preceding information helps us analyse the function of the behaviour.

Behaviours have four broad functions. These are:

A.   **Tangible gain:** The behavior provides the person with something tangible like food, an action, a toy etc. For example, 'At meal times Shona starts crying and her mother gives her some chips and papad to go with her meal'.

B.   **Intangible gain:** The behaviour provides the person with attention or comfort. For example, 'Shona is supposed to eat her meals on her own, whilst her mother completes her kitchen work. However, at most mealtimes, Shona starts crying and her mother leaves her kitchen work and sits with Shona'.

C.   **Escape and avoidance:** The behavior may facilitate the person to escape or avoid something she or he may not want to do. For example, 'Shona eats her snack items sitting neatly at one place and without fuss. However at mealtimes, she starts crying and her mother lets her get up and leave her food on the plate.

D.   **Sensory:** A behavior may be an expression of some sensory difficulty and/or a sensory need. For example, 'At meal times, whenever Shona is given rice and dal she starts crying. She is comfortable with plain roti. She also starts crying whenever she has to touch any wet or messy substances'.

It is important to note that a particular behavior may be serving different functions at different times. The same behavior of crying may occur for getting something tangible at times and at other times for escape.

Another point to remember is that there may also be medical reasons for behaviours at times. For example, if Shona cries every time she eats something, it could be possible that she has mouth ulcers. It is very important to rule out any medical problems before applying the techniques of behaviour modification.

Modifying behaviours

We can teach / maintain / change behaviour by manipulating the consequence and / or manipulating the antecedent **and giving an appropriate alternative behavior.** Most behaviours are learnt, established and strengthened only if the behaviour is followed reliably by a consequence that the person finds rewarding. We can teach/ strengthen/ change behaviour by manipulating consequences using the following procedures:

■   Reinforcement

■   Punishment

■   Extinction

Reinforcement is not just a rewarding consequence. It is always defined by the effect it has on the behavior. Reinforcement is the consequence that strengthens a behavior, the consequence that increases the possibility of a behavior occurring in the future, or of the behaviour occurring with greater frequency. Let us review a few examples.

Example 1: The cold wind blows through the windows and makes Anita's house very cold in the winters. She starts closing her windows. This keeps her room warm. Now Anita always closes her windows in the winters.

Anita's behaviour of closing her windows has increased, because of the consequence of her room being warmer. Thus, the room being warmer is the reinforcer for the behaviour of closing the windows.

Example 2: All the children in the building play in the compound in the afternoon. Whenever Sujit finishes his homework, his mother lets him go down and play with the building boys. Now Sujit always finishes his homework as soon as he gets home from school.

Being able to go and play with the building boys is the reinforcer for Sujit's behaviour of completing his homework.

Example 3: When Sumi pushed other children a few times, each time her teacher came over to her and scolded her and told her to be a good girl. Now whenever the teacher is in the class Sumi pushes the other children till the teacher comes and reprimands her.

The teacher's attention as she scolds Sumi is the reinforcer for Sumi's behaviour of pushing other children.

There are a few factors that influence when a reinforcer is effective. These would be:

- Immediacy: Give the reinforcer immediately after the behaviour occurs

- Contingency: Give the reinforcer immediately only if behaviour occurs

- Characteristics of the consequence: Reinforcers vary across people. 'Pleasant' consequence from the perspective of the recipient

- Establishing Operations (EO): The motivating power of the reinforcer. The value of or the desire for a reinforcer changes within the individual depending on certain events or circumstances. When the person has not got access to (been deprived of) a reinforcer for a while, his desire or EO for the reinforcer is higher. Conversely when the individual gets a lot of (is satiated with) a reinforce his desire or for the reinforcer is lower. When hungry, hunger evokes behaviours that are likely to get food such as cooking a meal, an infant crying, going to a restaurant and ordering a meal. Hunger then is the EO, which makes the reinforcement of food valuable.

Identifying the reinforcer

We can get a clue on what might be a reinforcer by observing what the child likes to

i.   Eat/ drink

ii.   Play with: toys or any other thing like a string or a wrapper that he may like to play with

iii.   Do with respect to activities: Books, puzzles, shoe box activities, rough and tumble activities

iv.   Do in his free time: Does he rock in his free time? In that case we could give him a rocking chair as a reinforce, or rock him on our lap(for a small child)

Increasing the variety of reinforcers

i.   Keep introducing new reinforcers similar to things that they already like. If the child likes rock salt, he may also like 'churan'.

ii.   Pair new reinforcers (Conditioning reinforcers): Consistently give a neutral item along with the established reinforcer. Consistent delivery of this will slowly turn the neutral thing to a reinforcer. For example if the child likes eating chips and you want to condition bubbles as a reinforcer, blow bubbles with a lot of excitement whilst the child is eating chips. Slowly the child will learn to desire the bubbles because it is being paired with something he likes. It is important to always pair social praise with a tangible reinforce so that at some point of time, the social praise in itself becomes a reinforcer. Similarly pair yourself with the child's reinforcers, so that just being with you can be a reinforcer.

Punishment

Punishment refers to consequences that reduce or weaken behaviour. So a situation/ event leads to a behaviour and is followed by a consequence that results in the frequency of the behavior going down in similar situations in the future. This particular consequence is a punishment for that behavior.

A (Antecedent) **– B** (Behaviour) **– C** (Consequence)

A (Antecedent) **– B (Behaviour) – Punishment**

Example:

Reeta used knife A to cut her vegetables. She saw that she was cutting herself every time she used knife A. Reeta stopped using knife A to cut her vegetables.

The behaviour of Reeta using knife A to cut her vegetables reduced because of the consequence of cutting her hand. Thus, cutting her hand is the punisher for the behaviour of using knife A.

Punishment is not just an unpleasant consequence, it is always defined by the effect it has on the behavior. (Have the behaviours gone down?)

Some punishment procedures

1. **Time out:** Time out refers to moving the child from a more reinforcing environment to a less reinforcing one. When used with neuro typical children, time out takes the form of making the child stand in a corner or go to his room. But this may not work with a child with autism in case he finds the isolation more desirable.

2. **Over Correction:** Over Correction refers to making the child engaging in an effortful activity related to the targeted behaviour for a more extended time. For instance if the child throws a bottle of water, one gets the child to wipe the water that s/he as spilt along with wiping the entire room, as well.

3. **Response Cost:** Response Cost refers to the removal of a specified amount of a reinforcer when the targeted behaviour occurs. The administering of a fine (removal of a specific amount of money) to decrease the behavior of driving without a seat belt is an example of response cost.

Factors to keep in mind while using punishment

i.   Punishment is usually said to be a treatment of last resort, to be used after all other alternative strategies have been implemented.

ii. Punishment should be used scientifically. Proper collection of data is essential to make sure that the punishment procedure is actually working, that the behaviours are actually decreasing.

iii. We need to keep the safety and dignity of the child in mind whilst applying a punishment procedure.

iv. Problems of observational learning: When one uses aversives (spanking/ hitting etc.) with a child, one is giving the message that spanking or hitting is acceptable behavior and at some point of time the child, too may hit out at us.

v.   Ethical issues: there are ethical issues with regard to the use of punishment procedures.

Extinction

When want to reduce a behaviour, we have to see what is reinforcing the behaviour and thereby ensuring that it keeps happening. When a previously reinforced behaviour is consistently no longer reinforced, the behavior stops occurring. This is known as extinction of that behaviour.

Example:

After coming back from hard day's work, Mamta made an effort to make a complete, hot dinner for husband daily. Initially her husband was very appreciative and praised her efforts lavishly. After a few months, her husband would come to the table, eat and finish dinner without commenting. Slowly Mamta, stopped making the meals and would either make some Maggi or sandwiches for dinner.

In the above example, the consequence of her husband's praise acted as a reinforcer for Mamta's behavior of cooking a hot meal. When this behavior was no longer reinforced, Mamta behavior gradually stopped.

Characteristics of Extinction

1. **Extinction burst**

    It is observed that when a behaviour is put on extinction (no longer reinforced), initially:

    i.   The behaviour may briefly increase in frequency, duration, or intensity

    ii.   Novel behavi7ours may occur

    iii.   Emotional responses may occur

    Mita cried in the night after being put to bed for about 15 minutes. Her parents went to her and calmed her down till she fell asleep. This behaviour was getting reinforced by M's parents attention. After consulting some people about this behaviour, Mita's parents stopped going to the room. **Initially Mita cried for 25 minutes, screamed, bit and threw her pillow before she went to sleep.** *By the end of the week she stopped crying at bedtime. *Extinction Burst

2.   Spontaneous recovery

    Spontaneous recovery is when the behavior recurs again even after it has not occurred for some time. If the extinction process is still in place when spontaneous recovery happens, i.e., there is no reinforcement, the behaviour will not continue for very long.

    Extinction does not only mean 'ignoring' the behavior. Extinction (removal of the reinforcer) will depend on the function of the behavior.

    Extinction for the different functions of behavior will be:

■   Tangible Gain: No gain

■   Attention: No attention

■   Escape: No Escape

■ Sensory/Automatic reinforcement: Removal of the particular reinforcing sensation

Factors to keep in mind while using extinction

1. **Teaching alternative behaviours**

   All behaviours serve a purpose. If we stop an inappropriate behaviour from occurring by using extinction, maybe another equally inappropriate behaviour may crop up to serve the same function. So we need to teach the child an appropriate alternative behavior that will serve the same function. For example, if a child cries to get a toy, it means that he is crying because he wants the toy. Whilst we put the crying on extinction, by no longer giving him the toy when he cries, we would need to teach him to ask for the toy appropriately, verbally (if the child is vocal) or by using signs or pictures (if the child is non-vocal). Whilst teaching the alternative behavior it is essential to use appropriate reinforcers.

2. **Promoting generalization**

   Extinction must be implemented consistently across all people, all environments, at all times and for every function, whenever the behaviour occurs.

3. **Promoting maintenance**

   The extinction procedure must be in place in the event of spontaneous recovery.

Strategies to enhance communication

Communication is the exchange of thoughts, messages, or information through verbal or nonverbal means. Communication is a social event. Communication is not static. It does not follow a predetermined plan and it is often not organized, and shifts a lot. That is why many individuals with autism find communication so confusing.

It is only with people with autism that the development of comprehension does not precede production of language. Between 20 to 50 percent of individuals with autism remain nonverbal, i.e. they do not use speech. Even those who are verbal have difficulties in communication. They may learn the language system, but may not know how to use it.

For effective communication to take place there has to be a reason to communicate, something to communicate about, the means to communicate and the communicative environment.

Teaching language and communication skills to persons with autism needs to be concentrated on teaching the above mentioned aspects of communication.

Teaching communication

Behaviours necessary to be a communicator

There are a number of important elements children with autism need to have in order to be successful communicators:

Understanding cause and effect: It relates to the child understanding that his behaviour can have a clear outcome. It is important to surround the child with daily activities that will expose him to cause and effect events such as playing with pop-up/musical toys that are activated by the push of the button. While exposing the child to such activities the child can be exposed to any form of communication systems mentioned below to pair it with some form of communication exchange.

Desire to communicate: It is necessary for parents and teachers not to anticipate the needs of the child with autism. Daily routines and communicative exchanges should be planned where the child is required to interact with others. This can be done by 'engineering' many of these situations throughout the day e.g. the desired item should be clearly in the control of someone whom the child must then ask in order to obtain it (e.g. on a high shelf or locked away when the person has the key). Sometimes even though the adult may know what the child wants it is important to delay meeting the child's needs so that he is placed in situations that require him to interact with others to get his needs met.

Something to communicate about: If the child with autism does not have something to communicate about, he will remain non-communicative. Let the child determine what to communicate about. Follow the child's lead. If the child shows a real interest in a toy or running water, start with it. After communication has begun the teacher or parent can then work on extended vocabulary.

Communication Systems

In light of the unique needs of persons with autism, it is of utmost priority to teach an effective means of communication that can be used with a wide variety of people in different settings. Communication systems for individuals with autism should allow the individual to communicate wants, needs, thoughts and feelings across a variety of settings, persons and tasks. The ultimate goal is to enable the individual to be as independent as possible. The system should encourage and support self initiated, spontaneous communication.

The communication systems are not designed to replace spoken language rather they supplement, enhance and facilitate verbalisations in an effective manner.

Motivating activities, objects can serve as a starting point in teaching the child the functions of communication. Teaching communication may begin with requesting as it is the one which develops the first in the course of development and also as it is the most important.

Object exchange: An object exchange system is based on the child giving an object to another person to indicate that he wants something. That is the child exchanges objects to request, one of the functions of communication e.g. if the child wants milk, he gives his cup to someone to indicate this request.

Picture exchange: Picture exchange allows the child to spontaneously initiate a communicative interaction by actually exchanging or giving a visual representation system (miniature real objects, photos, drawings, logos or written words) to another person. In this system the child learns the cause and effect of communication. In addition the child also concretely understands that communication is an actual exchange of information between two people e.g. the child hands a picture of swing to an adult to indicate that he would like to swing.

Picture exchange can be used with non verbal children and also with verbal children who are not yet initiating requests, have echolalia, unclear speech and word retrieval difficulties.

Picture exchange program is composed of various levels or phases. As the child advances he learns to sequence words to create sentences. Also picture exchange starts with simple, concrete communicative exchanges and moves to more abstract communication. As the child advances his exchanges become more communicatively complex, developing higher level social communication functions such as commenting.

Phase 1: The Physical Exchange: Upon seeing a highly preferred item, the student will pick up the picture of the item, reach towards the communicative partner (the person sitting in front of the child with whom the child communicates) and release the picture into the partner's hand. Although two trainers are helpful (facilitator sitting behind the child who facilitates the exchange and the communicative partner), it is possible to do this phase with only one.

Phase 2: Expanding Spontaneity: The student will go to his communication board, pull the picture off and go to the communicative partner who is at a distance and release the picture in the partner's hand who immediately gives him the item.

Phase 3: Picture Discrimination: The student will request for the desired item by going to the communication board, selecting the appropriate picture from the array and giving the picture to the communicative partner.

Phase 4: Sentence Structure: The student requests present or non-present items using a multi word phrase by going to the book, picking up a picture of "I want", putting it on the sentence strip, removing the strip from the communication book, approaching the communicative partner and

giving the sentence strip to him. By the end of this phase the child has 20-50 pictures in his communication book and is communicating with a variety of partners.

Phase 5: Responding to what do you want: The student can spontaneously request a variety of items and can answer the question "what do you want?"

Phase 6: Responsive and Spontaneous Commenting: The student expands communicative functions to include commenting, expression of feelings, likes and dislikes e.g. I see aeroplane, I like music.

Signs: Use of signs can assist the children in understanding what communication means .During the initial stages of communication signs can be shaped by the parent/teacher and paired with the appropriate reinforce i.e. if the child likes bubbles he can be physically prompted to sign for bubble and the bubbles can then be blown. Pairing the sign with the object or action teaches the child this first important step to communication; it tells the child, 'If I make a sign then I will receive this object or action'. One advantage of using signs is that it is more portable than a communication board. They are more flexible and can be used anywhere at any time.

Steps in learning to use signs: Put favourable item and something that the child does not want (to be sure that the child wants the item). Let the child reach for the item. When the child reaches out use full physical prompt to help the child to sign and say the name 3-5 times (so that the child knows the name of the item he has signed for and that he is enjoying). Teach two signs at a time so that the child is learning discrimination from the beginning. Later the child could be taught to sign for other's action and attention.

Initially the signs are made in such a manner that they closely resemble the object or the action associated with them.

Signs can later be chained to form sentences like "I want bubbles".

Electronic/alternative keyboards: Some children with autism may exhibit effective reading and writing skills. They can use various electronic or alternative keyboards for communication.

Facilitated communication (FC): It is a system of communication where the facilitator supports a person's hand, wrist or arm while that person spells out words, phrases or sentences. Use of FC with people with autism is based on the notion that many of the communication difficulties faced are due to a movement disorder i.e. their brain is not able to tell them how to move in the intended way to produce speech, gestures. There have been highly publicised claims for its effectiveness. Alongside there has been significant criticism of the approach as some people feel that the facilitator may influence the person's communication as in some cases, once the facilitator is changed the communication fails to materialise.

Voice output communication aids (VOCA): Using VOCA children with autism can express themselves by pushing a button which plays a pre-recorded message on the communication device. A visual representation system which the child understands, should be positioned on the buttons of the VOCA. Many children with autism are motivated to communicate by use of these devices, particularly by the auditory feedback immediately given as their communicative message. Use of VOCA has proven effective in teaching children the cause/effect of language through activities which are stimulating to them.

While VOCA have many advantages, caution must be taken when using them initially to teach communicative functions. VOCA can be overly motivating and stimulating for some children as VOCA tends to be repetitive and stimulating high interest item rather than as communicative devices. The child may repeatedly push the buttons on the device for the self motivation from the auditory feedback rather than the cause/effect of the communicative message. Besides VOCA are quite expensive and not easily available.

Repair strategies when communication breakdown occurs

Due to their significant difficulties in successfully communicating, children with autism may experience frequent occurrences of communication breakdowns as both speakers and listeners.

Communication breakdowns as listener

Because children with autism have significant language comprehension difficulties, many communication breakdowns as listener may occur. These breakdowns are observed when the child does not respond or responds inappropriately to verbal information. Many children with autism are often mis-labelled noncompliant due to this reason.

A communication repair strategy that can be used is to present the misunderstood information visually. For example, if the child is asked to go to the playroom and the child does not, then show him the picture of the playroom.

Other strategies can include the following:

- Secure the child's attention prior to communicating by calling his name, or by physically prompting (for e.g. touching his shoulder)

- Use slow, clear and well-stressed speech

- Reduce the amount of auditory information given by using simple short sentences

- Break a long instruction into many short instructions e.g. if you want the child to pick his shoes and put them in the shelf, say- "Stand. Pick shoes. Put shoes on shelf."

- Give the child time to respond before repeating, due to the possibility of delayed auditory processing

- Avoid using abstract language. For example instead of saying "Keep it there", say "Keep it on the table"

- Instructions need to be given at the level of the child's understanding.

Communication breakdowns as speaker

Breakdowns in expressive communication may occur when the child is persistent and is repeating the same communicative attempt. If the child communicates an unclear message, the communicative partner can respond with, "I don't understand", or "Tell me again" accompanied by the appropriate gesture (shoulder shrug). The child can be encouraged to repeat the message, given minimal prompting if necessary. Also sometimes when breakdowns in expressive communication occur, you can use an alternative way to communicate the same message e.g. if the child takes you to the kitchen and says something that is not clear to you, you can show the child pictures of various items in the kitchen he likes and let him choose.

Some additional things that can be done to enhance communication

- Follow through instructions so that the child understands the meaning of words. Example, if you tell the child to get his shoes and he does not get them, physically prompt him to do so

- Speak from the child's perspective. Example, if the child takes you to the door so that you can take him out, say, "Want to go out," rather than "Do you want to go out?"

- Use proper nouns versus pronouns i.e. instead of saying "He has come," say "Bhaiya has come."

- Provide choices to respond to, e.g. "Do you want ice-cream or pepsi?"

- Create routines, then break them one at a time. Example, if the child enjoys cooking, then teach the child to make a sandwich many times and once he is familiar then forget to put the cheese so that he has to ask for it

- Speak socially appropriate language

- Speak age appropriate language

- Acknowledge spontaneous efforts at communication

- Initially avoid open ended questions e.g. "What did you do at school?" Instead provide choices.

Strategies to enhance social understanding, leisure, and play skills

A central feature of Autism Spectrum Conditions is a different social understanding and social functioning. It is usually difficult for the individual with ASC to develop and maintain meaningful and fulfilling personal relationships. The earlier perception of individuals with ASC was that they

were 'loners,' because they do not want to interact with people. But now is accepted that people with ASC **want** social interaction, but lack the necessary skills to interact effectively. So the child who pushes his peers away in the playground may actually be doing so because he wants to initiate social interaction. The anxiety of not knowing what to do in a social situation is what often leads the individual with ASC to avoid social situations, thus creating greater isolation.

When we begin to encourage social interaction in the very young child, we have to begin by first building connections with the child, by helping the child understand that interacting with others can be fun and non-threatening. We do not demand interaction, but rather let the child lead the interaction and respond with a great deal of enthusiasm and energy. We give the child things he likes – hugs, tickles, a favoured toy, etc, without expecting anything in return, teaching the child that proximity of people is fun.

We can try and create an interest in others by joining him in his solitary play. So when the child is playing on his own we play on our own in a manner similar to the child's – again making no demands - using a lot of energy and encourage any connection that is created. Playing games with anticipation like tickling games and 'peek a boo' games can also be tried here.

We can them move to slowly joining the child in parallel play so that a teacher / peer and the child are both playing with similar materials in the same physical space, but there is no sharing of materials. For example, both the child and the partner are fixing their individual jigsaw puzzles whilst sitting on the same 'dari'.

For the older or more socially adept child, sharing of materials with a partner in cooperative play for instance, both the child and the partner making individual structures with blocks, but both taking the blocks form a common box. Others can play simple turn taking games where the child needs to take turns with a partner or partners.

In all of this it would be helpful to have a very clear visual structure to the game, so that the child can understand the 'rules' of the game clearly, predict exactly when he is going to get his turn, when is it his turn to wait, how many turns he is going to get and when the game will get over. We can start with simple customized games (Fig P1) where each child has a set of dice. A child puts a dice in the central box and the partner has to place a matching dice in the box. The turns continue until all the dice are over. Here the children know what has to be done from the way the game is laid out; how much they will have to play i.e. whenever the dice are all in the central container; and when it is over i.e. whenever their trays are empty. This visual clarity helps the child with autism stay focused on the game and participate without frustration or confusion. Such customized games can then help the child move on to board games like 'tic tac toe', 'snakes and ladders', 'checkers' and 'ludo'.

Fig P1: Examples of simple adapted turn taking games

Alongside, we can also introduce basic pretend play, where we can have simple scripts that we can help the child to follow. It is essential to keep small variations in the 'script' daily so that the child does not 'memorise' the game. For example, we can have a game with dolls about going to the shop and buying things. So on one day, the doll can go to shop 'A' and buy tomatoes, on another day she can go to shop 'B' to buy Kurkure. If the same game is played each time without a variation, then the child with autism will tend to memorise the game and replicate it everytime without understanding the 'play' aspect of the game. We can include situations in the game that will help the child learn to understand other peoples' minds and other peoples' behaviours (Theory of Mind), which people with autism have difficulty with. So, in the shopping with dolls game we can pretend that the doll is buying its most favourite ice-cream, and we can ask the child how he thinks the doll feels. On another day, the doll could buy an ice cream, trip and knock against something making the ice cream drop to the floor, and we could ask the child how he thinks the doll feels.

We know that most children with autism do not learn by watching and imitating others the way most of us do. Hence they have to 'learn' a lot of things that other children pick up spontaneously. Sometimes we need to contrive social situations and social events to teach appropriate social skills to the child with autism such as using polite language (responding to greetings, greeting others on one's own), waiting, asking for help, going to a friend's house etc. Of all the skills that we might want to teach, it is a good idea to target one at a time. Break the skill into smaller components and keep the time that the child spends in the social situation short to begin with and then slowly increase the time. Uses of predictable structure, visuals will allow the child to be successful in his efforts.

So lets take a scenario where the child finishes his class work and then tends to roam around instead of waiting in his seat while the other children are still completing their work. We want the child to learn to wait quietly in place once he has finished his work. Telling the child "No" when he

is roaming does not help him understand what he is supposed to do. Instead we can tell the child what he has to do. So the child could have a favoured book or a toy and he could be taught that once he finishes his work he can look at his book or play with his toy. A brief schedule on his table saying: 'Work then toy' could also help. Likewise, a visual timer that tells him till what time he has to stay in his seat or in other words when the class will get over will also help the child learn to wait.

We can also teach the child appropriate behaviour on an outing whether to a shop or a park or a friend's house, by clearly telling the child exactly what is going to happen. Visiting a friend the child goes in, greets his friend and his mother, plays a simple turn taking game (one that is of high interest to both the children and has been mastered by the child with autism), eats a snack, says bye to his friend and leaves. It is good to keep such situations brief at first. The entire interaction could take just ten minutes. This way the probability of the child's success and our being able to praise that success is going to be extremely high. Once the child is successful consistently in this pattern, we can increase the expectations for the child, as well as the time spent on the outing.

Teaching social skills at appropriate social situations, instead of teaching it at a one-on-one work situation will make it easier for the child with autism understand the relevance of the skill and also help him be able to generalize it.

Leisure activities are very important for a child with autism. They can practice social skills, get enjoyment and satisfaction out of the activity and gain some self-confidence all while being part of the community. Whilst choosing a leisure activity for the child it is important to keep his interests in mind. If he likes listening to music, we can use that as a leisure activity, if he likes water, we could try swimming and so on. Many children with autism have interest in bus timetables, the railways, the makes of different cars or airplanes, or the armed forces. Leisure activities can be structured around these interests: creating scrapbooks and gathering information on these as well as building friendships with non-autistic youngsters with similar esoteric interests. We would teach leisure activities in the way we teach every other skill, with the use of clear visuals, appropriate prompts and… REINFORCE every effort made by the child.

Fig P2 and P3: Examples of simple leisure activities

Strategies for adapting the environment

We can use many strategies to adapt the environment and add cues in the environment to help a child with autism understand what is expected of him in different environments, at different times and also what behaviours are expected from him in those environments at those times. There are very good reasons for doing this. Since most children with autism are strong visual learners, which means that they process and respond to visual information better than verbal information, most of these strategies involve the use of providing information visually. Visual supports help create appropriate and meaningful environments that reduce stress, anxiety and frustration. This helps to address challenging behaviours in children with autism in a proactive manner.

We also know that children with autism are not driven by the desire for social approbation that drives most non-autistic people. Hence, despite intellectual ability they often require a great deal of adult supervision. They may have all the skills, but unless supervised they may not get their work done. Visual strategies greatly increase a child's independent functioning, that is, working without adult prompting or cueing, which will assist him throughout life.

Using visual strategies to teach children with autism

The use of visual strategies and structure is based upon an understanding of the unique features and characteristics associated with the nature of autism. It seeks to create accommodations and adaptations to the environment to help the child learn. It is a system for organizing the child's environment, developing appropriate activities and helping the child with autism understand what is expected of him. Structured teaching uses the strength of learners with autism, utilizing visual cues which help children with autism focus on the relevant information, thus circumventing the difficulty that children with autism face in distinguishing relevant information from the non-relevant.

Visual strategies can apply to the physical environment or 'physical structure', to the child's class timetable or 'schedule' as well as to the actual activities the child does or his 'work systems'.

Physical structure refers to the way in which we set up and organize the person's physical environment. It leads to a visually clear physical space which makes clear to the child about what is to be done and where and helps the child understand the exact boundaries of each area (where each area begins and ends). Physical Structure can also help to minimize visual and auditory distractions.

We can use physical structure in all the environments that the child uses including classrooms, snack areas, bedrooms, playground. library, etc.

Each area of the classroom (or environment) should have clear visual and physical boundaries. The environment should be clearly, visually defined through the strategic arrangement of furniture (e.g., bookcases, room dividers, cupboards, curtains, tables etc) and use of boundary

markers, rugs, 'daris', 'chatais' or coloured floor tape. This will help make the following clear to the child:

- What is to occur in each area?

- Where each area begins and ends?

- How to get to a specific area by the most direct route?

Many times we use the same area for conducting different activities. This can be very confusing to a child with autism. Using physical structure in situations like these helps the child understand and function in a calm manner. For example, we may be using the same area for music time, story time and snack time. When the child with autism is taken there, he is never sure what is to happen: Music? Story? Snack? Such confusion can often lead to challenging behaviours. This can be circumvented by simply structuring the place visually.

We could use physical structure in the following way.

At music time, the children's chairs could be arranged in a semi-circle with a tambourine placed on the table next to the teacher's chair.

At story time, the children can sit on the floor on a 'dari' with some books next to where the teacher would be sitting.

At snack time, tables could be placed in the area and the children sit around the table. The table could also have a plastic table cloth placed on it for further clarity.

We can also use additional visual cues or contextual cues; an object, photograph, picture associated with/denoting a specific activity for further clarity. In the above example the tambourine during music time, the books during story time and the table cloth during snack time are all visual cues and contextual cues.

Children with autism, like many non-autistic children as well, can get very distracted by things in the classroom. We can try to minimize distractions by covering shelves of classroom materials, toys or any other visually distracting equipment with sheets or curtains. This reduces distracting visual clutter often present in classrooms in the form of art projects on walls and unused classroom materials. The child with autism could also be seated away from visual distraction thus improving ability to function. If the classroom is in a noisy area, keeping windows shut will help reduce auditory distractions. Or providing the child with cotton wool for the ears (if the child will accept them!) may help too.

Visual schedules A visual schedule is a type of timetable that indicates visually what activities will occur, when and in what sequence. It can use objects, pictures, photographs, line drawings, written words or a combination related to the activity - depending on what the child is most

comfortable with. A spoon or a table-mat can be a visual cue for a meal, a small towel could be a visual cue for the toilet, a building block could be a visual cue for play time.

For a small child with autism the initial schedule or timetable could have just one or two activities since a time table for the entire day can be too overwhelming to handle. It could graduate to a schedule for part of the day and then for the entire day. This will of course depend on the level and needs of the child.

	TUESDAY
	Play Throw Ball
	Work with Teacher
	Puzzle Time
	Snack Time
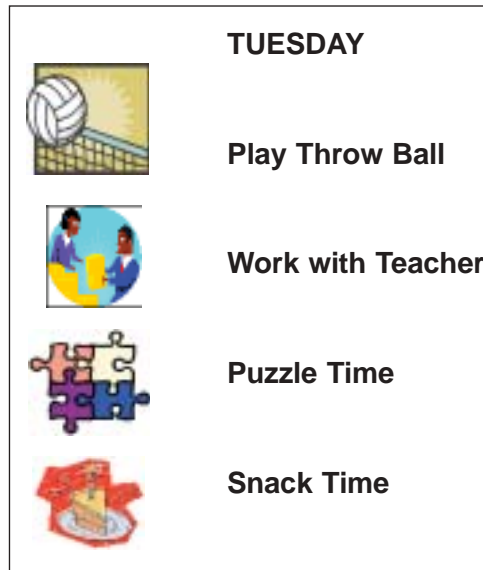
A visual schedule provides predictability; flexibility helping the child deal with changes; independence by telling the child how to move through the physical space purposefully, independently and calmly. This clarity will help increase a student's motivation to complete less desired activities.

Older students who can follow full-day timetables sometimes get overwhelmed when they have to refer to the entire week's timetable. Many benefit from having the day's timetable visually available on their table.

TUESDAY
English
Math
History
Recess
Art
Science

Work systems Students with autism benefit from a systematic and organized presentation of tasks and materials. This can help the child learn to work independently without adult directions or prompts. Such work systems can be used as much for academic work as for recreation and leisure and activities of daily living skills and so on.

Work systems provide the child with information on:

What is the work to be done? What is the nature of the task? For example sorting by colors, completing a math exercise, writing an essay, making a sandwich, or doing a worksheet.

How much work? If the child is to complete only two worksheets, then don't give him five. Even if you instruct him to do only two of those five, it can lead to anxiety - in not being able to understand exactly how much work to complete - and affect performance.

When am I finished? The student needs to independently recognize when he is finished with a task / activity. The task itself may define this. For example in the earlier example, when the two worksheets are done, his task is finished, because there are no more sheets left. If the 'finish' will be denoted by time, for instance a child has to finish when the period is over, then the use of timers or visual cues to indicate when to stop on a particular worksheet, can be used.

What comes next? Ideally highly desired activities, such as preferred breaks or free choice are highly motivating toward task completion. In some cases, being 'all done' with the task can motivate a child enough to complete it.

Visual structure applies to the way work is presented to the child. The presentation has to be clear enough for the child to see and understand what he is supposed to do and be able to complete the task independently. Clear structure answers the questions of what work? How much work? How to do it? When will it end? What will happen next?

Whilst providing visual structure in activities, it is a good idea to have materials segregated in different containers, a clear component of 'start' and 'finish' in each activity, worksheets with very clear instructions with the instructions highlighted if required.
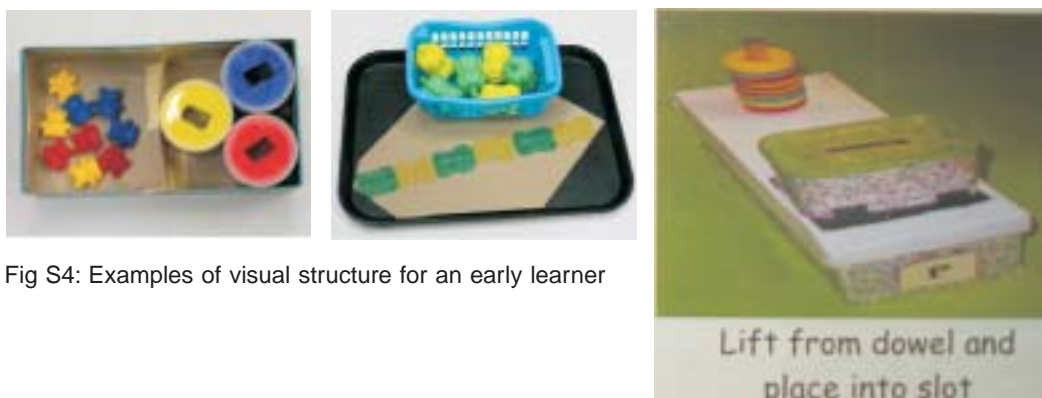

Fig S4: Examples of visual structure for an early learner

Lift from dowel and place into slot

Additional visual supports

Along with the various strategies discussed, there are additional visual supports that can be used to help aid communication and independent functioning.

Visual supports that give information

i. Calendars: We can provide the child with a personalized calendar to give him/her predictability for both preferred as well as non-preferred activities. The information will help reduce the child's anxiety levels and help prepare the child for a non- preferred activity like Sports Day, getting a hair cut, or visiting the dentist; and also make it easier for him to wait without getting overanxious whilst he looks forward to a preferred activity like a birthday party or a movie.

ii. Menus/Choice boards: The child can touch or point to what he wants from a menu or the choice board

iii. Visual Timers: These can be very useful to help the child understand when a particular activity is going to end helping him to be prepared for the transition.

iv. Simple clocks can also serve as visual timers. An ordinary clock in the classroom with clear numbering can be used. If a child has to wait for 15 minutes to go home and it is 5 o'clock now, then a sticker or a bindi can be placed at the letter '3' on the clock. The child can be told that when the big hand goes to the '3' (pointing at the bindi) then he can go home.

Fig S5

Fig S6: Menu for Snack time

Fig S7: Choice board for playtime

Fig S8: Visual Timer

Visual Supports to give instructions

We can use gestures, pointing, pictures and written words to augment the spoken instruction.

These are useful in the case of most instructions, especially in the case of complex instructions such as three- or four-step instructions, where movement and interaction with different people are required and during meltdowns when visual instructions seem to help versus verbal instructions which at times may even escalate the behavior.

An example of the former would be telling the child: go to the library, get the Hindi to English dictionary and give it to Mrs. Kundu in the office. There is every possibility of the child being interrupted midway by a teacher asking a question, "Have you seen Mr Prakash?" or running into another child who asks: "Are you coming for the football match?"

Giving the child a card that says:

Hindi to English Dictionary

*Mrs Kundu*will ensure that the student follows through on the instructions without getting confused despite interruptions.

An example of the second would be if a child is stressed about something and is being noisy or hitting his desk. Telling him to stop and behave himself or even asking "Why are you behaving like this?" might only get him to be more agitated. Instead gesturing 'quiet' with a finger on the lips, or placing a card saying can be far more effective.

Hands Quiet	**Silent**

Early learners with autism often have significant difficulties with understanding the concept of standing in a queue. This difficulty can be addressed by using visuals which can then be withdrawn once the child internalizes the concept.
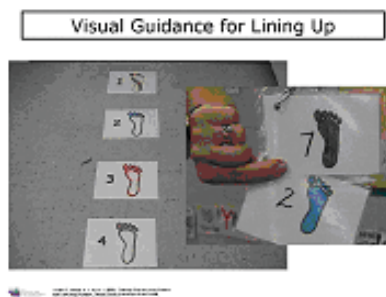

Fig S9

As illustrated in the figure, the teacher hands the child a card with a particular number. The child stands on the corresponding number placed on the floor, taking away any ambiguity of where he is to stand when he is lining up for an activity.

| Eat Dinner | Pour Juice | Drink Juice |

Fig S10: Using visuals to give a mutiple-step instruction

Visual Strategies to teach expected / appropriate behaviours

Social Stories A social story is a short story that describes a situation, concept, or social skill using a visual format that is meaningful for people with ASD. It provides information on what a person does, feels, thinks, acts, in the given situation; explains the behaviors that are part of any social interaction / situation; explains the reasons for the required behaviour and clearly states the expected response in the given situation using positive and non judgmental language. A 'social situation' can be any of the following: travelling with others in a public bus; keeping oneself clean; staying in one's seat in class, walking in a queue, waiting; brushing teeth, keeping control when upset.

A social story can be used to help change an inappropriate social behavior like speaking out of turn n class; to overcome a rigidity; to teach a new routine or change existing routines; to introduce a change in the environment amongst others.

The most important aspect of the social story is the language used. It is positive, supportive, and non-critical. It does judge and does not put pressure with expectations. The social story ensures there is no failure, since failure is de-motivating. It is not about telling the student: this is bad and you should not do it. In the event the child is not able to comply, it then sets the child up for failure. Instead a social story is about giving the child the possibility of trying for the wanted behaviour. Since it is about trying, there is no question of failing.

A social story has a few sentences and most of these describe the scenario where the behaviour occurs, the people present, what they do and so on. So if the social story is for a student who tends to eat other's snack, the descriptive sentences could go thus:

We have our snack at 11o'clock
We eat in the recess area
People bring different things
We eat the snack out of our own snack box

The social story also has sentences that gives the reactions and feelings of others in the given situation and could go thus.

Most people like it when we eat the snack out of our own snack box

The social story has just a few sentences that describe the desired behaviour. These should be no more than one-fourth of the total number of sentences. In addition the desired behaviour will not be expressed as a 'must' or a 'should'. Rather the language to use would be 'I can try to….'or 'I will try....'or 'I will work on….' etc.

At snack time, I will try to eat the snack out of my own snack box.

Giving the student some control over a situation always helps with compliance. Hence social stories also have control sentences which are written after discussion with the student. So a control sentence could read thus:

*When I eat my snack from my own snack box, I can jump on the trampoline (*or *the teacher gives me a star).*

The social story can be illustrated with sketches or pictures.

When introducing a story for the first time, begin with a quiet place with minimal distractions. It is important to remember that this is a time for sharing information and not table-top teaching. We can read the story two to three times a day, over many days depending on the child's success with the desired behavior.

Example of a social story for a hair cut

<div align="center">

Getting my hair cut

I get my hair cut when it is very long.

I go to a barber shop to get a hair cut.

In the barber shop I sit on a high chair.

The barber puts a cloth around me.

The barber cuts my hair with scissors.

The scissors make a snip snip noise. That is okay.

I can listen to my walkman when the barber cuts my hair.

I can try to sit still when the barber cuts my hair.

It is okay to have my hair cut.

After my hair cut I look like Shahrukh Khan.

</div>

Communicating "No"

Saying a verbal "No" can often be counter-productive – not just with children with autism but with most people! We can instead be far more effective and use visuals to say 'No' to the child with autism and also add a visual of the desired response.

No Running   Sit

Fig S11

Where can we access the required visuals?

Visuals can be simple hand-drawn pictures or actual photographs. Pictures can also be obtained from magazines and newspapers, logos from containers, or accessed quite easily from the internet - Google Images, ClipArt, as well as software programs.

Prevocational training

Children with autism too eventually need to make a living just like other children. Pre-vocational and vocational training help the youngster with autism develop such a skill. Training that leads to employment offers the youngster a sense of self-esteem, confidence, dignity and a sense of accomplishment. More importantly, the opportunity to be a productive worker and to contribute to the community promotes independence and enhances a positive self-awareness and self-identity.

Adolescence is the prime time to start training in pre-vocation ideally around age 14, even though it might seem that adulthood is far away. What kind of vocational training children should go for will depend on the functional level of the child, their strengths and their interests. Most kids with autism enjoy repetitive work they do well in jobs that require assembling as well as in the information technology industry and in the manufacturing industry. Several vocations should still be explored to find the right fit.

Pre-vocational training will include working on independent life skills, vocational job training, and self-care. No matter how functionally affected a youngster with autism is, with the right training there are things that they can all do. While starting prevocational training early is the key to success, prevocational preparation begins early in life.

Elementary school years: Preparation for prevocational training starts in elementary school. Children with autism are strong at visual tasks hence they are quick to learn tasks that use this skill. Skills that are useful in developing career awareness and feeling of job satisfaction include: matching, sorting, correcting sorting errors, matching to jigs (instructions using pictures, drawings, words, or a combination), simple alphabetising, collecting papers, cleaning tables, serving snacks,

getting own snack, delivering messages, packaging and assembly and making simple purchases.

Intermediate school years: In the intermediate school years work habits such as attention to task, rule compliance, sustained work on already mastered tasks are important. Systematic typing, office work such as collating and sophisticated alphabetising, measurement, survival signs, money calculations, use of vending machines can be taught. These can be taught in both classrooms and community based settings.

High school years: Skills to learn include self preservation and safety skills, work without supervision and independent movement. The students should receive a combination of classroom instruction and training at varied worksites.

It is important that social communication, social performance and interpersonal behaviours are addressed at all stages. Focus areas include:

■ Initiate and respond to interactions with familiar and unfamiliar people

■ Understand prohibitions

■ Understand and follow unwritten rules

■ Participate in positive social experiences

■ Maintain an acceptable level of hygiene and grooming

■ Recognising and managing anxiety and other responses to overstimulation.

Learning adaptive living skills (ADLS)

Teaching children with autism is a vital component of their being able to lead independent and dignified lives as adults. Sometimes difficulties in learning self-care routines may have to do with remembering the different steps, remembering the order of the steps, remembering which routines to do when, or having difficulties with motor planning required to follow through. Sometimes, it has to do with sensory issues, such as having an overly sensitive scalp, making it difficult for them to learn to shampoo their hair or a highly sensitive sense of smell or touch which makes it hard for the child to use the soap he has available.

Given below are some basic strategies that may be helpful to teach self-help skills in general:

■ **Carry out a functional analysis.** The first step would be to take notes and data on the way the child is performing in the targeted self-care routine/ routines over a few days and if he is facing any difficulties, analyse where and why he may be having in the same. Is he 'forgetting' a step because he needs to be reminded in some way, or is he having difficulty in one area

because of sensory issues? Are the necessary 'tools' needed for self care making the process more difficult?

- **Write up a task analysis.** Perform the task a few times yourself, analyse and note each and every step necessary to perform the task. Have the child do it and see if it's the way you have planned the task is the best way for him to do it. Once you have written the steps, watch the child and note for each step if he does independently or with prompts and what kind of prompts he needs. This is the baseline. You will see a pattern emerge of what steps you will need to focus on teaching him.

- **Use backward chaining.** If you need to teach all the steps of a self-care routine, start with the last step and when that is mastered add the second last step, till it is learned and so on. The advantage of teaching the last step first is after the child performs the step, the activity is over and he can see and sense that he has done something 'independently'

- **Desensitise and/or trouble-shoot sensory issues**. If a child's scalp is too sensitive and this is why he refuses to wash his hair, find ways of washing his hair that lessens the discomfort (i.e. use a soapy washcloth, have him pour water gently over head, instead of using shower head to rinse), or try to desensitize scalp by applying deep pressure on the scalp before showering and washing hair. If the smell or feel of the soap or shampoo is a concern, then go shopping for new products (with the child if possible) and find satisfactory products.

- **Make a 'to do list'. Ma**ke a 'to do list', at the child's level to help facilitate the child remember the steps involved in the self-care routine and place the 'to do list' the self-care schedule in the area where the targeted self care routine will take place. For example, the to do list for washing hands, bathing, brushing teeth can be put in the bathroom, a to do list for packing his lunch box can be in the kitchen. The 'to do list' will help the child remember to carry out each step without missing any.

- **Use Visuals.** Being visual learners, visual supports with picture icons are great to use for teaching the child the self-care skills in addition to using the 'to do list'. Labeling areas like kitchen, toilet, bathroom, may help the child to be able to reach the relevant area of the self-care skill more easily.

- **Teach 'motor memory.'** Some people on the spectrum have difficulties with the motor movements required for the particular routine. However, by hand-over-hand prompts, physically moving and motoring the child through the physical parts of the self-care task one step at a time, it can create a 'motor memory' for that skill.

- **Work on imitation skills.** If the child can imitate actions well teaching him the steps of a self-care routine through imitation is useful. This is particularly appropriate whilst teaching self care routines to adolescents and adults with autism.

- **Use Prompts:** Use appropriate prompts to teach each step and gradually fade the prompt, once the child begins to gain independence. Otherwise the child gets 'prompt dependent'

- **REINFORCE.** It is essential that we remember to reinforce each and every effort made by the child

'To do list' for after bath hygiene

Wipe body with towel
Use deodorant
Wear clothes

To do list for brushing teeth

Wet brush
Put paste on brush
Brush front of upper teeth
Brush front of lower teeth
Brush inside upper teeth
Brush inside lower teeth
Wash brush
Fill glass with water
Gargle and spit three times
Wipe mouth

■■

Assessment, Evaluation and Curricular Adaptations

Carrying out Functional Assessments

Autism is a condition where the scatter of skills in each individual can at times be confusing. Unlike the non-autistic child, basing educational planning on perceived ability or disability of a child with autism can be quite misleading. A child who does not speak and appears highly impacted might be excellent at math. On the other hand a child who speaks in clear sentences may need a great deal of support in writing in paragraphs. Educational planning for a child with autism must be based on a function-based assessment. Information is gathered and the finding evaluated and interpreted and the unique strengths of the child identified. Functional assessment focuses on real life situations, identifies skills needed to interact with the environment meaningfully and leads to a function based intervention rather than one based on perceptions of intellectual ability. A good functional assessment will:

- Provide an objective description of child's ability

- Establish a current level of performance

- Aid in planning appropriate intervention

- Evaluate the progress

While carrying out functional assessment for a child with autism the assessor must keep in mind the variation in the learning styles, uneven skill development and atypical behaviours that mark autism. Therefore the functional assessment needs to have not only the areas of development skills and functional skills but also the areas that address the learning and thinking differences. The functional assessment must emphasise on:

- Interests and dislikes

- Sensory issues

- Attention span

- Reactions to changes and new experiences

- Specific patterns of learning styles

- Challenging behaviours

■   Generalisation of skills

The functional assessment can be carried out by systematic observation and interviewing the child's parents and teachers.

Important aspects of functional assessments

One needs to keep in mind that functional assessment is not a single time event but an ongoing process. It is necessary to consider the settings / environment as the child's behavior may vary from day to day as the familiarity with testing environment / material may increase and the comfort level with the examiner may increase overtime.

Functional Assessment Format

Imitation

Simple one step motor movement imitations. Example clap, raise arms

Imitation of activities done by another person

■   Building / fitting two or more blocks in imitation

■   Stacking / lining objects in imitation

■   General pretend play activities where the child imitates adults, actions seen on the television, school, playground etc.

More complex imitations

■   Two or more actions done in a sequence. Example-arms out- arms up.

■   Two actions done simultaneously. Example- jump with arms out.

■   Imitation of verbal sounds.

■   Imitation in drawing and writing.

Motor Skills

1.   Gross motor skills

■   Holding objects with a palmer grip.

■   Shifting objects from one hand to another.

■   Reaching out for objects from a distance of...........inches.

■   Handling equipment like a door handle, bottle to pour water, lifting weights, pulling and pushing.

■   Walking in an appropriate manner. If not, explain the kind of gait.

■   Running - body balance, speed and uniformity in the way of running.

- Climbing stairs- with alternating feet or placing both feet on the same step one by one before climbing on to the next step.

- Walking on an elevated path. Mention the height of the path and the body balance.

- Catching a ball.

- Throwing a ball - at a distance of .... ft

- Kicking and rolling a ball.

- Jumping and hopping.

- Bending and crawling- can or cannot pass body through obstacles like going under a table or getting into a tub or a box.

- Sitting- sits with torso up in an upright position, bends body forward or prefers to lie versus sitting.

- Mention of games and the sports that the child / person can play. Example - cricket, badminton, tennis, swimming, roller-skating, climbing gyms, swings, slides, sea-saw etc.

2. Fine Motor Skills and Eye Hand Coordination

- Holds objects with a pincer grip. If not explain how he / she holds them.

- Suggested activities to assess fine motor skills.

- Picking up objects of different sizes and thickness. Example -beads, dry lentils, dals, matchsticks, bits of paper, strings, etc.

- Screwing and unscrewing bottle caps.

- Assembling and dissembling nuts and bolts.

- Pulling out pegs of different sizes from a peg board.

- Using a pencil, wax crayon, sketch pen, bold marker etc.

- Using a scissors to snip/ cut.

- Folding paper.

- Flipping pages of a book.

- Beading.

- Fixing single pieces on a form board.

- Fixing pieces of jigsaw puzzles (specify how many pieces).

- Coloring within a designated area.

- Put in activities at the level of the child / person. Examples putting in objects in containers having wide/ narrow mouth.

- Putting objects having different shapes through corresponding slots.

Cognitive Performance

Maths

- Numbers by rote- if yes unto how many?

- Recognition of numerals.

- Counting of numbers -unto how many?

- Order of numbers -what comes next/after /before/ in between?

- Putting in missing numerals.

- Number concept- counting out specific number of objects and stopping.

- Matching a numeral to corresponding number of objects and pictures.

In all the above-mentioned exercises mention up to how many numbers the child can do each exercise.

- Additions-subtractions

- With single digits

- With one single and two three.............digit

- With two /three digit numbers

- Additions with / without carrying over

- Subtractions with / without borrowing

- Statement sums

It is important to mention whether generalizations have been established

- Similarly assess with multiplication and division

- Shapes the child recognizes

- Money concepts- recognition of coins, currency notes

- Exchanging money in shopping activities

- Combination of coins and notes

- Shopping involving getting back change

- Problem sums related to money concepts

- Time concept- reading the clock

- Full hour / half past, quarter past

- Reading the hour and the minute hand

- Abstract concept of time interval

- For more able individuals- the British and the Indian system of reading time

- Problem sums related to time concept.

Mention whether generalizations have been established

If the individual has acquired higher concepts in numbers, geometry, algebra mention roughly around the syllabus of what class as in a regular school.

General

Matches

- Identical objects

- Identical pictures

- Objects to pictures

- Pictures to objects

- Colors, shapes, letters, numbers

- Objects by association

- Items from the same category

- Identical words

- Upper to lower case

- Non identical objects.

Identifies

- Colors by color name

- Big / small

- Full / empty

- More / less

- Same / different

- Long / short

- Fat / thin

- Body parts on self, others and pictures

- Familiar and common animals, fruits, vegetables

- Objects

- Objects by function

- Objects by features

- Pictures

- Familiar people

- Environmental sounds.

Completes

- Simple activities with, or without minimum help or does them independently

- Worksheets related to the skills acquired

- Writes and draws

- Copies numbers, letters, words, sentences

- Draws pictures.

For more able individuals mention other academic skills achieved in various subjects and to what level generalization has been achieved.

Behavioral Description

Communication

- Does the child express needs if so how?

- Holds an adult's hand and guides it to a desired object or activity

- Reaches towards or looks towards the desired object

- Gives communicative looks to an adult (joint attention)

- Cries to express need

- Points to express need

- Labels objects

- Labels pictures

- Verbally requests desired items.

Expressive language

- Single words-always or sometimes meaningful

- Short 2-3 word phrases

- Sentences

- Echolalia

- Meaningless utterances

- Repetitive use of language

- Syntax of language

- Asks questions to get information

- Makes a spontaneous comment

- Sustains a conversation

- Answers to what, where, who, why, when and if questions

- Can answer, "I don't know"

- Can explain things. (Mention how the person does it)

- Carries messages.

Receptive language

- Follows one step instructions-gives, touches, takes, puts in, points on request

- Follows two steps (or more) related / unrelated instructions

- Identifies people, objects, pictures, places by name/ feature / function / class

- Identifies gender, community helpers

- Places sequence cards in an order as per directions of another person.

Social Interaction

Eye Contact

- Finds it difficult to make an eye contact

- Makes an eye contact

- Sustains the eye contact for...........

- Has very good eye contact

Peer Interaction

- Prefers to be alone

- Prefers to be with older children

- Prefers to be with younger ones

- Can imitate peer group

- Follows games played by the peer group

- General behavior when with other children at home, school, park etc.

General

- Can wait for.............

- Takes turn in a group of............

- Reciprocates greetings spontaneously/on being prompted

- Initiates interaction (how)

- Asks for help

- Pretends

- Understands emotions- happy, sad, afraid, angry............

- Response to pain, denial, separation.

Challenging Behaviors

- Does the child have any behavior that results in

- Difficulty in his learning

- Unsafe situation for him or the others

- Disrupting the peace of mind of the family or others in the immediate environment.

- What does the child do?

- How many times in a day or in how many days does it occur?

- Are there any triggers?

- How long has the behavior been there?

- Any intervention procedures tried so far?

- What has been the outcome of the procedure?

Unusual Mannerisms

Does the child show any behaviors like

- Hand flapping

- Rocking

- Swaying body sideways

- Twisting or playing with own fingers

- Pacing in a room for extended periods of time

- Walking or running in circles

- Placing hands over or fingers in the ears

- Playing with saliva

- Any other action or activity that is intense in terms of the interest of the child.

Attention and use of sensory modalities

- Attention in a group situation

- Attention during individual session

- Distractibility

Self-help skills

Eating

- What all does the child eat?

- Eats by self or has to be fed?

- Prefers to eat by hand or spoon?

- Can hold /scoop with and guide the spoon to the mouth?

- Can tear a roti?

- Can dip the roti in the subzi?

- Can chew?

- Can hold a glass?

- Can take a helping from the serving bowl?

- Can drink water without spilling?

- Other behaviors.

- Sits in a place and eats?

- Eats a variety of foods?

- Eats neatly?

- How much does he eat? Like other peers, overeats, eats less.

Toilet habits

- Can indicate urge for toileting?

- Can find or ask for the toilet?

- Can dress and undress for toilet needs?

- Can sit comfortably on the pot or squat in an Indian Style toilet?

- Can wash bottom independently?

- Can pour water or flush to clean the pot?

- Can return to previous activity after the job is done?

Any Sensory Issues Involved?

Toilet training

- Can find or ask for the toilet?

- Can dress and undress self for toilet needs?

- Can sit comfortably on the pot or squat on the Indian Style pot?

- Can wash bottom independently?

- Can pour water or flush to clean the pot?

- Can return to the previous activity after the job is done?

- Any sensory issues involved?

Dressing

Can wear clothes independently?

- Can button shirt

- Can pull up zips

- Can wear socks/shoes

- Ties laces etc./opens laces.

If **not** independent

- Holds out arms/legs while being dressed

- Tries to take off shoes

- Pulls up shorts with a physical prompt

- Pulls up shorts with verbal prompt

- Pulls up shorts independently

- Needs help/independent in pulling down pants/shorts/panties

- Can put on shoes without laces

- Can put in feet inside but needs help to fit

- Knows front/back of clothes

- Any sensory issues involved.

Individualised Education Programme

An Individualised Education Programme (IEP) is a document written by a professional to provide the student with the appropriate intervention. The main purpose of a systematic programme and its implementation is to provide "appropriate" education and training to every student. The IEP has to be tailored specifically to the child's special needs. An IEP has to be developed based on the most current information establishing the student's present performance levels and should be generally guided by educational standards. With this information, a well developed plan with measurable and justifiable goals and objectives can be devised. Students with disabilities have to be prepared for further education, employment and independent living. An IEP cannot be stagnant; it must be regularly maintained and updated over the student's educational years. **As a skill is acquired - new objectives are to be added and as skills become easier the level of difficulty is increased.**

Therefore an IEP

- Is based on the results of assessment

- Is a base for the child's program

- Reflects the child's individual and unique needs

An IEP defines specific goals, identifies services needed to help the child meet the goals and is a method of evaluating the student's program.

An IEP has to be customised to the individual as every child with autism is unique. The IEP should be flexible to respond to the changing needs and skills of the child and should contain achievable,

practical goals and should heighten the probability of learning. It is imperative that an IEP is functional i.e. it must have skills for effective and independent coping within the environment. An IEP for a child with autism must emphasise on:

- Generality: It should be generalized across settings, materials and people

- Measurability: Skills should be measurable

- Ease of Integration: Easily integrated with the daily routine taking advantage of naturally occurring antecedents and logical consequences

Instructional Planning

a) Assessment of current level of functioning: It is the performance of a student with reference to the task to be taught. It is essential that the skills acquired by the student in all areas of development (e.g. motor, self-help, social and communication skills) must be noted.

b) Selecting goals:

Annual goals: It represents the achievements anticipated for a child in an academic year and depends on child's past achievements, present level of performance and priority needs of the child. The goals selected should be practical and achievable. On the basis of the annual goals selected, short-term objectives are highlighted.

Short-term objectives: It involves the breaking down of annual goals into smaller units so that specific strategies can be worked out to meet the objectives in a given period of time.

Therefore each short-term objective should have the following:

i. A specific statement of the activity to be taught

ii. Specific objective: The statement that specifies what the student learns and under what conditions. It must be stated in behavioral terms.

iii. Learning Aids: These include the materials that make learning more meaningful and facilitates learning of a task

iv. Task Analysis: It involves the breaking of the skill into smaller parts (Sequencing and isolating a skill). It helps the goal be attainable and in setting realistic and manageable goals.

v. Procedure: It includes details of how the task will be taught. It has strategies to make learning effective.

It is essential to remember that an IEP is incomplete till it is completely discussed with the parents. An IEP should accept the child at his level and frame objectives accordingly.

While conducting activities for a child with autism it is imperative that

- To individualize instructions. It needs to be noted that individual programs can be implemented successfully within a group instruction

- The child is more important than the activity

- Give a clear beginning and ending

- Focus on clarity of instructions

- Give time for the child to respond, provide **Appropriate Assistance**

- Structure the activity so that the child is successful

- Demonstrate the finished product

- Incorporate music into activities

- Deal with behaviors in a consistent manner

- Select materials and activities that are age appropriate

- Supplement vocal communication with gestures

- Explain what you are doing as you are doing it

- Demonstrate flexibility.

Specific Educational Needs

When selecting teaching strategies, we are all aware that 'one size fits all' does not apply. It is important to acknowledge the individuality of each child. But there is another aspect beyond this that must be kept in mind when teaching children with autism.

Autism is a population that takes a uniquely different developmental path. While each child has his own specific style, a large number of children with autism have certain unique commonalities. These, in addition to their uneven patterns of strengths and weaknesses, are some unique learning characteristics that must be considered for their educational implications.

Visual learners: For many children with autism auditory input can be a challenging modality while information absorbed through sight may be much more easily mastered. Visual supports include a wide variety of cues that can enable any person to perform skills with greater independence. Visual supports can aid in the development and understanding of language, help to increase attention, memory and sequential skills. They help in increasing motivation and understanding social rules.

They help in increasing flexibility and independence and also provide predictability to a child with autism.

Over selectivity/under selectivity: A child with autism may attend on a limited attribute of an object. Yet others may accept any object with a specific attribute as the original. Therefore it is essential to provide a child with autism many examples of the same and explain a concept in a variety of contexts. Some children may also have sensory issues. Therefore it is beneficial to teach through sensory stimuli relevant to the child rather than material generally used in the classroom.

Generalisation: The ability to apply a skill in different situations is known as generalisation. Opportunities to generalise a skill learnt across situations, time and people must be given.

Concrete to abstract: Due to difficulties with imagination children with autism may find understanding of abstract concepts difficult. Because they focus concretely they often have difficulty with remembering the precise order of tasks. Here again visuals help. In addition, while teaching always starts with concrete objects and then moves to abstract concepts. Learning needs to be experiential and related to real life situations.

Rote learners: Children with autism have excellent rote memory and they may use this to compensate for their difficulties in comprehension. It is therefore imperative to work on language skills.

Literal understanding: As children with autism are literal interpreters it is essential to be clear and concrete in communication. It is best to avoid irony, sarcasm and metaphors.

Children with autism may have difficulty with shared attention tasks which involves understanding what another person may be thinking. This is a skill which is vital in any teaching situation and highlights one of the main areas of learning difficulty in people with autism.

In addition, many children will need a system of communication (Assistive and Augmentative Communication).

Also if a child has any challenging behaviour, a complete functional assessment of behaviours would be required to implement a successful behaviour modification plan.

As many children may have difficulties in waiting and during transitions, they would benefit with clearly defined rules and being assigned specific jobs to be carried out during recess. Preparation for changes in routine will help in easy adaptability.

Curriculum Adaptation

Curriculum Adaptation means to facilitate learning in every possible manner to maximise learning or provide options in such a way, where all children can learn.

For effective curriculum planning it is essential that the teacher has a broad understanding of each child. The teacher needs to take into account each student's personal characteristics and potentialities while adapting the curriculum.

Regular curriculum should be adapted depending on the child's needs by modifying, replacing, omitting and compensating in the areas of content, teaching methods, teaching and learning materials and evaluation to develop the child to his fullest potential.

For a child with autism an effective curriculum will aim to enhance competency. It needs to be remembered that in autism teaching areas may change overtime. Also children with autism may not learn spontaneously. Therefore the focus on subject is not very important rather the focus on the skill is important. A good curriculum should have activities that are age appropriate, reflects the interests of child and family and prepares the child for competence in relevant environments.

Elements that Support the Curriculum for Individuals with ASD

Children with autism are strong visual learners. They will greatly benefit with the use of visual supports. Structured activities and environment will help them focus on task and help in task completion. It would provide predictability and independence.

As children with autism are concrete thinkers it is imperative that they taught experientially i.e. they are allowed to handle material and equipments. Exposure to real objects and situations will assist learning. Breaking the tasks into small, clarity of instruction, repetitions and multisensory learning experiences will increase the learning rate. It is essential to relate the learning to the world around them. They should be allowed to engage with concepts to deepen their understanding and also be provided with variety and challenge to make learning engaging and interesting.

For keeping motivation high it is essential to keep their interests and preferences in mind. Linking classwork to student's interest is a useful strategy. As some children with autism may have difficulties with generalisation it is necessary to expose the child to all possible situations in which a skill can be used while teaching a skill.

Also children would benefit if given flexibility in choosing subjects. It is essential to do language exercises to help them to infer meanings. Specific project work can help set achievable goals, develop language in context, have something the children can find out about and point out language issues that may come up later.

Curricular Domains

Keeping in mind that the focus for a student with autism needs to be on building a repertoire of skills needed to function productively in society, curricular goals should additionally include:

1. **Critical goals:** This includes high priority skills and provide the basis for selecting the other goals. These goals have implications throughout the lifespan of children with autism e.g. communication.

2. **Life skills:** This is the another important domain and includes

    (a) Social Skills: As difficulty in forming relationships are central to autism, effort has to be devoted to design specific strategies for improving social functioning.

(b)   Self-preservation skills and safety skills: It is imperative to work on the student's ability to recognise and respond to dangerous and life threatening situations.

(c)   Daily life skills: Programming in daily life skills is important to teach independence.

3.   **Vocational skills:** This should begin early as in later years it is a source of pride, self-satisfaction, personal fulfillment and income.

4.   **Functional academics:** This is especially important for more severely affected children. They involve skills needed for everyday living. Academics are functional when they involve skills as knowing coin values, using a calculator to add up purchases, telling time.

Continuous and Comprehensive Evaluation

The rate of student's achievement in a particular task against a set criterion after teaching is noted under evaluation.

Formative and Summative Evaluation

Formative evaluation is where the students are given tests at small intervals to monitor their progress. This gives the student a feedback on their learning and also provides the teachers feedback on their teaching efficiency. There are individual differences in learning and it is through formative assessments that a teacher comes to know about the pace and quality of learning of a student.

Summative assessments are done at the end of a course of instruction. It assesses the overall performance of the learners. It provides a general assessment of the outcomes of learning.

Each school needs to develop a flexible and implementable Continuous and Comprehensive Evaluation (CCE) system for the enhancement of learning which needs to take into account the social environment and the facilities available in the school.

It is important to identify the unique strengths of the students. These need to be graded on a relative scale (grades) rather than absolute scale (percentages). The evaluation system needs to be more open, flexible, creative and student-friendly. As learners learn differently they need to be evaluated differently.

Varied Modes of Evaluation for Children with Autism

- Oral testing

- Objective type tests including fill ins, multiple type questions

- Project work evaluation

- Group work evaluation

- Evaluation of SUPW/ cocurricular work

- Short tests, where the best two of three are added to the total

- Exams without time limits

- Grades for attendance, punctuality, grooming etc.

These help to which shift the focus of exams from testing of memory to testing higher level competencies such as interpretation and problem solving.

While evaluating the progress of the child there should be no bias on the part of the teacher, the analysis of the response should be qualitative and the evaluation must be continuous and lead to further programming of the child.

Inclusive Classroom

Inclusion is about every individual being able to fully participate in society. An inclusive society is one that facilitates the inclusion of the most marginalised. Inclusion is giving all individuals the opportunity to join in with what they want to and having the choice to live where they feel comfortable and not having to do what someone else thinks they ought to. It includes efforts to facilitate a barrier-free environment - informational, attitudinal and physical – to create opportunities for all people.

To be effectively included in modern-day society it is important that an individual is educated.

Inclusive education is transforming schools and centers of learning, such that all marginalised groups: racial, religious, ethnic, linguistic, immigrant, the poor, gender, the disabled and all others are actively included in the learning process. Inclusion is not about merely putting all children into one school regardless of whether any learning takes place or not.

Inclusive education is a team work and a responsibility that is shared by the whole school. It is not the integration of disabled children from where they are to a 'regular' school but providing more options for **all** children and structuring schools where all children can learn including disabled children. All children experience difficulty in learning at some stage or the other and therefore their learning needs to be supported by teachers where ever they are in their respective communities.

Traditionally inclusive education was viewed as one where the child was expected to 'fit in' to the school system. The child was the square peg that was forced to fit into the round hole. Worldwide and now in India too, our education system has begun to acknowledge that inclusion is something quite different. Inclusive education involves accommodating and making adaptations for varying needs.

Inclusive education is a process involving restructuring of the curriculum and classroom. When the teacher adapts instruction according to content, process or product, as well as the needs of each student, it increases the likelihood that all students can meaningfully participate in class activities. Activity based learning is well suited to including learners with a wide variety of educational

needs and learning styles. Teaching material can be adapted to match the student's characteristics and interests.

By supporting meaningful learning outcomes for all students, teachers can send a clear message that a disability need not be a "handicap" to learning, ability and friendship. As the teacher plans her lessons and implements instructions for the students, it is important to think about each student's ability and uniqueness and build on those. It is essential to support learning by providing multiple, flexible methods for teacher's presentation of the lesson and student's showing what he knows. Equally important is providing students with multiple, flexible options for engagement, that empowers students. It is also important to empower students to make decisions and set goals.

Teachers in inclusive schools can use cooperative groups and peer supports to capitalise on students' differences. It is important that the teacher learns the student's communication strengths and preferences and provides individualised sensory supports to maximise learning.

Students in an inclusive classroom are ideally placed with their chronological peers rather than their functional peers. Progressive schools encourage students without special needs to be a buddy for students with autism particularly during unstructured times such as recess, on the school bus and in the cafeteria. Students with autism often have skills in some areas; an imaginative teacher can use that skill to demonstrate to her students that everyone has some strength just as everyone has some weakness. The teacher can encourage a sense of community so that students learn to take for granted that they help each other. The teacher can also assign jobs to the students, thereby including the students with autism and other special needs. It could be something as simple as cleaning the blackboard, carrying the exercise books to her car and so on. Most importantly, the teacher can discuss individual differences as not a problem but as something that gives richness to the classroom.

Teachers in schools hold a special place in the students psyche. Students put far greater store to what the teacher says or does, than they do to their parents. Teachers can use this unique position by being a role model and leading by example. If teachers display an accepting, non-judgmental, and inclusive attitude to children with autism, their students too will learn the same.

Establishing a sense of community is an essential ingredient for creating a successful classroom where all students want to contribute, be respected and be cared about. The classroom can be a ground where students can learn to value differences, appreciate commonalities and come to deeper understanding of issues as fairness, cooperation, equity and justice.

Assessing Educational Options

School is not just a place for learning academics. It is in the classrooms of our schools we learn many life skills. We learn social skills – we learn to compromise, to bargain and persuade. We learn communication – we learn to get attention, ask for help, compliment and describe. We learn

language skills which are much more demanding than questions and answers of any tests. Preparation for adult life is the main objective of schooling. Therefore it is essential that all children go to an inclusive school. This is also in harmony with the UN Convention for Rights of Persons with Disabilities.

However in autism, learning and thinking styles are distinct from the non-autistic population. There can be a misinterpretation of their behaviours and language. Therefore as a prerequisite it is essential that all school teachers make themselves educated and knowledgeable about autism. Two primary goals of educational services:

1. Increase the student's understanding

2. Make accommodations and adaptations to the environment to make the environment more comprehensible to the student

Inclusion does not happen automatically by placing a child with autism in a 'regular' classroom. Constant efforts need to be made for a genuine adaptation of curriculum and teaching approaches to meet the needs of the student.

In our academics oriented educational system, social skills training is often neglected by schools and an inordinately greater weightage is given to academic achievements. If the child's time is spent in one-to-one sessions with a resource teacher, then the peer interaction is limited only to playgrounds. These may be difficult for a child with autism as these interactions are free ranging and fast paced. Peer interactions on task-based situations are easier for children with autism and therefore opportunities must be set aside for appropriate and meaningful positive interactions.

Where children with autism who are not included for a variety of reasons and are in a specific needs classroom, there reverse inclusion can also be practiced. This too can have long term benefits for later inclusion in the society as people become aware and are able to accommodate to the needs of a child with autism. The ultimate goal is not just inclusion in school but inclusion in society and this can be achieved through early special education where skills for later integration are taught.

Inclusion is often mistakenly believed to be a philosophy for the benefit of the marginalized population, such as people with disabilities. That is the narrow view of inclusion. Inclusion is actually most beneficial for those without disabilities, those who are not marginalized. Inclusion is an opportunity for them to learn to be accepting, to be nonjudgmental, accommodating of differences. It helps them to become better citizens, better sons and daughters, better husbands and wives, better parents. And most importantly it exposes our future citizens to the beauty of diversity.

■■

Self Awareness

When a child has an Autism Spectrum Condition, it defines his personality; it is part of who she or he is. When their autism is not discussed with the children that does not mean they are not aware that they are different. Not only are they aware, since they do not understand why they are different, they often feel distraught and depressed, not understanding why they are so unable to understand the world around them. Telling the child about his or her autism in clear, non-judgmental language makes it easier for the individual. As a person with autism who received a diagnosis late in life stated "For the first time I realized I was not a weirdo. I was not this horrible bad person who always did things wrong. I have autism. There is a reason I am the way I am. Its such a relief!" Having the label helps people with autism understand themselves better and have better self-esteem, rather than judging themselves negatively and going through life wondering and confused.

When do we tell a child that she or he has autism?

Now!

Ideally, autism is a word that should be used around the child the way we use the word Indian. However, for families who have so far kept the diagnosis undisclosed and would now like to speak to their child about it, the time is NOW! Suggesting that the family wait to tell the child about autism only when they are better able to understand the diagnosis, is like saying they tell their child he is Indian only when he is old enough to understand nationality and patriotism.

How do we tell our children that they have autism?

We need to take into account our children's ages, their functioning levels, their receptive and expressive language skills and then tell them about their autism using language at the level that would be easiest for them to understand. However, the individual speaking to the child has to be someone who has an inclusive attitude to disability.

This of course has to be a conversational session and not a 'teaching session'. The discussion has to reflect the comfort level of the parent or other adult and a casual and relaxed environment. Others too can be involved in the conversation, like a favourite teacher, a friend, a family member, they may all be good people to get involved in the conversation.

As already stated the conversation will reflect the comfort of the conversation partner and reflect

human differences. The discussion could touch on how Teacher A cannot see too well and that she needs spectacles to see properly. That Teacher A is 'short sighted'. Uncle J has a prosthetic limb and has difficulty in walking. In the same way, he too is different. He has autism and sometimes has difficulty in understanding what people do or say. At this time we may want to point out to the people he knows who have autism and those who don't.

We may want to tell them that each of us has strengths and difficulties and they too have lots of strengths and some difficulties. Reference can be made to the things he is good at as well help him understand some of the specific difficulties that he has because he has autism.

The key thing to remember would be to believe in what we are saying so that it is reflected in our language, our tone, our body language, so that we share with our children that autism is not a 'problem' or a 'tragedy', but just a different way of being.

■■