"A UTISTIC SPECTRUM DISORDER - A SPEECH LANGUAGE PA THOLOGIST'S RESOURCE MANUAL OF INTERVENTION GUIDELINES FOR LANGUAGE AND COMMUNICA TION DISORDERS"

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A Dissertation submitted in part fulfilment for the

Second year M.Sc, (Speech and Hearing)

University of Mysore, Mysore

All India Institute of Speech and Hearing

Manasagangothri

Mysore - 570 006

MAY - 2002

Dedicated to all

the precious 'ASD' children I've had

the pleasure of knowing

And

My fellow therapists for whom 'ASD'

is a puzzle waiting to be

put together!

CERTIFICATE

This is to certify that the dissertation entitled "AUTISTIC SPECTRUM DISORDER - A SPEECH LANGUAGE PATHOLOGIST'S RESOURCE MANUAL OF INTERVENTION GUIDELINES FOR LANGUAGE AND COMMUNICATION DISORDERS" is the bonafide work in part fulfilment for the degree of Master of Science (Speech and Hearing) of the student with Register No. M2K04.

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CERTIFICATE

This is to certify that the dissertation entitled "AUTISTIC SPECTRUM DISORDER - A SPEECH LANGUAGE PATHOLOGIST'S RESOURCE MANUAL OF INTERVENTION GUIDELINES FOR LANGUAGE AND COMMUNICATION DISORDERS" has been prepared under my supervision and guidance. It is also certified that this has not been submitted earlier in any other University for the award of any Diploma or Degree.

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DECLARATION

I hereby declare that this dissertation entitled "AUTISTIC SPECTRUM DISORDER - A SPEECH LANGUAGE PATHOLOGIST'S RESOURCE MANUAL OF INTERVENTION GUIDELINES FOR LANGUAGE AND COMMUNICATION DISORDERS" is the result of my own study under the guidance of **Dr. K. Shyamala Chengappa**, Reader in Speech Pathology, Head of Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any other University for the award of any Diploma or Degree.

Mysore

May 2002

Reg. No. M2K04

ACKNOWLEDGEMENTS

Dearest Kiru, when I fell apart, you put me back together ... if you weren't there, I don't know how I would have had the will to finish. When I needed sense, you talked ... when I lost my smile, you helped me find it. 'Thanks' is not enough ... but they are the only words I can find ...so, Thank You.

Ananthi, Anitha, Anupriya & Krupa ... Knowing you guys has been a more than a pleasure, and your friendship and support in this last and very trying year was something I could not have done without. I don't know what I would have done without you guys ... thanks for being there for me when I needed it the most ... !

Shereen ... remember our saying ... 'the harder you fall ... the higher you'll bounce" ... thank you for being there whenever I have fallen ... and helping me bounce back as high as possible!

Tyagi, Mukunth & Siddharth ... thank you for being some of my greatest friends I have made here in AIISH. You guys have made my short time here, one filled with long lasting memories ...

Sveta, Mallika, Ruchi, Deepashree, Sheetal, Shivani, Himani ... Thank you 'sweet ones' for all the proof-reading and cross-checking you all did for me! You guys have been fantastic juniors ... and I have really enjoyed knowing you guys.

My dear classmates ... well this is it, the big transition ... from the playful and carefree student life to the professional platform of duty and responsibility... I don't know what the future holds for us ... but I pray it may be nothing but the best ... remember these times we have had together in fondness ... and I hope that someday, somewhere, we may meet ...

To all my juniors, and seniors ... thanks for making my 'AIISH' life an experience and memory never to be forgotten ...

My dearest Appa, Mummy and Manu ... I don't know what my future holds for me ... but I do know that it was all your hard work that has made me who I am ... and brought me this far ... thank you for your unselfish love and unending belief ... I hope I can repay you by going as far up in life as I can possibly go!

And lastly ... I would like to thank the Almighty, for it is with His grace that I walk this earth!

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INTRODUCTION

"Meeting the challenges of autism can be better described as education rather than treatment. Parents and professionals must examine the unique needs / potentials of each individual with autism and match them to treatments or strategies which are likely to be effective in moving the person closer to normal functioning."

(Autism Society of America, 1998)

What is Autism?

Autism is a brain disorder that typically affects a person's ability to communicate, form relationships with others, and respond appropriately to the environment. Some people with autism are relatively high functioning, with speech and intelligence intact. Others are mentally retarded, mute, or have serious language delays. For some, autism makes them seem closed off and shut down; others seem locked into repetitive behaviors and rigid patterns of thinking.

Although people with autism do not have exactly the same symptoms and deficits, they tend to share certain social, communication, motor, and sensory problems that affect their behavior in predictable ways.

Autism is found in every country and region of the world, and in families of all racial, ethnic, religious, and economic backgrounds. Emerging in childhood, it affects about 1 or 2 people in every thousand, and is three to four times more common in boys than girls (National Autistic Society, 2001).

Classification, diagnosis and symptom profile:

Today, there are a number of conditions which share similarities with autism, and are now considered as sub-categories under the title "Autistic spectrum disorders" or ASD as suggested by Wing and Gould, 1979.

There are a number of different classifications available, of which the two most frequently used today are

1. DSM IV classification (APA, 1994)
2. ICD 10 classification (WHO, 1987)

Both of these classifications allow for a diagnosis and differential diagnosis of the individual disorders under the "ASD" umbrella as well as providing a symptom profile for each respectively.

The DSM IV classification (APA, 1994), uses the term 'TDD" to substitute for ASD, under which the following are sub-classified:

- Autism
- Asperger's syndrome
- Childhood disintegrative disorder
- Rett's disorder
- PDD NOS / Atypical Autism

As per the ICD 10 (WHO, 1987), the term "Pervasive Developmental Disorders", includes the following:

- Childhood autism
- Atypical Autism
- Rett's Syndrome
- Other Childhood Disintegrative Disorder
- Overactive disorder associated with mental retardation and stereotyped movements
- Asperger's Syndrome
- Other Pervasive Developmental Disorders
- Pervasive Developmental Disorder, unspecified

To date, there is no complete consensus as to the classification and diagnosis of the various disorders which comprise the ASD's, delineating them into actual separate disorder entities.

Basic symptom profile:

Autistic spectrum disorders, an 'umbrella' term, is the designation given to that group of children who present with the triad of impairments of

- Reciprocal social interaction
- Verbal and non-verbal communication, and have
- Restricted range of imaginative activities

(Wing, 1988)

Each individual disorder, however, does have certain characteristics, features and symptoms, by which a tentative diagnosis, and possible differential diagnosis, may be made.

Terminology & Controversy

The nosological integrity of autistic disorders listed under the DSM umbrella term, 'pervasive developmental disorders' (PPD), has long been a contentious area (Rutter, 1989; Schopler, 1985, Wing, 1986). Rimland (1993) suggested that the label PDD or Pervasive Developmental Disorder is poorly understood, uninformative, confusing, disliked, and should be abandoned.

In the Autism Research Review International (ARRI, 1991), an excellent statement entitled "Autism is not necessarily a pervasive developmental disorder" was published This article observes that the term "pervasive" is particularly inappropriate, and Autism, they point out, rather than being a pervasive disorder, is in fact a specific one, characterized by deficits in social, communicative and cognitive functioning.

There are many more children with autistic-like disorders than there are children with autism itself. Wing and Gould first suggested "Autistic spectrum disorder," in 1979. The advantages of this term are obvious. For one, it acknowledges that there is a range of problems and sub-types, and it does not pretentiously claim to be based on knowledge that is not yet available to us.

Thus, the term Autistic Spectrum Disorder (ASD) shall be used hereafter to refer to the disorders that are Autism and Autistic-like disorders.

Symptomatic Treatment vs. *Disorder Specific Treatment:*

Although much research has gone into attempts at diagnosis and differential diagnosis (Rimland, 1968; Ruttenberg et al., 1977; Freemen et al., 1978; Schopler et al., 1980; APA, 1994; Krug et al., 1980; Gillberg, 1991) the treatment and intervention aspect has not yet delineated any disorder-specific treatment for the various ASD's.

Any one child coming under the ASD umbrella, need not necessarily have all the features of one particular sub-category, and may in fact (more often than not) overlap between disorders. The ASD's being a spectrum disorder makes separation a difficult task many a time. The implication of this in terms of treatment is that even treatment then becomes spread across the spectrum.

Thus when looking at treatment and intervention of a child with 'ASD' it would be much more practical to focus on the symptoms exhibited rather than on a diagnostic basis.

Treatment Profiling & Its Importance:

The past quarter century has witnessed major advances in treatment for children and adults with ASD. The recognition that they are biologically based conditions (Rimland, 1964) and the rejection of the psychoanalytic concept of parental blame (Bettelheim, 1967) as an explanatory mechanism created an intellectual context in which behavioral and educational intervention could take root.

Thus, it would be prudent to look at a treatment approach that is based on the characteristics, features and symptoms exhibited by the individual. Because of the spectrum nature of the disability, there is no one treatment that is effective for every individual with ASD (Autism Society of America, 1998)

This calls for the need to profile each individual child for his assets and deficits. A profile is a report or description of something (Oxford Advanced Learner's Dictionary, 1996). By profiling, we can establish not only a baseline, but also have a clear-cut view of the

areas in which the child has a deficit, and use this as a platform from which our client - specific therapeutic management begins.

The links between theoretical knowledge and educational intervention for people with ASD is often insufficiently understood. Professionals and parents need a 'working philosophy', a paradigm that builds a bridge between theory and practice (Peeters, 1997).

Need for A Resource Manual:

There is a clear need for some sort of resource manual that will assist the SLP in profiling, practical planning, execution and documentation of treatment and progress of a child with ASD.

Currently there is no cure for autism, but behavior can be positively intervened and treatments exist which may reduce or eliminate some of the challenges associated with the disability. Some treatments have research studies that support their efficacy, others may not (Gillberg et al., 2000).

Treatment often comes in the form of individualized plans designed to meet all areas of need Communication and social skills, for example, are likely to be at the core of all education plans and reflect the needs of most people with autism. Many professionals have agreed that individuals with ASD respond well to highly structured, specialized education programs, tailored to the individual's needs (Mauk, 1993, Campbell et al., 1996)

Based on the major characteristics associated with ASD, there are areas that are important to look at when creating a plan: social skill development, communication, behavior, and sensory integration. Programs sometimes include several treatment components coordinated to assist a person with autism. For example, one individual's program may consist of speech therapy, social skill development and the use of medication, all within a structured behavior program.

There are many publications of treatment programs, management guidelines, intervention strategies schedules that can be seen in the vast literature available on this topic.

However, most are geared towards the western population, and quite often are not directly implementable in the Indian context. More importantly, they are simply not accessible to the general professional population.

Thus, there is a clear need for a management resource that can be used by the speech language pathologist, when dealing with an individual with ASD, in the Indian context.
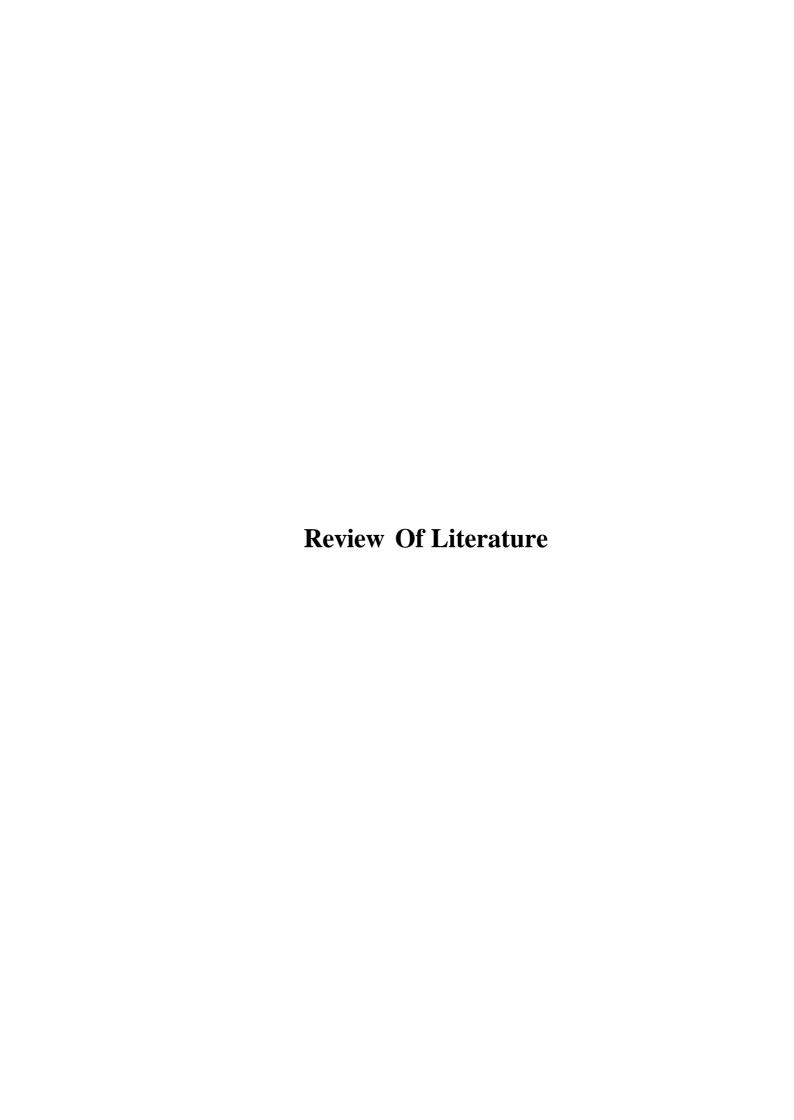
In talking of an autistic continuum, the implication is of a single dimension, in which a condition such as Asperger's Syndrome constitutes a milder form of the same underlying disorders that is seen in Autism (Bishop, 1989). Hence, this study is more focused towards Autism per say, as all the disorders in the Autistic spectrum fall somewhere along the continuum with specific features varying to differing extents. So, the treatment discussed in this manual can be adapted across the spectrum.

Owing to the copious information available regarding the symptom complex exhibited in the ASD population, it would be beyond the scope of this study to include all deficit domains. Hence, one particular domain must be chosen.

ASD's are defined in part and mainly by deficits in language and social skills, and there are repeated demonstrations that when properly taught, persons with 'ASD' can markedly improve their expressive and receptive language, social awareness and performance on academic, life skills and vocational tasks (Lovaas, 1977, Srilatha and Usha, 1989). Numerous researchers have proposed that the primary disability in ASD individuals is their communication deficit (Parsons, 1985). This communication deficit contributes significantly to each ASD individual's diagnosis, prognosis and management (Parsons, 1985) and has been identified by parents as one of the most important aspects of the handicap (National Autistic Society, 2001). Hence, this manual was focused to address the communication domain in ASD, especially the language deficits, and to meet the needs of SLP's. Additionally, the manual is geared towards the childhood ASD population in whom language aspects are a requisite behaviour before any other aspect of communication.

Thus, the aim of this study was to develop a comprehensive treatment resource manual for language deficits in ASD clients that is intended to provide,

- A means by which the clients communication deficit can be profiled
- A resource from which the SLP can plan client-specific therapy as per the clinical profile presented by the client

Review Of Literature

An extensive review has been attempted under the following headings,

- Language development in autistic spectrum disorder
- General language intervention
- General intervention approaches in autistic spectrum disorder
- Specific intervention techniques for autistic spectrum disorders
- Alternative and augmentative communication in autistic spectrum disorder

Fifty-nine years have passed since child psychiatrist Leo Kanner (1943) described children he had encountered over the years who seemed to have certain unusual characteristic in common. Perhaps the most common of these characteristics was language deficits. Few authorities since that time have failed to observe this most striking feature, nor have many been without ready explanations for the language symptoms. (Fay et al., 1980)

LANGUAGE DEVELOPMENT IN AUTISTIC SPECTRUM DISORDER

Language (including non-vocal and pragmatic aspects) has been rather extensively studied in Autism (Wolf and Chess, 1965, Cunningham, 1968, Wing, 1969, Cantwell, Bartak and Rutter, 1974, Howlin, 1982; Kiernan, 1983; Rutter, 1983; Landry and Loveland, 1988, Boucher and Lewis, 1989; Shyamala, 1989, Srilatha and Usha, 1989, Shyamala and Indu, 1991, Harris et al., 1991, Tager-Flusberg et al., 1990; and Volden and Lord, 1991), but very little has been accomplished in this area of research in respect of other disorders on the autism spectrum (Ramberg et al., 1996)

By 3 years of age, most children have passed several predictable milestones on the path of learning language. One of the earliest is babbling. By the first birthday, a typical toddler says words, turns when he hears his name, points when he wants a toy, and when offered something distasteful, makes it very clear that his answer is no. By 2 years of age, most children begin to put together sentences like "See doggie," or "More cookie," and can follow simple directions.

Autism

The majority of literature available with respect to language development in autistic spectrum disorder is focused on 'Autism' or the classical Autistic disorder of Kanner (1943).

Research shows that about half of the children diagnosed with autism remain mute throughout their lives. Some infants who later show signs of autism do coo and babble during the first 6 months of life. But they soon stop (Peeters, 1997). Although they may learn to communicate using sign language or special electronic equipment, they may never speak (Kiernen and Jones, 1985). Others may be delayed, developing language as late as age 5 to 8 (Autism Society of America, 1998)

Peeters (1997) has given a chronological account of language development seen in autistic children, seen below.

Table 1: **Early development in autism: language and communication**

Age in months	
6	Crying is difficult to interpret
8	Limited or unusual babbling (e.g. squeals or screeches)
	No imitation of sounds, gestures, expressions
12	First words may appear, but often not used meaningfully
	Frequent loud crying, remains difficult to interpret
24	Usually fewer than 15 words
	Words appear, and then drop out
	Gestures do not develop; few point to objects
36	Word combinations are rare
	May echo phrases, but no creative language use
	Odd rhythm, tone or stress
	Poor articulation in about half of speaking children
	Half or more are without meaningful speech
	Takes parent by the hand and leads to object
	Goes to customary location and waits to be given object
48	A few combine two or three words creatively
	Echolalia persists; may be used communicatively
	Mimics TV commercials
	Makes requests

Those who do speak often use language in unusual ways. Some seem unable to combine words into meaningful sentences. Some speak only single words. Others repeat the same phrase no matter what the situation (Peeters, 1997).

It is generally agreed that a cardinal symptom of the syndrome of Infantile autism is a disturbance of language (Kanner, 1943; Rimland, 1964). Nevertheless, it is often asked what insights study of language can bring to an understanding of the syndrome. (Ritvo, 1976)

Rutter (1966a) notes that Speech abnormalities are very early symptoms of autism, and indeed, are often the first symptoms to be observed. Since a language disturbance is often the motivating factor for parents bringing the child to professional attention, it is often the primary presenting complaint, and, as such, is of great importance.

Kanner's early (1946) description of the autistic child includes the detailed (but impressionistic) characterization of autistic language. Kanner noted that the language of the autistic child was typified by a parroting of not-understood words and stored phrases (labelled immediate or delayed echolalia), a reversing of the pronouns you and I, a metaphorical or bizarre quality resulting from words being used with their own special references for the child, an extreme literalness, an absence of original remarks and a frequent use of verbal negations.

Recent review articles have been able to add only a few details to Kanner's original description. Savage (1968) states that echolalia pronoun reversals comprehension difficulties, diminished vocabulary, inappropriate and non-communicative language, mutism, neologisms and articulation difficulties are common in autistic children. Hingten and Bryson (1972) describe a frequent failure to develop speech, frequent immediate and delayed echoes, impaired communicative function, frequent mutism, lack of questions and informative statements, few personal pronouns, frequent use of imperatives, limited output, little comprehension or use of gestures, and deviations in articulation, pitch, rhythm, and inflection.

The first attempt to systematically study the language of a group of autistic children was made by Wolff and Chess (1965). They compared the language of fourteen autistic

children under eight years of age with regard to total number of words, number of different words, average length of utterance, number of non-verbal utterances, number of immediate and delayed non-communicative repetitions, number of communicative repetitions and number of original communicative utterances in a language sample. Although no formal comparisons were made with normal or non autistic children, Wolff and Chess concluded that the "most striking abnormalities in the language of the children studied were stereotyped repetition of utterances (and) lack of normal expressions of curiosity and of responsiveness to changing environmental cues."

There are four studies (Weiland and Legg, 1964; Rutter, 1966a; Cunningham 1968, C. Goldfarb, et al., 1972b) in which the language of autistic children has been formally compared with language of normals or non-autistic controls in an attempt to delineate the unique characteristics of language.

Weiland and Legg (1964) compared the language of autistics and non-psychotic controls aged seven to sixteen years obtained during a 'snack-session" in which the children were "encouraged to talk, but asked no questions. For each of the thirty-four autistic and sixty control children the first 750 utterances were analyzed. The method of analysis was a simplistic tallying of the "parts of speech" produced. The findings were that the autistic children used significantly more nouns, proper nouns, verbs, and imperative verbs, and significantly fewer conjunctions and personal pronouns-particularly the pronoun "we"-than controls. It was also noted that the autistic children exhibited greater variability than the control children.

Rutter (1966a) compared sixty-three Maudsley Hospital autistic children with sixty-three children matched for sex and with similar ages and IQ's, who were in the same department of the hospital at the same time. He found no speech at five years of age in thirty-one of the autistics (versus seven of the controls), pronoun reversal in nineteen of the autistics (versus eight of the controls), echolalia in twenty-nine of the autistics (versus nineteen of the controls) and excessive responses to sounds in twelve autistics (versus two of the controls) In addition, he found six autistics invented their own words frequently and ten talked in a strange voice, either a whisper or singsong.

Cunningham (1968) compared thirteen autistic children aged thirteen years with thirteen age- and intelligence-matched non-psychotic. Speech was recorded on tape during a play session with an adult. The first fifty utterances were analyzed for comprehensibility, length and function Functionally utterances were analyzed as being either egocentric (repetitions, inappropriate remarks, thinking aloud, or action accompaniments) or socialized language (questions, statements, answers, or requests). Cunningham found significantly more incomprehensible and ego utterances among the autistic children. In particular, echoes of the viewer, delayed repetitions, self-repetitions, thinking aloud and inappropriate remarks were more frequent in autistic children There were no differences between the autistic children and controls for number of question answers, or complete sentences used, or for the use of first and second person pronouns.

Goldfarb et al (1972b) compared language samples from twenty autistic and twenty-five normal children matched for age, sex, race, and religious background. Volume, pitch, voice quality, rate, phrasing, fluency, stress, intonation, articulation, gestures, and expression of meaning were evaluated. While the autistic children had significantly more language and speech faults than the normals, there was considerable variation autistics and no specific clustering of faults could be found to uniquely characterise autistic language.

Bartak et al (1975) carried out a comparative study of autistic and aphasic children Nineteen of these children were classified as showing a syndrome of infantile autism using the criteria outlined by Rutter (1966a). The other twenty-three children were not clearly autistic. They were diagnosed as showing an uncomplicated developmental language disorder that included an impairment of comprehension as well as in the production of language. At the time that they were initially seen, the mean age of the autistic children was 7 years and of the aphasic children was 8 years and 2 months. A functional and linguistic analysis of the speech of both the autistic and aphasic children categorised. The results of the analysis are presented in Table I. For each child, the percentage of total utterances falling into each functional category was computed, and the mean percentages for the whole autistic group is reported.

Table 2: Autistic Language Profile

Utterance Types	Mean % of Utterances
Immediate repetition of self	8.0
Immediate repetition of other	7.9
Delayed Echoes	5.2
Action Accompaniments and Thinking Aloud	6.3
Metaphorical Language	1.0
Questions	2.6
Answers	34.7
Spontaneous Remarks	20.7
Directions, demands	2.5
Automatic Language	7.1

Hutt and Hutt (1968) found that the amount of stereotyped behaviour measured in a complex social situation was double the amount found in a self-play situation, suggesting the importance of immediate environmental factors.

Expressive language behaviour was studied by Shyamala (1989) on language characteristics such as vocabulary, verbal output, length of utterance, echolalia and pronominal confusion Stereotypes with regard to all these were identified in 3 autistic children.

Thus, as there was no *specific* pattern by which autistic language could be defined, it has been suggested by Michael Rutter (1966a) that there may be a set of *"autistic language characteristics"* of'which different children may exhibit different subsets.

Asperger's Syndrome

Language in Asperger's syndrome has also been reasonably well documented. In accordance with the findings of Szatmari (1991) and Wing (1981) the following are the salient language features of Asperger's:

- Short attention span

- Ask inappropriate questions

- Extreme difficulty in initiating and sustaining a conversation.

- Language is not really used for social chat, but rather as a means to a particular concrete end.

- Their speech is often characterized by a lack of inflection or by unusual placement of inflection in a sentence

- Their conversation is often tangential of the point and circumstantial

- Few links are provided among thoughts in a conversation, so that the overall effect lacks cohesion. It is as if the Asperger's syndrome child is unable to use social context to provide appropriate and useful information to the listener.

- Repetitive or perseverated speech on certain subjects

- Children with Asperger's syndrome do develop symbolic play, albeit somewhat later than normal children. The play of Asperger's syndrome children is repetitive and stereotypic and lacks creativity. The same make-believe story is enacted repeatedly day after day. Play is rarely used as a means to promote social interaction.

- A full command of grammar is sooner or later acquired, but there may be difficulty in using pronouns correctly, with the substitution of the second or third for the first person forms

- The content of speech is abnormal, tending to be pedantic and often consisting of lengthy disquisitions on favourite subjects

- Subtle verbal jokes are not understood, though simple verbal humour may be appreciated.

- Comprehension of other people's expressions and gestures is poor and the person with Asperger's syndrome may misinterpret or ignore such non-verbal signs.

- Content of speech is impoverished and much of it is copied inappropriately from other people or books

- The language used gives the impression of being learned by rote.

- The meanings of long and obscure words may be known, but not those of-words used every day

Language comprehension deficits are rarely mentioned in reports of Rett's syndrome girls even though it is considered a necessary criterion for the diagnosis of the syndrome (Rett Syndrome Diagnostic Criteria Work Group, 1988). When reference is made to comprehension in the literature, it indicates a lack of or extremely limited ability to decode verbal stimuli (Garber and Veydt, 1992). Nomura et al. (1984) reported that comprehension of verbal and non verbal commands was non-existent. Trevathan and Naidu (1988) stated that minimal comprehension may continue beyond four years although the type of comprehension noted is consistent with that found in children just beginning to decode verbal stimuli.

Information on expressive language is of a general nature, owing to the lack of systematic, in depth study of speech-language / communication characteristics of Rett's syndrome patients (Garber and Veydt, 1992). The Rett's Syndrome Diagnostic Work Group (1988) reports expressive skills do not develop beyond the earliest level and that regression of verbal skills is accompanied by a general regression in psychomotor skills. Coleman et al. (1988) surveyed the parents of 63 patients and reported that 15 had acquired a few words then lost them sometime between one and four years of age. Kerr and Stephenson (1985) reported that 17 of their 19 cases spoke several words at a mean age of 12 months. Naidu et al. (1985) reported similar results in their 70 patients, noting that from 12-18 months no new words emerged and there was a high mortality rate for previously used words.

There is however some variability in communication impairment in Rett's Syndrome that should not be overlooked (Garber and Veydt, 1992). Zapella (1985) provided details of two patients each with different form of productive disturbance. One patient never spoke, while the other had acquired speech that was characteristic of autistic children; she was echolalic, repeating few words, short phrases, and she most often spoke in the third person. Trevathan and Naidu (1988) have also noted echolalic behaviour in the children they have investigated.

Childhood Disintegrative Disorder

Literature available on the language development and characteristics of Childhood Disintegrative Disorders (CDD) is also sparse.

In CDD, there is a marked deterioration and clinically significant loss in the areas of expressive and receptive language after at lease two years of normal development of communication skills. Once established, however, CDD clearly resembles autism (Kanner, 1973; Kurita, 1988; and Volkmar et al., 1997b). Either mutism or marked deterioration in verbal communicative skills is usual, and the communication problems are reported to be similar to those observed in autism (Volkmar et al., 1999).

The language impairments identified in the children with ASD can be seen to be falling on a continuum, with differences being either in terms of severity of the feature, or the specific group of features exhibited. Thus, a symptomatic language treatment of such individuals is suggested to be better applied than a disorder specific treatment.

GENERAL LANGUAGE INTERVENTION

There are many different perspectives to language treatment These include:
1. Behavioural Perspective
2 Psycholinguistic - Syntactic Perspective
3. Semantic - Cognitive Perspective
4. Social - Pragmatic Perspective

(Adapted from Haynes and Schulman, 1994)

The Behavioural Perspective

According to this perspective, language is learned or conditioned through experience and by an association between a stimulus and the subsequent response. That is, an association between meaning and word, word and phoneme, statement and response (Owens, 1988). So, language is a set of verbal behaviours learnt by operant conditioning.

The Psycholinguistic - Syntactic Perspective

Also known as nativist or innatist perspective, contends that language acquisition is an innate, physiologically determined, genetically transmitted phenomenon. A newborn is born with a language acquisition device (LAD) and is pre-wired for language acquisition. The LAD is an innate mechanism activated by exposure to linguistic stimuli and consists of two parts: (a) A set of rules or general principles for forming sentences, and (b) the procedure for discovering how these principles are to be applied to the child's particular language.

The Semantic - Cognitive Perspective

This perspective focuses on meanings conveyed by the child's productions and not on the syntactic complexity of utterances. Children's language extends meaning and semantic relationships are coded by children as they reach the multiword, combinatory stage in language acquisition. Children express meaning long before they know anything about syntax, and meanings they convey are based on prior cognitive knowledge. There is more emphasis placed on cognitive development and its impact on the language learning process.

The Social - Pragmatic Perspective

This is the most contemporary approach. According to the social-pragmatic perspective, communication is the basic function of language and the speech act is a basic primitive communicative unit used by the child within a particular setting or context (Austin, 62). Within this model, language is first observed within the mother/caretaker - child interactions. As caretakers respond to the infant's reflective behaviours and gestures, the infant learns to communicate intentions.

There are also a number of different language techniques that are available (Haynes and Schulman, 1994, and Hegde, 1996), and these include:

• Self talk	• Extension	Prompting
• Parallel talk	• Matching	Manual guidance
• Modelling	• Recast	Incidental teaching
• Expansion	• Instructions	Script therapy

- Joint book reading
- Questioning

- Repetition
- Direct teaching

- Mind-model
- Cloze

Additionally there are a number of response reduction techniques that the therapist can use to decrease undesirable behaviours. These include:

- Corrective feedback
- Reinforcement withdrawal
- Response cost
- Time-out
- Extinction

- Differential reinforcement of other behaviour
- Differential reinforcement of incompatible behaviour

GENERAL INTERVENTION APPROACHES IN AUTISTIC SPECTRUM DISORDERS

There are a number of different approaches by which a Speech Language Pathologist can tackle an ASD client. The approach that works best for the child with autism is the one that is the most specific to a given child's needs. Specificity in planning an individualized education program is most likely to determine the success or failure of an intervention and education program. Specificity is achieved by considering the developmental strengths, needs, and excesses for each child

Children with autism demonstrate highly individualized learning styles both across and within students (Schreibman, Koegel, Charlop, & Egel, 1990). The learning style of each child with autism is unique. One child may require a higher level of intrusive instruction, whereas another may be over stimulated by that same level of stimulation. For example, the reaction, tolerance, or sensitivity of the teacher's voice volume or the duration and intensity of touching may vary considerably among children with autism.

Other factors, such as stimulus over selectivity (Dunlap, Koegel, & Burke, 1981), the child's motivation for a particular form of stimulation, capacity for sequential learning, and propensity for self-stimulation, contribute to the success or failure of the child's program -

whether in the classroom or at home. Functional patterns of communication, self-injurious behaviour, and social awareness need to be assessed for each child to achieve an optimal educational outcome. All of these differences must be considered while selecting an approach to educating the child with autism.

Children with autism learn in complex ways. Their learning needs, like their autistic symptoms, transform as they develop. To focus on one approach or method of instruction, which might temporarily produce a desired result, could ultimately restrict a child's growth.

In recent years, there has been debate over the question of how goals and objectives for young children with autism should be attained. One extreme focuses on the functional needs of a child and, as a consequence, gives limited consideration for normal social language development (Sailor, et al., 1989). On the other hand, developmentally oriented clinicians and educators have focused on approaches that attempt to move children along a developmental track that focuses on relationships and communication (Greenspan, 1992).

Olley and Stevenson (1989) also argue that a combination of both approaches may be best because curricula scope and sequence are well defined.

The child with autism benefits most from learning opportunities that occur across all environments. The ultimate learning environment is one that integrates learning opportunities in the child's home, community, and school. An intervention and educational program that occurs primarily in one environment is necessarily limited. Maximal benefit is also attained when intervention is planned, systematic, individualized, and implemented at home, school, and the community. Intervention programming across environments is possible through a network of support services. A network of support services is formed and maintained by the efforts of service providers from regional centres, parent organizations, non-profit helping organizations, advocacy groups, informed professionals in the community, and the school district. Services designed to support the effective learning environment, especially generalization of mastered skills, should be implemented at home, at school, and in the community. (Hickman, 1997)

Hickman (1997) has reviewed the following different approaches:

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1. Developmental Approach
2. Behavioural Approach
3. Biological and Medical approach
4. Psychotherapeutic Approach
5. Play Therapies
6. Sensorimotor Approach
7. Natural Language Methods
8. The Picture Exchange Communication

The Developmental Approach

Developmental concepts can be applied to the diagnosis and treatment of children with autistic spectrum disorders. Proponents of a developmental approach to treatment (Greenspan, 1992) emphasizes the child's "ability to relate to others with warmth, pleasure, empathy, and growing emotional flexibility" as legitimate goals. Design of the treatment program takes the child's ability to process (regulate) sensations into account. Treatment is relationship-based, focused on opportunities for spontaneous relating, and relies on affect cueing to achieve results. It is assumed that cognitive potential cannot be understood until interactive experiences are routine (Hickman, 1997).

Direct and vigilant observation of interactive play between the child and caregiver, as well as between the child and therapist, to identify "emerging capacities" for warm, intimate, interpersonal relating is required in the developmental approach. Without this knowledge, incorrect diagnoses and inappropriate treatment recommendations may be given (Hickman, 1997).

This approach places an emphasis on what happens during specific periods of development. For example, the acquisition of reciprocal gesturing occurs between ages twelve and twenty-four months. If a child's problems in processing information prevent the child from learning nonverbal communication with another person, that deficit should not necessarily be taken as an absolute and biologically caused deficit. The developmental approach attempts to "re-establish the developmental sequence which went awry." According to Greenspan (1992), "following the child's lead and supporting his spontaneity, internal

motivation, affective expression in free play, and unstructured interactions are the vehicles for accomplishing" developmental sequence" (Hickman, 1997).

Thus, the challenge in a strictly developmental approach is to help the child with autism to learn to "attend, relate, interact, experience a range of feelings, and, ultimately, think and relate in an organized and logical manner" (Hickman, 1997).

Behavioural Approach

The analytic-analytic approach holds that "autism is a syndrome of behavioural deficits and excesses that have a neurological basis, but are nonetheless amenable to change in response to specific, carefully programmed constructive interactions with the environment" (Greenspan, 1996).

The emphasis on well-sequenced, structured teaching and on evaluation methods characteristic of applied behaviour analysis make it uniquely well suited to the goal of effective instruction. A large body of research has shown that children with autism do not learn naturally from typical environments, but most can learn a great deal given appropriate instruction (Harris & Handleman, 1994, Koegel & Koegel, 1995; Lovaas & Smith, 1989; Schreibman, 1988, and Schreibman et al., 1993).

Intervention programming that uses an analytic-analytic approach attempts to systematically teach small, observable steps that define a skill. Skills for which the child demonstrates readiness to learn are broken down into small steps. Each step is taught by presenting an external stimulus or instruction. If the child responds correctly, his or her response is followed by a predetermined positive consequence. If a reinforcement assessment has been conducted and a potent reinforcer is discovered for a given child, then that reinforcer functions effectively to strengthen the response. Research has shown that intervention and educational programming based on the principles and practices of applied behaviour analysis can produce rapid, complex, and durable improvements in cognitive, social-communication, play, and self-help skills. Application of analytic-analytic principles are very effective in replacing and/or reducing maladaptive behaviour (Siegel, 1996)

Applied behaviour analysis begins with an instructional orientation. The child with autism needs desperately to learn competencies that are observable and replicable. Skills selected for teaching should be effective in helping the child to manage his or her environment. The function of the skills selected and taught should be appropriate to the child's age and developmental level. The principal aim of intervention with the child with ASD must be to establish an expanding repertoire of meaningful skills that the child can use in daily interactions (Hickman, 1997).

The behaviour - analytic approach has extremely important implications for the understanding of problem behaviours as well as for the focus of early intervention pro-grams. In particular, an understanding of the purposes (e.g., communicative functions) of a child's problem behaviours should inform interventionists of specific objectives for early instruction in communication (Hickman, 1997).

Biological and Medical approach

Children with autism vary greatly in their degree of need for medical intervention. They may be healthy, energetic, and have a normal sleep pattern or they may have one or more medical problems. The DSM-IV (American Psychiatry Association, 1994) recognizes that neurological abnormalities are reported in a significant percentage of children with autism.

Because of these associated laboratory findings, physical examination findings and general medical conditions and other medical problems, including immune system dysfunction (Tsai & Ghaziuddin, 1992) and neurochemical abnormalities (e.g., raised levels of serum serotonin), medical interventions are being sought out as adjunctive treatments for children with autism (Anderson & Hirishino, 1987). A great deal of research is also taking place in the genetics of autism.

Repetitive behaviour disorders, including abnormally restricted patterns of interest, adherence to rituals, stereotyped motor behaviour, object stereotypes, compulsions, and repetitive self-injury have been targeted as possibly responsive to drugs that act by inhibiting the uptake of central serotonin (Lewis, 1996).

Findings in these areas could prove invaluable in making the most of an ASD child's learning potential.

Psychotherapeutic Approach

There is no evidence of a psychogenic cause of autism (Rimland, 1964). The efficacy of psychoanalytic treatments is also questionable. The effectiveness of several psychotherapeutic approaches, including holding therapy, gentle teaching, and "options," is discussed by Smith (1996) He concluded there was no scientific value of these therapies used with autistic children.

Sensory motor Approach

Sensory approaches include auditory integration training (AIT) (Rimland & Edelson, 1995) and sensorimotor integration training (Ayers, 1979). The efficacy of AIT, however, remains questionable (Smith, 1996).

Cook (1990) reviewed sensory integration theory and explained how it can be used to help children with autism. Cook discussed how children with autism process sensory information, how it affects their behaviour, and how activities that incorporate their sensory needs assist in moving the children toward more self-directed behaviours.

Ray, King, and Grandin (1988) tested a nine-year-old boy with autism for 17 days over a four-week period by allowing five minutes of stimulation using a swing and sensory integration therapy. Data showed the percentage of vocalizations was significantly greater during the time the child used the swing and that the child acquired 13 new words during the study period.

Use of structured physical activities, such as rhythm, body awareness, perceptual-motor development, and swimming, has been suggested as beneficial activities to engage autistic children (Kraft, 1983) Smith (1996) concluded that "sensory integration therapy does

not appear to enhance language, control disruptive behaviour, or otherwise reduce autistic behaviours - it may, however, offer enjoyable, healthy, physical activity."

Play Therapies

Play can be an intervention method to promote skills or an evaluation tool to aid in developmental assessment or diagnosis (Wulff, 1985). Children with ASD often choose play activities that are self-stimulating, repetitive, or both. Play has a role in facilitating language and cognition. Play should be designed to facilitate positive social interactions, either verbal or nonverbal. Play design allows the clinician to structure activities to accommodate the child's level of functioning and create unique opportunities for new skills (Hickman, 1997).

The appropriateness of play therapy has been questioned. Nevertheless, there are a number of case studies of play therapy used to treat autism. Lowery (1985) reported two cases of children with ASD treated in weekly play therapy for one year. The children, a male and a female, were both six years old when they began treatment. Both appeared to function in the moderate range of mental retardation Attachment behaviour was an issue in both cases. Lowery's approach demonstrated that these children's capacity to form relationships developed in play therapy.

Thorp, Stahmer, and Schreibman (1995) assessed the effects of teaching socio - dramatic play to three boys (ages five years and four months; eight years and two months, and nine years and nine months) with autism. Training was conducted using a variation of pivotal response training, a program used to teach language to children with autism. Measures of play skills, social behaviour, and language skills were obtained before and after treatment and at a three-month follow-up session The correlation between language and pretend play was explored, as was the relationship between socio - dramatic play and social competence. Positive changes were observed in play, language, and social skills. These changes generalized across toys and settings, although little generalization to other play partners occurred.

An indirect approach to play intervention focuses on teaching older siblings of children with autism to facilitate play skills learning. Celiberti and Harris (1993) assessed the effectiveness of a treatment program to teach siblings to use behavioural skills while playing

with their brother or sister with autism. Siblings were trained to elicit play and play-related speech, to praise appropriate play behaviours, and to prompt the child with autism when he or she failed to respond. Generalization and follow-up measures indicated the siblings were able to generalize the skills to a novel toy and maintain the skills at three-, six-, and sixteen- week follow-up assessments.

Natural Language Methods

Significant gains for teaching language, including speech intelligibility, have occurred in the past few years. Speech and language pathologists often integrate communication training with the child's behaviour program to provide a coordinated opportunity for structured and naturalistic language learning (Parker, 1996).

Camarata (1996) defines naturalistic language intervention "as procedures paralleling those employed to teach typically functioning children that produce measurable (and socially valid) change in the morphological, syntactic, semantic, pragmatic, and speech intelligibility aspects of the linguistic system of children with disabilities."

The chief focus of skill development for children with autism is communication because it is the most pervasive area of developmental delay. Communication is most crucial for socialization and cognitive development, and it relates to the occurrence of problem behaviours. Instruction in communication is designed to provide a generative tool that will serve many immediate needs throughout the child's life (Hickman, 1997).

In the Natural Language Paradigm, specific targets are taught in a variety of social settings using natural reinforcers (e.g., continual interaction) with a communication partner or access to desired objects rather than using token or food reinforcers Natural Language Paradigm (NLP) was designed for use with autistic children in an educational or clinical setting (Koegel, O'Dell, and Koegel, 1987). It is thought to produce more generalized speech for children with autism. NLP is similar to the "mand-model" (teaching the child to signal or ask for something) in that teachers systematically prompt verbalizations with mands, model verbalizations if necessary, and provide reinforced, appropriate verbalization during play and preschool activities. NLP procedures differ from other natural language programs by combining several of the positive features of both traditional operant procedures and natural

language procedures. Play sessions are specifically presented in which massed opportunities are provided for the child to use speech, and all verbal attempts are reinforced even though they may not be as elaborate or intelligible as those previously emitted (Hickman, 1997).

SPECIFIC INTERVENTION TECHNIQUES FOR ASD

There are several specific treatment techniques that have been utilized with ASD clients. These include:

1. Auditory Integration Training
2. Music Therapy
3. Behaviour Modification
4. Visually cued instruction
5. Facilitated Communication
6. PECS

Auditory Integration Training

Auditory integration training (AIT) was developed by Dr. Guy Berard, a physician in Annecy, France. Auditory integration training is a treatment based upon the premise that some of the characteristics of autism occur because of auditory dysfunction including attention, hyper- and hyposensitivity, and central auditory processing (ASHA, 1994). AIT devices process music in two ways. One way, termed "modulation", low and high frequencies selected from a music source (audiotape or CD) are presented at random intervals to the listener. The second way uses "narrow band filters", where specific frequencies that the listener hears too acutely are filtered. Auditory integration training is a form of intervention that entails listening to processed music through headphones (Rimland et al., 1995). AIT is intended to reduce some of the auditory problems that may occur in individuals with autism, such as sound sensitivity and auditory processing. It is necessary to determine that the child will tolerate wearing headphones in order to undergo AIT. (Rimland et al., 1995). In some cases a period of desensitisation prior to beginning AIT is required in order to allow the child to become accustomed to the headphones used during the training. Some people find benefit in repeating the process of auditory integration training at some later time; that time may be a period ranging from one year to several years after initial treatment (Rimland et al. 1995).

Several research studies have been published on the efficacy of AIT (Rimland and Edelson, 1995). The most frequently reported improvements include a reduction in sound sensitivity as well as better listening and comprehension skills. At present, it is not known why some individuals benefit from listening to AIT music (Autism Society of America, 1998).

An intervention such as auditory integration training may be able to lessen problems (at least for a time) for some people with autism. A consequence of the lessened difficulty with hearing may be some gain in social awareness or verbalization. It is unlikely that auditory integration training will cause all of a person's autistic characteristics to disappear. Many people report that the effects of AIT seem to fade after some time, and some individuals report no benefit at all (Autism society of America, 1998).

Music Therapy

Music therapy has become accepted as a useful intervention for people with autism since it was introduced to the UK in the 1950s and 60s by practitioners like Juliette Alvin, Paul Nordoff and Clive Robbins. Although music therapy can be used with people with other physical, cognitive and emotional disabilities, it has particular benefits for people with autism; much of the earliest work done by therapists like Alvin, Nordoff and Robbins was with this client group. Case studies by music therapists (Agrotou 1998, Alvin and Warwick 1991, Nordoff and Robbins 1985, etc.) indicate that, although far more restricted than in musical communication with a normally developing child, music can stimulate and develop more meaningful and playful communication in people with autism. Music making involves many of the fundamental elements of social interaction - self-awareness and 'self-in-relation to another. Because of this, the musical aspects of interpersonal timing — attuned reciprocity in shared play, turn-taking, listening and responding to another person — can be augmented in music therapy with autistic children/adults to accommodate and address their frequently idiosyncratic and avoidant styles of communication (National Autistic Society, 2001). Rather than teaching a set of behaviours, which would then be specific to the music therapy or music context, music therapy encourages increased self-awareness/self-other awareness, leading to more overt social interactions. The therapy stimulates and develops the communicative use of

voice and pre-verbal dialogue with another, establishing meaning and relationship to underpin language development. The client may also benefit from increased tolerance of sound, tolerance of and capacity for two-way communication, the opportunity to exercise joint attention, and other emotional needs met in the therapeutic process (National Autistic Society, 2001). It is argued (Brown 1994) that participating in music therapy allows the person with autism to experience and explore a wider range of emotions. The nature of music is to combine a secure structure with constant change; in therapy music can form a familiar environment which the person with autism can participate in, occasionally diverting into episodes of more spontaneous and new experiences of play, according to (or sometimes slightly beyond) his or her ability (National Autistic Society, 2001). Where meaningful play is established with a client, obsessive-compulsive patterns of behaviour, self-harming and other such behaviours usually decrease, although this depends largely on the individual and his family, and their educational and general social circumstances (National Autistic Society, 2001).

For any age group, music therapy is most usually part of a multi-disciplinary programme, offering an enriched learning environment for development of communication and other aspects of a child's personality. The treatment is based on the understanding that all people have an innate responsiveness to music, that this instinct can remain in spite of physical, cognitive or emotional handicap, and that it can be used to build a relationship between the therapist and the client (National Autistic Society, 2001).

There are various approaches to music therapy, but most rely on *spontaneous musical improvisation.* The therapist uses percussion or tuned instruments, or her own voice, to respond creatively to the sounds produced by the client, and encourage the client to create his or her own musical language. Instruments will be selected which are non-threatening to the client - some people have a strong preference for one type of sound, and find others intolerable - and this individualistic approach is one of the strengths of music therapy for people with autism. The aim is to create a context of sound in which the client feels comfortable and confident to express himself, to experience a wider range of emotions, and to discover what it is like to be in a two-way communicating relationship Simple songs, pieces or musical styles may be used and become a recurring element in the therapy sessions, but these are always used flexibly to suit the mood and clinical and developmental needs of the client at any given moment (National Autistic Society, 2001). Prevezer (1990) used music to

reinforce the work she was doing in speech and language therapy, and not as a medium with its own healing potential.

The efficacy of music therapy as an intervention for people with autism is widely endorsed by anecdotal evidence from parents and professionals (National Autistic Society, 2001). Case studies published over the years by therapists themselves (Alvin and Warwick 1991; Nordoff and Robbins 1985, Nolan 1989, and others) describe significant changes in the communicative and social behaviour of individuals with autism who have taken part in music therapy.

However, the nature of the therapy, which is grounded in one-to-one relationships, and in the emotional states of individuals, has made it difficult to gain scientific proof of its success: there is no neutral control against which to measure the apparent results, and observer bias will always be present. Controlled research studies such as those by Edgerton (1994) and Aldridge (1995), have confirmed that improvisational music therapy can increase the communicative behaviour of children with autism, and that these skills are generalized to other contexts. However, more evidence-based research is still needed to explain the success of music therapy (National Autistic Society, 2001).

Behaviour Modification

Behaviour modification is currently the major therapeutic approach used with autistic children. This type of therapy has been compared to play therapy (Ney et al. 1971), and it seems to be more effective with autistic children.

Behaviour modification is based on learning theory, and it focuses the child's disturbance on external circumstances. The actual cause of the child's condition is unimportant. Rather, the child's behaviour is viewed as a response to external stimuli. Treatment is not aimed at discovering the reason the autistic child does not speak or play, it is aimed at teaching him how to perform these functions.

The following steps are used in this method of therapy (Frankel, Tymchuck and Simmons, 1976):

(1) The behavioural therapist must first define the symptoms to be modified-either a behaviour that is to be eliminated or one that is to be produced.

(2) Next, the cues or stimuli which produce the behaviour are identified.

(3) A plan for therapy is mapped out.

(4) Through the use of positive and/or negative reinforcement, in planned steps, the therapist moves the child's responses toward the behaviour desired.

In promoting positive development, systematic reinforcement of various skills has been used with autistic children. These skills have varied from simple attending behaviour to establishing of self-care (such as toileting or self-feeding), to establishing complex abilities like language acquisition. In promoting a simple behaviour, such as attending, the child can be reinforced by food or other methods simply each time eye contact is made in establishing reinforcement for more complex behaviours, however, the behaviour must be broken down into stages; each stage represents an individual unit for which the child is reinforced. After mastering done unit, the child moves on to the next stage. At first, reinforcement is presented in large quantities immediately after the desired response. Later gradually, the reinforcement is decreased both in amount and frequently. In many programs tangible reinforcement is eventually replaced by non-tangible reinforcers such as praise (Frankel, Tymchuck and Simmons, 1976).

In summary, behaviour modification is currently the basis for much therapeutic work with autistic children. Therapists should use positive reinforcement wherever possible, but negative reinforcement-deprivation of positive stimuli or using aversive stimuli-can be a useful method, especially in eliminating behaviours that prevent more constructive work with a child.

Visually cued instruction

Investigations into the attentional processes of children with autism have found: 1) their ability to encode visuo-spatial information is superior to their ability to process auditory information, 2) their ability to encode stimuli is influenced by the amount of time the stimuli is present (i.e., better with stable stimuli than with transient stimuli); 3) their ability to encode

simultaneous information is superior to their ability to encode sequential information, and 4) their cued recall is superior to their free recall (Quill, 1997).

Therefore, it is critical that programming involve visual supports. Visual supports can be used to facilitate: 1) organizational skills (e.g., class schedules, checklists of materials), 2) the development of functional routines (e.g., morning routine, bathroom routine), 3) academic learning (e.g., to outline central concepts in a concrete manner); 4) communication development (e.g., communication boards, picture symbols); 5) social development (e.g., social scripts); and 6) the management of challenging behaviours (e.g., specific "rules" and behavioural scripts) (Quill, 1997).

Facilitated Communication

Extensive media coverage has chronicled facilitated communication (FC). Early claim of high success rates have since been drastically toned down, and reckless talk of "miracles" is now muted. FC Is a controversial subject, with the advocates of FC adamantly supportive of FC, and the opponents just as adamantly opposed to it. There is little common ground (National Autistic Society, 2001).

Facilitated communication is one of several communication options that may be appropriate for use with individuals with autism. It originated in Melbourne, Australia by Rosemary Crosley.

The technique involves a "facilitator" who supports the hand, arm, or shoulder of a Communicatively impaired individual. This method assists the person with impairment to extend an Index finger and either point to or press the keys of a typing or other communication device. If successful, the individual who was previously unable to communicate can then do so through typing or spelling out words. The level of communication ability expressed through "FC" varies from individual To individual, and not all persons with whom the technique is applied are successful in communicating (National Autistic Society, 2001).

The question of authorship remains a concern in light of research studies that indicate either conscious or unconscious facilitator influence. Scientific evidence favours the position that the words produced through FC invariable come from the facilitator and are not independent communication (National Autistic Society, 2001).

The autism professional community currently disagrees about the validity of facilitated Communication (National Autistic Society, 2001).

The Picture Exchange Communication System (PECS)

The Picture Exchange Communication System (PECS) is a communication training program to help children with autism acquire functional communication skills. Children using PECS are taught to give a picture of a desired item to a communicative partner in exchange for the item, thus initiating a communicative act for a concrete outcome within a social context (Bondy & Frost, 1994).

The goals of PECS include the identification of objects that may serve as reinforcers for each child's actions and the learning of responses to simple questions with multipicture systems. Special educators can quickly learn how to incorporate picture systems into a schedule-following program for students, how to combine picture systems with time-based reward systems, and how to promote spontaneity in the classroom (Hickman, 1997).

Procedures for introducing the PECS to very young children, who may not display any functional or socially appropriate communication skills, are empirically tested and described in detail in the manual that accompanies this method of teaching communication skills. Test results showed that at a five-year follow-up, 25 of 85 children who were 5 years or younger when PECS training started and who used the PECS for more than one month, continued to use a combination of speech and pictures or use a complex printed word system. Of the remaining children, 41 used speech as their sole communication system (Hickman, 1997).

Other methods worthy of review and consideration for designing intervention and educational programs for children with autism include communication - based interventions.

An instructional strategy that identifies functionally equivalent alternatives to a child's problem behaviours is known as Functional Communication Training (FCT). In FCT, targeted skills for instruction that are selected as equivalent alternatives to problem behaviour should fit within a customary communicative system, be easy to perform, and be effective in producing the desired outcomes (Hickman, 1997).

Of the above mentioned techniques, very few are practically implementable in the general Indian context, and many not proved to have much worth in treatment of ASD clients. Children with autism are qualitatively different from typically developing children and from other special needs populations. Therefore, treatment services designed for other special needs populations are not sufficient for the child with autism (Powers, 1992). The needs of children with autism are extremely diverse. Therefore, input is required from a number of professional disciplines (e.g., Speech-Language Pathology, Psychology, Psychiatry, Developmental Paediatrics, Occupational Therapy) on an ongoing basis (Rogers, 1996). Thus further emphasizing the need for a resource manual of practical use to the SLP when dealing with the ASD client.

ALTERNATIVE AND AUGMENTATIVE COMMUNICATION IN ASD:

The use of augmentative non-speech systems of communication have increasingly been reported as effective in promoting development in individuals with autism (Schuler, 1985).

Language programs have come to include alternative means of communication such as signs, abstract-shaped plastic symbols, written communication boards, and even computer consoles. Signing probably has been used most commonly as an alternative system of communication. The signs used are, in essence, analogous to the signs constitute American Sign Language (Ameslan or ASL), the visual language used by the deaf (Fay et al., 1980).

Sign language has some special properties which the needs of autistic and indeed other populations of dysfunctional children First, it is iconic, particularly for signs relevant to Basic object Level items, i.e., those which are usually first presented in language training.

Such signs have visible, real world exemplars. The pairing between the exemplar and its iconic sign provides the child with much needed assistance in early language acquisition. Second, sign language and its accompanying speech are presented at a lower rate than speech, hence they allow for longer processing time. Third, as they rely on hand movements which are accessible to others, signs are easier to teach to children with low motivation or ability at spontaneous initiation of communication. Finally, by being less redundant, sign language imposes a lower processing load on the autistic child's limited memory capacities (Konstantareas, 1985)

While the reported results have overall been encouraging, the question remains as to whether one particular system, for instance, sign language, is most suitable to the autistic population as a whole, and at which point and how it should be taught (Schuler, 1985).

As has already been established, a symptomatic treatment approach to the ASD individual is the most effective. Incorporation of a multi-approach scheme (i.e. merging of different approaches such as developmental, behaviour modification and play) in language training would have the maximal affectivity. For those ASD individuals in whom speech is not a viable mode of communication, alternative and augmentative approaches can be looked at. The therapeutic intervention utilized with the ASD population has thus shown to be wide and varied, with mixed results of success.

Thus, it can be see that there is no specific treatment program that has been found to be the 'best' approach to treating language and communication deficits in ASD children. Hence, this manual was an attempt to present a practical and feasible, symptomatic approach to treating language and communication deficits in the ASD child.

Method

The method used to develop the resource manual for language deficits in the ASD population was as follows,

Step 1: The various resources of information such as journals, books, and internet websites were exhaustively reviewed for information with regard to language development in ASD's, general language intervention and language intervention in ASD's.

Step 2: The information collected was compiled and organized as required for the manual.

Step 3: Assembling of the language profile for ASD's. All the collated literature with regard to language development and language characteristics of ASD's was reviewed. From this, the various asset, deficit & excess behaviours in the language domain of ASD's were ascertained. The language behaviours cited as most critical in ASD's in literature was assembled.

Step 4: Treatment goals were derived based on the language profile assembled in step 4

Step 5: General therapy guidelines and intervention strategies for the SLP with respect to, the learning environment (Setting up the room, access of materials, lighting), materials and stimuli (visually cued instruction, material size and 'real' pictures), reinforcement, planning the sessions (Time management, task variation, task selection, presentation of tasks), cultural issues and general suggestions were collected and formulated.

Step 6: Specific therapy activities and interventions strategies for the treatment goals defined in step 5 were collected and formulated.

Step 7: With all the information collected, resource manual consisting of the following chapters was formulated.

- *Introduction*
- *Chapter I: Language Profile*

    This chapter consists of two main items. The Intervention assessment required for baseline profiling of the ASD child, and secondly, the language profile of an ASD child.

- *Chapter II: Treatment Goals*

    This chapter contains treatment goals derived from the language profile.

- *Chapter III: General therapy guidelines and intervention*

    Strategies

    This chapter consists of general therapy guidelines and intervention strategies that the SLP may find useful in prior to and during therapy. It is divided into the following subsections:

    1. The learning environment
         - Setting up the room
         - Access of materials
         - Lighting
    2. Materials and Stimuli
         - Visually cued instruction
         - Material size and 'real' pictures
    3 Reinforcement
    4. Planning the sessions
         - Time management
         - Task variation
         - Task selection
         - Presentation of Tasks
    5. Cultural issues
    6. Generalization
    7. General suggestions

- *Chapter IV: Specific therapy activities and intervention strategies*

    This chapter contains specific therapy activities and intervention strategies that the therapist can utilize for each goal presented in chapter two A minimum of three activities are presented for each goal, excepting certain goals for which descriptive strategies are provided

Appendices: 1. Stages of attention development

2. Prompting hierarchy

3. Categories of communication function

4. General intervention techniques

5. Types of echolalia

6. Easy-to-make materials for activities

Conclusion

Step 8: The various appendices as required for the manual were formulated.

Step 9: The bibliography of sources used for the manual (including internet sites) was collected.

Implications:

The study has implications for the assessment, treatment and further research regarding ASD's and their management by SLP's.

It should,

1   Allow for more focused and detailed intervention assessment

2. Facilitate a more structured and organized approach to treatment

3. Provide a means for tailoring therapy for the individual

4. Create, to an extent, a uniformity across clients

"Autistic Spectrum Disorder: A Speech Language Pathologist's Resource Manual of Intervention Guidelines for Language and Communication Disorders"

"Autistic children do have a fascination

which lies partly in the feeling that somewhere

there must be a key which will unlock hidden treasure.

The skilled searcher will indeed find treasure ... but the currency will be

everyday and human, not fair gold. In return these children may give us the

key to human language, which is the key to humanity itself

John Wing (1966)

TABLE OF CONTENTS

Introduction

Teaching language to a child who falls in the Autistic Spectrum Disorder is one of the most challenging, trying and arduous quests likely to be faced by a speech-language pathologist. It is not only backbreaking but mind boggling. The 'autistic' child is still so foreign, that when faced with one such child, the first question asked by most student clinicians is, "What should I do first?". This question is the motivation behind this manual.

The 'beginning speech language pathologist', or, to be more precise, the 'student clinician', is faced with many cases, many of whom can be treated with time and tried methods as old as the field of speech and hearing. But when dealing with the Autistic spectrum disorders, more often than not, one ends up using the oldest (if not most frustrating) method of all time ... trial and error. In fact, if we could, we would most probably "insist on sameness" too, in an attempt to preserve some amount of control in our therapy.

Thus, the need for a guide or resource manual, that will help the clinician to profile language deficits, and decide on treatment goals, and specific intervention, is warranted.

This manual is divided into 4 sections. Chapter one deals with profiling the child's language skills along a normal continuum, and then along a specific language deficit continuum for Autistic Spectrum Disorder. Chapter two contends with different treatment goals derived from the child's profile (in Chapter one) to assist the clinician in planning the therapy goals. Chapter three comprises of some of the general intervention guidelines that a clinician will find useful to help create the best 'language learning' environment for the child. Lastly, Chapter four is a collection of ideas, activities and tasks to help the clinician plan out how exactly a particular goal can be achieved.

Today, there are a number of treatment programs well on their way to being established, attempting to deal with the haze around the management of Autistic spectrum disorders. But, the individuals lucky enough to be a part of that are far and few compared to the number of autistics really needing some kind of treatment. More importantly, there are very few clinicians who are associated with such programs, or have at least access to such programs, that will assist them in handling children with Autistic spectrum disorder.

This manual is neither age bound nor is it language bound. It is not in any way a proposed developmental hierarchy of treatment, nor is it a treatment protocol. It is intended to be a resource of information that the therapist can utilize to formulate individualized and symptomatic language treatment plans for the ASD child. Additionally, the suggested therapy activities and intervention strategies are presented with no boundaries on language, culture or ethnicity of the child. The therapist is encouraged to modify any strategy or activity as required to suit the cultural background of the child.

So this manual is intended in its small way, to provide at least a guiding hand in the right direction for a clinician who is faced with the responsibility of developing language in the child with Autistic spectrum disorder.

[N.B. : Throughout this resource manual, the pronoun 'He' has been used to refer to the child, and 'She ' to refer to the clinician, for simplicity's sake.]

Chapter One:

Language Profile

Speech and Language evaluation is the preparation for intervention planning (Klein et al.,1994). Thus, assessment of the child's language level is of utmost importance.

The child's current level of language functioning, or his baseline, needs to be established. This can be done using any of a number of the language tests readily available to the clinician.

In addition to the language level, the possible maintaining factors of the problem need to be examined. The following is a suggested format for areas of assessment for intervention planning adapted from Klein and Moses (1994).

TABLE 1 : Areas of Assessment for Intervention **Planning (Klien & Moses, 1994)**

Necessary Information	*Source*	*Rationale*
I. Language		
A. *Content-Form*	Linguistic Profile Test (Karanth, 1980)	To obtain most representative measure of the developmental status of content-form interactions
	Kannada Language Test (RRTC, 1995)	
	Malayalam Language Test (Rukmini, 1994)	
	Kannada Picture Vocabulary Test (Sreedevi, 1988)	
	Syntax Screening Test in Tamil (Murthy, 1981)	
	3-D Language Acquisition Test (Harlekar. 1986)	
B. *Use*	Test of Pragmatic Skills (Shulman. 1986)	To obtain most representative measure of developmental status of language function and influence of context
C. *Phonology*		
1. Phonetic	* Screening and Diagnostic Articulation Test in Kannada (Bettageri et al., 1972)	To obtain an inventory of phonemes and estimate of phonetic ability in single-word productions
	* A Test of Articulation in Tamil (Usha, 1986)	
	* A Test of Articulation and Discrimination in Telegu (Padmaja. 1989)	
	* A Test of Articulation in Malayalam (Maya. 1990)	
	* Screening Test of Articulation in Gujrathi (Mallikarjuna.1990)	

2. Phonological	Continuous speech sample	To obtain a measure of the developmental status of phonological process elimination in continuous speech
D. Fluency	Language sample	To obtain a sample of fluency in continuous speech
E. I'oice	Language sample	To obtain a sample of vocal parameters in continuous speech

II. Maintaining Factor?

A. Cognitive	Developmental Screening **Test** (Bharathraj, 1988)	To obtain a measure of the child's developmental status in the area of cognition
	Binnct-Kamath Test of Intelligence(1963)	
B. Sensorimotor		
1. Peripheral Speech Mechanism	Oral Speech Mechanism Screening Examination (OSMSE-R. St. Louis & Ruscello. 1987)	To determine the structural and functional adequacy of the articulators and other points of valving
2. Bods Stability	Assessment by the physical therapist	To obtain a measure of the developmental and functional status of the child's sensorimotor functioning in the area of locomotion and body stability
pschosocial	Case history	To determine the nature of psychosocial behaviour Observations of interactions with mother, siblings, peer group, and examiners

The information collected in the above areas will serve to form the baseline data for intervention planning.

Once the child's current language level is established, the next step is to profile his deficit areas. The language deficit profile presented in this chapter is intended to assist the clinician to explore and document the language deficits presented by a client.

The language deficit profile consists of the language deficits observed in Autistic spectrum disorder. The items presented in the profile are arranged in a hierarchical order, but not in accordance to any developmental order as such.

The language profile

- ☐ Poor eye contact

- ☐ Difficulty attending to speech

- ☐ Lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

- ☐ Fails to indicate basic wants and needs

- ☐ Inability to initiate or sustain a conversation with others

- ☐ Cannot follow simple directional commands (come here, give it to me...)

- ☐ Echolalia (immediate, mitigated or delayed) verbal or gestural

- ☐ Stereotyped and repetitive use of language or idiosyncratic language

- ☐ Jargon speech & neologisms

- ☐ Atypical Vocabulary

- ☐ Fails to generate varied language structure to communicate

- ☐ Lack of differential expression of 'yes' / 'no'

- ☐ Personal pronoun usage deficit

- ☐ Difficulty retrieving words, signs &/or phrases

- ☐ Deficit in understanding of the rules of conversational exchange (such as turn-taking, listening etc.)?

- ☐ Makes comments which are irrelevant and inappropriate to the social context

- ☐ Difficulty asking, understanding and responding to simple questions

- ☐ Problems repairing a conversation? For example, when the child is confused, he or she does not ask for clarification but simply switches to a familiar topic, or takes ages to think of a reply.

- ☐ Literal interpretation of comments. For example, is confused by phrases such as "pull your socks up," "looks can kill" or "hop on the scales", or subtle jokes, humour and sarcasm.

- ☐ Mutism

Once the child's language deficits have been thoroughly explored and documented, this information can be utilized to select treatment goals. Based on the language deficits, a number of treatment goals have been suggested, and are presented in the next chapter.

Chapter II :

Treatment Goals

The treatment goals presented in this chapter are based on the possible language deficits that the child may present with. These suggested goals are intended to be **a** guideline from which the clinician can select the goals to be taken up for an individual case. Natural variations from child to child will result in some changes to be made to the goals as required.

Treatment Goal; Establishing eye contact behaviour

This goal is intended to establish eye contact behaviour in the child when attending to another individual's communicative gesture.

Treatment Goal; Building of attention to speech

This goal is intended to develop in the autistic spectrum disorder (ASD) child the ability to attend to speech that is directed to him, whether it is just a name call, a command, or conversation.

Treatment Goal; Encourage appropriate symbolic play

This goal is intended to encourage symbolic play in the ASD child, and create more environments in which language learning may be facilitated

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Treatment Goal: Developing Communicative Intent (Gestural & Vocal)

This goal is intended to help the child initiate communication with a purpose, and provide the child with maximum opportunities in which to communicate.

Treatment Goal: Comprehension of verbal commands

This goal is intended to improve skills of comprehension of commands and the ability to carry out issued commands.

Treatment Goal: Increasing expressive vocabulary

This goal is intended to increase the meaningful vocabulary available to child for use in communication.

Treatment Goal: Controlling expressive excesses (Echolalia, Jargon, Neologisms, Perserveration)

This goal is intended to reduce non-meaningful utterances and increase meaningful utterance of the child.

Treatment Goal: Developing Differential expression of 'yes' and 'no'

This goal is intended to establish the ability to express affirmation and negation with respect to the child's communicative needs.

Treatment Goal: Improving personal pronoun usage

This goal is intended to improve the child's ability to use appropriate pronouns in the appropriate contexts.

Treatment Goal: Improving word, sign or phrase retrieval skills

This goal is intended to improve the child's ability to retrieve words, signs or phrases as and when required of him.

Treatment Goal: Establish rules of conversational exchange (Listening, Turn taking)

This goal is intended to teach the child the rules of conversational exchange, and hence provide him with more opportunities to learn language

Treatment Goal: Developing question and answering skills

This goal is intended to develop the ability to ask and answer questions in various contexts.

Treatment Goal: Facilitating conversation repair

This goal is intended to help the child develop a means of repairing unsuccessful communication or communication breakdown.

Treatment Goal: Improving interpretive skills of figurative speech

This goal is intended to teach the child to differentiate between literal and figurative meanings.

Treatment Goal: Developing an Alternate system of communication

This goal is intended to develop an alternative or augmentative communication method in children who are not able to develop speech as a communicative means.

The above goals are intended to be used as general treatment goals, that is, goals representing the 'best performance expected of the client. There are many ways in which one can attempt to achieve these goals, and Chapter four is an attempt at collating some of these more feasible approaches, to give the therapist some ideas on how to go about achieving these goals.

Chapter III :

General therapy guidelines and intervention strategies

Prior to the actual commencement of therapy, there are some important factors to be considered and dealt with when taking therapy for the Autistic spectrum disorder child. These include

I: The learning environment

II: Materials & Stimuli

III: Reinforcement

IV: Planning the Session

V: Cultural Issues

VI: Generalization

IV: General suggestions

I: The learning environment

(a) <u>Setting up the room:</u>

The set up of the therapy room is very important when dealing with ASD children. Under normal conditions, we eat in the dining room, sleep in the bedroom, wash in the bathroom. It seems logical enough: for every activity there is a special room provided. We associate certain behaviour with certain places. We do not (usually) sleep in the dining room; we do not (usually) eat in the bedroom. If we make an exception, we know that it is an exception (Peeters, 1997). For ASD children, this is very difficult, they have difficulty understanding the purpose of rooms and the behaviour that goes with the place. The average classroom is thus even more difficult than at home, as it is just one big room in which everything is done.

Thus, it is very important to provide the child with some amount of predictability. Have a different area for different functions so that the child will have a predictable environment: this corner is for working, this one is for playing, this one for eating. When organizing the room, take into account the various activities of the therapy session: How many are there? Is it possible to create a separate space for each? To eat, play board games and then work at the same table can seem too unpredictable and therefore chaotic. It confuses the usual pattern of expectations and results in behavioural problems (Peeters, 1997). Here are some ideas for setting up the classroom:

- Have separate areas for playing, reading, drawing and eating. Mark out each area with tape or chalk, and have something in each area that represents that activity. For example, pictures of food and drink in the eating area; pictures of toys, or children playing, in the toy area; pictures of books and children reading in the reading area, and pictures drawn by the child in the drawing area.

- The pictures put up need not be permanently stuck. You may stick them with fun tack, or have thermocol boards in each area on which the pictures can be stuck, so that you can change the pictures as and when it is required.

- In each area, keep a box with the respective materials for that area. For example, toys & games in the toy box; crayons and paper in the drawing box; eating utensils in the eating box, and books in the reading box.

- Have a common mat, kept rolled up in a particular place, so that the child can take it and unroll it in the area where the activity is to take place. For example keep it rolled up behind the door.

However, the therapist must take care not to allow the routine to be completely predictable. Sometimes children with autism have a tendency to insist that certain routines and rituals be followed and become distressed when they are not permitted to complete such routines. In order to avoid inadvertently reinforcing such "insistence on sameness", the child's day and the activities in which the child is involved should be varied to avoid unnecessary routine. For example, don't allow him to engage in the same activities in the same order every day, once in a while change the order of activities, even though the activities done may be the same. Or, once in a while, change the materials or toys used for a particular activity. Additionally, the child should be exposed to new situations and activities on a regular basis, even if initially for only short periods of time or small samples of the activity. Let the changes be gradual and allow the child time to get accustomed to it.

(b) Access of materials

Another problem faced by ASD children is the ease with which they may be distracted. Thus when setting up your teaching environment, ensure that it is free of clutter and unnecessary objects that may otherwise distract the child from the intended task.
Initially, keep within the view of the child, only those materials relevant to the task on hand. Here are some ways in which you can store your materials for easy access:

- You may use a wall cupboard (if available)

- You may use a large box with a lid and preformed partitions, in which your material is stored, if a cupboard is not available.

- Another option is to use a tablecloth large enough to hang over the table edge till the floor. The materials may be stored under the table, with the cloth obscuring it from the child's view.

Access to material, by the therapist, as well as the child is very important. In the initial stages of therapy, especially if working on attention building skills, as the child develops attention skills, the access to materials can increase for the child In the beginning stages, access should only be available for the therapist and not the child. Guide the child physically to accessing materials required for the task. For example, if a building block activity is to be done, the therapist should take the materials from the toy box, place it on the table and physically guide the child through the activity. In later stages, once the child has developed sitting skills and attention to some extent, the therapist should signal the child that the building block activity is to be done, and the child should take the required material from the toy box. Thus the child is slowly developing more responsibility for his actions, which is important for development of language skills such as following conversational rules of tum taking.

(c) <u>Lighting</u>

The type of lighting used has been reported to be an important factor when dealing with ASD children. As far as possible use natural lighting from a window. The use of tube lights has been reported to have a negative effect on the behaviour of ASD children.

II: *Materials and stimuli*

The material and stimuli used is another very important factor to consider when dealing with ASD children.

(a) <u>Visually cued instruction:</u>

As far as possible, try to make maximal use of visual cues and stimulation. Investigations into the attentional processes of children with ASD have found:

1)   their ability to encode visuo-spatial information is superior to their ability to process auditory information;

2)   their ability to encode stimuli is influenced by the amount of time the stimuli is present (i.e., better with stable stimuli than with transient stimuli);

3)   their ability to encode simultaneous information is superior to their ability to encode sequential information, and

4)   their cued recall is superior to their free recall (Quill, 1997).

Therefore, it is critical that therapy involve visual supports. Visual supports can be used to facilitate:

1)   organizational skills (e.g., class schedules, checklists of materials),

2)   the development of functional routines (e.g., morning routine, bathroom routine),

3)   academic learning (e.g., to outline central concepts in a concrete manner);

4)   communication development (e.g., communication boards, picture symbols);

5)   social development (e.g., social scripts); and

6) the management of challenging behaviours (e.g., specific "rules" and behavioural scripts).

(Quill, 1997)

When working with the ASD child, especially the non verbal child, having picture representations of activity choices is a useful method of better empowering the child and giving him a sense of control over his environment. It is important to provide him with choices whenever possible. Such a procedure will also improve the child's nonverbal and verbal indicating skills. Being able to make decisions concerning activities often instils a child with a sense of control and makes them more willing and enthusiastic participants. For example, have a picture 'choice book' for each area, i.e. for the play area have a picture book with pictorial representations of either toys or games; for the eating area have a picture book with pictorial representations of eating and drinking activities; for the reading area, have a picture book with pictorial representations of different books; and for the drawing area have a picture book with pictorial representations of drawing, colouring or other 'art' activities.

Peeters (1997) sums up the advantages of visual aids in the following points:

1. That which is too abstract can be made concrete via pictures, outlines or objects that have a lower abstract level and are therefore less remote than what is literally seen, the basic problem for people with autism This is always true: the most abstract level is not usually the best; the best level is the level that they can handle independently.

2. In this way you can communicate things that cannot be understood otherwise. For them, that is real communication. Speaking is silver but making something visible is gold.

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3. Visual aids teach people with autism to cope with change, making their thinking more flexible. It is easier to accept change if you can visually anticipate it. Often change is not the problem, it is the impossibility of anticipating it.

4. These visual aids heighten the level of independence.

5. The more independent they are, the fewer failures they experience and the fewer behavioural problems they have.

6. The fewer the stereotyped patterns of behaviour, thanks to their greater active involvement, the more normal people with autism appear and the greater the chance they have of social integration.

7. The fact that people with autism are less dependent on others to do various tasks brings other advantages (sometimes difficult for some teachers to accept). Often they are so dependent on one particular person for help that it is a disaster if the person leaves or their environment changes. If they can achieve a greater degree of independence with visual aids, the visual aids can be taken with them and a change of environment is less disastrous.

8. Sometimes those with autism are 'lost in time'. By actually seeing what the intermediary steps are, not only are the problems of conceptualising solved, but also those of sequentialisation running through the various intermediary steps within a framework of time.

9. With this, many can escape a major problem - passivity - which often arises out of a lack of aids for self-regulation (their verbal memory is underdeveloped).

(b) Material size and 'real' pictures

As far as possible, the material or stimuli used should be large pictures, and whenever possible as close to 'realistic' as it can be. Use photographs, pictures cut out from magazines or books etc... as it is a well documented fact that ASD children deal better with the concrete than with abstract (Peeters, 1997, Fay et al., 1980). If using an object, use objects that are also

as realistic as possible. For example, use a toy car rather than a block or box as a pretend car. ASD children have poorly developed, or a lack of symbolic play (Peeters, 1997; DSM-IV, 1994; ICD-10, 1990). Thus playing 'make-believe games' or 'pretend' is a very difficult concept for them to comprehend.

Again, as the ASD child does better with a predictable routine as far as possible, familiarize the child with the material to be used. Introduce the material to him, let him get to know the material, so that it is not a 'surprise' to him, and he knows what is coming.

///: *Reinforcement*

The approach that has been most commonly used with ASD children is behaviour modification or operant conditioning, where the term behavioural covers approaches based on reinforcement theory. Behaviours are viewed in terms of their consequence, and those behaviours followed by reinforcing events are apt to reoccur, whereas those followed by punishing events are not (Thorndike, 1931)

In order to increase the frequency and complexity of the child's appropriate behaviours (e.g., appropriate attention seeking, attempts to communicate, independent play skills, compliance to requests), it is recommended that such behaviours be praised or otherwise rewarded when they occur (e.g., with a natural consequence like following through on the child's request). It is hoped that by increasing the frequency of the positive behaviours less desirable behaviours (e.g., tantrums, stereotypical behaviours) will gradually come to be replaced by more appropriate ones. It is critical that the therapist's use their attention in a selective fashion. That is, the therapist should attempt to provide attention to the child when he is engaged in positive rather than negative behaviours.

Whenever attempting to eliminate or reduce the frequency of a problematic behaviour, it is important to determine what function the behaviour serves for the child. Once determined, it is important to teach the child a more appropriate behaviour that serves the same purpose as the problematic one For instance, if the child whines in order to gain attention, it is necessary to teach the child more appropriate ways of gaining attention and which work better than whining to gain attention Never target the reduction or elimination of a behaviour without targeting the increase in a socially or developmentally appropriate

behaviour which serves the same or similar purpose for the child. Frequently stereotypical/self-stimulatory behaviours don't need to be specifically targeted for reduction, since increasing the child's ability to purposefully effect his environment (e.g., how to manipulate/use more toys) results in their reduction or elimination.

If a child has temper tantrums, it is important that these tantrums be dealt with in a consistent fashion. The child will soon learn that tantrums are not an appropriate method of getting one's needs met if all of the people he encounters respond to them in a similar fashion.

Whenever possible, tantrums should be ignored. That is, when the child is in no danger of harming himself or others, the therapist should withhold their attention from/ignore the behaviour(s) the child is displaying (e.g., throwing objects, screaming). It is important to remember to ignore the behaviour but not the child. This is especially true if the behaviour appears to be task avoidant in nature. Thus, you should continue to do what you were doing with the child before he started to engage in the negative behaviour. For example, if the child was working on a puzzle so that he learns that engaging in negative behaviours does not enable him to avoid tasks. If the child is engaging in a behaviour that is more difficult to ignore (e.g., kicking the therapist), the therapist should withdraw their attention from the child, as well as, physically move away from him (but remaining close enough so that the child's behaviour can be readily monitored). Periodically therapists can neutrally issue a verbal instruction, eg., "(child's name), calm down". (Remember that if the tantrum was related to a request, the child should be expected to comply with the request once he has calmed down).

It is very important that you never "give in" to a temper tantrum. It only takes one time, among many opportunities, of giving in to keep the behaviour(s) occurring at high frequency The faster that the child learns that his behaviour is not appropriate and that it won't get him what he wants, the sooner the tantrum behaviours will cease being displayed.

Always avoid getting into any kind of physical struggle with a child. As he grows older and stronger, physical struggles will become much more difficult to win, and it is important that the child not get the message that physical domination is an appropriate way to achieve a goal.

As appropriate, encourage the child to complete tasks or portions of tasks independently. Always provide the child with sufficient time to attempt tasks on their own. When assistance is necessary, provide only the minimal amount of prompting necessary for the child to experience success. Prompting should be reduced over time (i.e., always try to provide less assistance/prompting on each occasion than you did on the previous occasion). A good rule of thumb is to give the child the benefit of the doubt when you are unsure of whether he is capable of doing something. That is, assume he has the ability and allow ample time for him to attempt the task on their own.

Remember the least intrusive prompt is to wait five to ten seconds after an instruction or before any prompt is delivered, unless the child begins to perform an action which is clearly off task. In that event, deliver the next most intrusive prompt in the hierarchy of prompts (i.e., from least to most intrusive: waiting five to ten seconds, verbal prompt, model prompt, gestural prompt, partial physical prompt (e.g., a brief light touch), and hand over hand manual guidance).

Some children with autism may develop a "learned helplessness" (including low self-esteem) and/or prompt reliance when given too many or too intrusive prompts to complete activities/tasks (i.e., over prompting). Learned helplessness refers to the idea that the child believes that he is not capable of doing something because someone else is always doing it for him. When too much prompting is provided, the child doesn't get the opportunity to try more independently and may never learn to do the task independently Sometimes, after having something done for them for a long period, the child may absolutely refuse to attempt the task because he either believes that he is incapable of doing it or believes that he should not have to do it because someone else can/will.

Prompt reliance refers to the fact that a child may tend to wait for prompting to occur even though he may have the ability to complete the task without prompting. For example, a child may not put his shoes on unless specifically told "Put your shoes on", even though he may have been told that it was time to go outside and may observe the therapist putting on shoes. Similarly, some children who are learning to sign will automatically present their hands to the adult when told to "sign" (i.e., they are used to being "put through the motions" of the sign). Therefore, it is imperative that therapists fade prompting as quickly as possible

(i.e., provide less assistance today than you did yesterday) because children with autism develop "habits" very quickly.

It is important to continually search for and identify activities, objects, and food items that the child really enjoys, as these items or activities can be used to motivate and reward the child when he displays appropriate behaviours. Also, frequently varying rewards will help to ensure that the child does not become bored with a particular item or activity (i.e., no longer finding it to be motivating or rewarding). Consistently expecting the child to complete a task before he is rewarded will help him to establish an understanding of the concept of "if-then" contingencies. Over time the child should be expected to complete more tasks or to work for longer periods of time before reinforcement is provided. The goal here should be to have the child work for the same length of time as his peers and/or to do the same amount of work before being rewarded.

An important technique to use when teaching autistic children new skills is called "fading". Fading, with respect to reinforcement, concerns fading the number of times a reinforcement is given within a task and also fading the type of reinforcement so that eventually the only reinforcement used is intrinsic in the task itself (e.g., pride in a completed craft project). For example, a child may initially require reinforcement for simply coming to the table and sitting down. The reinforcement could be a desired activity or small edible, paired with lots of verbal praise and hand clapping. While remaining at the table, the child would be intermittently reinforced for not crying and, similarly, when he had completed a task requested of him. Such reinforcement should be quickly faded to being only for doing the complete task, then several similar tasks, etc. That is, it should be a natural expectation for the child to come to the table and sit quietly without needing to be reinforced every time for doing this. Not only should the number of times that the child is reinforced be faded, but also, so should the form of the reinforcement be faded. Eventually, the edibles/objects initially used as rewards should be replaced with more social and intrinsic rewards. Also, the extent of the verbal praise and attention should be decrease. Eventually the only reinforcement that the child receives will be the occasional (i.e., intermittent) pat on the back or toned down verbal praise (e.g., "good job") and the satisfaction/increased self esteem for having completed the task to the best of his ability.

The "trick" to effectively fading reinforcement is to provide only the amount of reinforcer necessary to ensure that the behaviour keeps occurring. If the behaviour stops occurring or does not occur at the frequency desired, increase the amount and/or frequency of reinforcement given, so as to re-establish the behaviour. Once the behaviour is fully established, reinforcement fading should be attempted again. (Society for treatment of autism, 1998)

IV: Planning the sessions

(a) <u>Time management</u>

'The experience of time" is another area that is very difficult to comprehend for the ASD child.

> "People with autism have difficulty understanding abstract aspects of our social interaction, of our communication. They have difficulty 'going beyond the information[1], 'seeing beyond the literal'. So how can they understand what 'invisible time' is?" (Peeters, 1997)

What do normal people do to control time? They make time 'visible' by means of diaries, calendars, clocks and watches. By making time visible and measurable, it is easily brought under control. Children with autism too must learn to manage time, as many of their behaviour problems are connected with their inability to do this.

Thus management of time would be an important factor in ensuring that the ASD child has a routine and set outline of his day. So incorporating such a concept into the daily therapy session would be of vital importance to the child's sense of what is normal and thus predictable.

The best way the therapist can provide this for the child in the therapy session is to maintain a daily timetable for the session which is to be stuck on the therapy room door or somewhere equally accessible. Let the child have the same timetable in his daily book, and have a copy of the same in the child's room at home along with his timetable for his whole day.

Constructing this timetable needs to be done very carefully. Using the written word is far too abstract, pictures can be too flat, and so you may have to start with three-dimensional objects (Peeters, 1997). The divisions of time also needs to be worked from a large to small. For example, one may have an initial timetable represented by a ball for play, and a book for reading, a plate for eating and a crayon for drawing. These may be placed on a board or fixed in place on the floor in the required order. Thus broadly having divided the child's session time into play, reading, eating and drawing times.

It is also important to have some sort of transition indicator, that one 'time division' is over and the next one is to start. Things the therapist could use for this include :

- Give warnings prior to the transition.
- Give specific instructions about what will occur (be as concrete as possible). Use consistent language during transitions (i.e., "first", "then", and "next").

- Use clock or timer to signify when transitions will occur

- Music may be used to signify task completion Provide a transitional object which provides a cue about the transition.

- Provide choices whenever possible, about the next activity to transition to.

Later on, the timetable may be made in more detail, using pictures rather than objects, and having more time divisions. For example, the play time may be divided into ball game, block building, animal sounds and playing house, the eating time may be divided into setting the table, serving the food, eating, and cleaning up, the reading time may be divided into listening to a story, enacting a story, and making a story, and the drawing time may be divided into colouring, tracing, free drawing, and collage work.

A further step up would be the use of words in the table, once the child has learnt to associate the written word with an action or task.

(b) <u>Task variation</u>

Whenever possible, use a fast-paced task variation approach during one-to-one teaching sessions (i.e., providing a variety of tasks in sequence, some of which are easy, some of which are relatively difficult, some of which are fun, some of which are familiar, etc.) to help maintain the child's attention and motivation and to ensure that he experience success frequently. Properly employed, a task variation approach will help provide the child with experiences that show him that learning can be fun and that not all tasks requested of him are hard or ones that he does not like. Initially, the amount of time the child spends engaged in preferred activities should not be significantly longer than the time he spends doing non-preferred activities. As the child experiences success, he will become a more enthusiastic participant during teaching sessions and be in a better frame of mind to attempt new and/or more difficult tasks which he might otherwise refuse to attempt. As the child succeeds at more difficult tasks he will be empowered and experience heightened self-esteem.

Incorporate the child's choices into the task variation process. Allow the child to pick the "preferred activities" while you pick the other activities to do during a session. This will also help the child learn that if he/she does something you want him/her to do, then he/she can do something that he/she wants to do (i.e., learning about "if-then" contingencies).

When the child completes a significant portion of a relatively longer or more difficult task, it is important to provide intermittent verbal reinforcement. Positive feedback regarding a child's attempts at a task is important for him/her to maintain and enhance his/her self-esteem. Also, it will make the child more likely to participate in future activities that are relatively difficult for him/her. However, as his/her abilities grow, it is important to tone down your enthusiasm and use more age appropriate reinforcements (e.g., "Good job" or "Good try" and high fives). As the child's confidence in his/her abilities increases, the natural reinforcement involved in a task well done should be emphasized and will thereby gradually become a stronger motivator for the child. For example, he/she will show pride in the finished product of a craft activity

Some children with autism respond positively when activities are presented in a novel and enthusiastic manner For example, one could play with a toy in an inviting manner, rather than simply directing the child to play with it. Similarly, some children react negatively when

tasks are presented in a "task-like" or directive manner. Always try to enhance the attractiveness of a task/activity through your enthusiasm about doing it.

Initially focus on teaching a small number of activities or skills (e.g., 6 to 8) so that each can be presented to the child on a daily basis. It is believed that the child's ability to learn new skills will be enhanced by frequently providing him/her with opportunities to perform them. Always use naturally occurring exemplars when the opportunity arises.

It is also important that new skills/activities be taught and practiced in naturally occurring situations where the reinforcer is inherent in the activity. For example, if teaching the child how to point, purposely put the desired item(s) out of his/her reach so that he/she must indicate what is wanted and have you give it to him/her as the reward for having so communicated.

(c) Task selection

The key to effective task variation is to select an appropriate array of tasks An effort should be made to select activities which vary according to: level of difficulty, degree of familiarity, and the amount of interest they hold for the child. Generally speaking, one should select between 5 to 7 activities per session. Initially, sessions should be limited to 20-25 minutes.

(d) Presentation of tasks

Activities should be presented so that the child frequently experiences success More difficult tasks should be followed by ones which the child has already mastered. Similarly, activities which the child does not enjoy should be followed by ones he/she enjoys.

V: Cultural Issues

The culture of a child, and what aspects of culture a child brings into the therapy session is an important factor in teaching and learning outcomes.

The interaction between culture and language is such that cultural groups possess a unique nonverbal behavioural repertoire inseparable from language (Birdwhistell, 1970).

Culture and language use also include the repertoire of non-verbal behaviours such as intonation, eye contact, touch, social distance, posture, and facial and body gestures (Pennycook, 1985).

Thus, a therapist should be astute in observing the cultural background of a child and the possible influences that may have on the therapy planned. This is especially important in a multicultural society as is present in India. Where differences in culture have definitive affects on acceptable communicative acts, modes of communication, communicative styles etc... For example, if the therapy is taken in Hindi, the language used when referring to individuals of various ages differs (i.e., various forms of 'you'), where as in English, there is no differentiation of age by language used.

Culture can also have a direct effect on the therapy materials and activities used also. For example, different festivals associated with different cultures may be used as a theme of learning for a particular child. I.e., Christmas trees presents and Santa Claus, for a child from a Christian background.

VI: Generalization

As many researchers have noted. Language generalization has been extremely difficult to achieve in ASD children (Koegel and Rincover, 1974, Lovass, Koegel,, Simmons and Stevens-Long, 1973).

Prepare the non-treatment environment to support and encourage the language behaviours trained in therapy. For example, get the parents involved in the program, and give them specific activities with defined stimuli and expected responses. Behaviours were noted to be maintained in those ASD children whose parents were involved in training designed to achieve generalization and maintenance of behaviours (Hughes, 1985).

In the real world conversation verbal antecedents to certain language responses vary considerably. Therefore, it is very important to vary the verbal antecedents that evoke the language target as they are taught. The response should not become tied to a narrow range of verbal antecedents, such as "tell me about..." or "what's happening here?". In other cases,

such as routine or ritualised greetings and closings, there is a highly predictable sequence of utterances For example, "Hi, How are you ... I'm fine, and Ok bye ... Bye" in telephone conversations.

Training in natural environments using common stimuli of functional value to the ASD child can thus affect a healthy degree of generalization. The therapist should thus attempt to facilitate generalization by teaching in the context of activities where naturally occurring events maintain the target behaviour.

V: General Suggestions

The child should be expected to complete all tasks which are within his or her ability. He should be expected to put away all the toys or materials that he plays with. That is, task completion should always be an expectation.

In some circumstances (e.g., if the child becomes distressed) it may be necessary to reduce the length or size of a task. However, this should be done in a subtle manner such that the child does not notice (e.g., removing several beads to string from the box of beads).

It is critical that people deal with the child in a consistent fashion and follow through on their requests to him. This is because consistency will help the child to generalize the skills he learns to all of his environments (e.g., home, school, therapy sessions etc…).

Forced choice questions (e.g., "What do you want to do first?") are often useful in making the child actively participate in an activity. It is important that one be careful with how one words the choices presented to the child When the child does have a real choice, it is important to make this obvious to him. If he does not have a real choice and instead you are telling the child that he has to do something, do not word your statement as if he has a choice (for example, do not say "Do you want to paint?" or "We are going to do a puzzle now, okay[9]"). Always follow through with the child's choices as situationally appropriate.

When doing an activity with a child for the first time, you will have to familiarize the child with the materials used and the task activity, and establish the expected responses.

There are some general language enhancement techniques, that can be utilized for this, as well as in any stage of therapy. These include:

• self talk	• recast	• joint book reading
• parallel talk	• instructions	• questioning
• modelling	• prompting	• repetition
• expansion	• manual guidance	• direct teaching
• extension	• incidental teaching	• mand-model
• matching	• script therapy	• cloze

Additionally there are a number of response reduction techniques which the therapist can use to decrease undesirable behaviours. These include:

• Corrective feedback	• Differential reinforcement of other behaviour
• Reinforcement withdrawal	
• Response cost	• Differential reinforcement of incompatible behaviour
• Time-out	
• Extinction	

(Definitions of the above-mentioned techniques can be found in Appendix 4)

The following are some useful general communication intervention techniques, adapted from "Communication Intervention with Young Children at Risk for Specific Communication Delay," by L. Leonard, 1992.

Input Strategies

- Slow speech rate.
- Speak in a slow, clear manner.
- Converse face to face. Sit so that you are face to face with the child.
- Shorten the length of your typical utterance Use utterances that resemble the length of the child's utterances.
- Use frequent repetition.

- Consistently label items familiar to the child. Once comprehension is attained, generalize the item named to various contexts.
- Use variety in vocal intensity and intonational patterns.
- Use parallel talk. Describe the child's ongoing activities and interests.
- Use self-talk, which describes your ongoing activities.
- Use frequent modelling.
- Say words and phrases that are related/cued to the immediate context.
- Coach the child to use a word or phrase at the appropriate time and situation.
- Provide answers and conversation at the child's utterance level.

Responsive Strategies

- Use frequent repetitions of the child's utterances.
- Expand on the child's utterances.
- Repeat the child's utterances, adding additional features.
- Repeat elements of the child's utterance, slightly changing the initial construction (paraphrase). If needed, provide words to express the child's feelings.
- Provide words to assist the child in expressing feelings when the child is unable to do so.
- Reward and highlight words and phrases that are emerging in the child's expressive repertoire.
- Change immature utterances to more mature and recognizable ones.

Clarification Strategies

- Repeat any part of the child's utterance that is understood.
- When the child's intended meaning is unclear, ask choice questions to clarify the meaning. Ask the child to show you what he or she means when utterances are not understood
- Be alert to topics that the child frequently talks about.
- Contextual information may increase adult listening ability. If the child is not understood, the adult may choose to take responsibility.

Chapter IV :

Specific therapy activities and

intervention strategies

Once the treatment goals have been decided for an individual child, the next step is to achieve those goals. There are many tasks and activities that the therapist can make use of in order to attain these goal. This chapter is a compilation of many ideas, materials, activities and tasks that a therapist can put to use, practically, effortlessly and efficiently. Some of these activities have been borrowed from various resources on therapy, journal articles and internet web sites. A listing of the resources utilized is presented in the bibliography.

Each treatment goal suggested in chapter 2 has been taken individually, and activities and materials are suggested for each. Additionally, when and where applicable, modifications can be made by the therapist to suggested activities to account for regional or cultural background of the autistic spectrum disorder (ASD) child.

TREATMENT GOAL:
ESTABLISHING EYE CONTACT BEHAVIOUR

Any activity used to create this behaviour should concentrate on getting the child to look at the therapists face, either directly, or indirectly by attracting the child's attention with some other object of interest. The following are some activities the therapist can use to engage and maintain eye contact behaviour in the ASD child.

Activity 1: Peek-a-boo

Procedure :

The therapist covers her face with her hands for a few seconds, and then uncovers her face saying "peek-a-boo" loudly. This is done a few times to engage the child's attention to the game. Then slowly, the clinician increases the time her face is covered, encouraging the child to pry apart her fingers and uncover her face. When the child does so, say "peek-a-boo". Similarly, the child can be made to cover his face with his hands.

Variations:

- A piece of cloth can be used instead of hands
- Make a simple funny-face mask as a substitute for hands

Activity 2: Attention

Procedure:

Pick a sound that the child is familiar with, or use his name if appropriate. Condition the child to stop all activity when that sound or name is heard, and look at the therapist. Use appropriate reinforcement when correct responses are given. Initially, this can be done as an individual activity to develop the behaviour. Once the behaviour is developed, the activity may be done at random during the therapy session.

Activity 3: Follow the candle

Materials:

- A candle

Procedure:

The child is seated directly opposite the therapist. The therapist holds a lit candle flame in front of the child's eyes. The therapist then moves the candle slowly from left to right and up to down, each time pausing at the centre (in line with the clinicians face) on each sweep. The child must track the movement of the candle.

Variations:

- A colour wheel (appendix 6) or colour collage may be used as an alternative to a candle.

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TREATMENT GOAL :

BUILDING OF ATTENTION TO SPEECH

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Normal development of attention follows six stages (Appendix 1). As you build the attention of the child, these stages may be used a guideline for development of the skill. The following are some activities that the therapist can use to try and build attention to speech in the ASD child.

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Activity 1: Fill the bucket / Empty the bucket

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Materials :

- two or more containers (i.e., boxes, plates, plastic containers etc...)
- 10 objects of various size and colours (i.e., marble, ball, pencil, car etc...)

Procedure :

The basic activity consists of emptying one container of the objects, one by one, and filling the other container with the objects removed from the other container. Once the child is able to do the activity, the next step is for an object to be removed from one container to another only on a verbal command. E.g., "Put a block in" or "Pick up a block". Initially, prompting (Appendix 2) may be used, but this should be quickly faded off. The number of objects placed in the container initially should be low, i.e., 5, and then as the child's attention develops, increase the number of objects used.

Variations :

Label two containers with pictures of the two different objects (in terms of size, shape or colour), and the child must fill up the respective containers with the appropriate objects.

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Activity 2: Joining the pictures

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Materials :

- Crayons / chalk / white board marker
- Paper / slate / white board

Procedure :

Draw a series of large shapes For example squares, triangles, circles and stars. The child must join the shapes together. Once the child is able to do the activity, he must join shapes on a verbal command. For example, "Join the circle and the square"

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Variations:

- Any other item than shapes may be used, e.g. flowers, animals, cars etc ....

- The pictures may be numbered, and the child must join them in the number order as said by the therapist.

Activity 3 : Picking grapes

Materials :

- Any food item which can be divided into small pieces (e.g., grapes, orange segments, apple pieces, dried fruit etc..)

- Plate

Procedure :

A food item enjoyed by the child is divided into small pieces and kept on a plate. The child is made to eat the food, one at a time. He is only allowed to pick up a piece on a verbal command.

Activity 4 : Lefs look at pictures

Materials:

- A colourful picture or storybook

Procedure;

The therapist and child sit together in the reading corner and look through a book of the child's choice one page at a time, with either the therapist and the child taking turns to flip the pages. Pages are tumed only on a verbal command.

Activity 5: Find the ball

Materials:

- 5 different objects of interest to the child
- A flashlight with focusing tube (Appendix 6)
- A box with different compartments (Appendix 6)

Procedure:

In each compartment of the box keep one object. Turn the lights in the room off, and place the box between you and the child. The child is instructed to close his eyes until told to

"open" or "look". Using the modified flash light highlight one object at a time, and ask the child to look at the object, ensures that the child is focused on each object highlighted.

[Note: Be sure to familiarize the child with the switching 'off and on' of lights in the room, so that the child does not get frightened]

Activity 6: Hopscotch

Materials:

- Chalk

Procedure *:*

A large hopscotch (Appendix 6) is drawn on the floor with chalk. The child is made to stand on start. When the child's name is called, or a verbal command is given, he is allowed to hop to the next square, and so on until he reaches the finish square. On the finish square is a reinforcement item for the child, to be given only if the child hops to the verbal command.

Initially, reinforcement may be given for every correct response.

Activity 7: Lefs clean up

Procedure :

This is an activity that can be carried out every day. The child is made to pick up all materials used for an activity and put it away in its respective place.

TREATMENT GOAL :
ENCOURAGE APPROPRIATE SYMBOLIC PLAY

Play is a universal human activity that blends cognitive, social, emotional, linguistic, and motor components. It is an effective context for teaching children. During play, children can learn new skills as part of whole, meaningful activities(Patterson & Westby, 1994).

There are a number of play situations that the therapist can set up to involve the child. One of the easiest methods is role-playing. Setting up various situations in which the therapist plays one role and the child plays another, eventually taking turns at being the lead role. In initial stages, the therapist will have to model and demonstrate the game, using a doll as the second role player, so that the child is given time to observe and learn the activity, and build some interest in it. Once the child has had time to get familiar with the game, he will be more inclined to participate. At first, the therapist may have to use many prompts and cues to evoke a response in the child. The following are a number of activities the therapist can use to create and generate symbolic play in the ASD child.

Activity 1: Dolly's Bedtime

Materials:

- A doll
- A Box (to serve as a bed)
- A Cloth (to serve as a blanket)

Procedure:

The therapist makes the doll act like it is sleepy. The therapist models how dolly is put to sleep. After a few repetitions over sessions, the therapist again makes the doll act like it is sleepy, but this time engages the child to put the doll to sleep.

Variations:

- Dolly's meal time
- Dolly's bath time
- Dolly's play time
- Dolly goes shopping
- Dolly goes to school

With each variation, different roles can be played by the therapist and child.

Activity 2: I'm Hungry

Materials:

- Simple food items (e.g., fruits)
- Plate / spoon / fork

Procedure:

The therapist pretends to be very hungry, then goes about preparing something to eat with simple food items, a small plate and spoon, for herself. The therapist then eats her food, and then cleans up. This is repeated over several sessions. After a few sessions in which the child has had an opportunity to observe the therapists movements. The therapist then, indicates to the child that she is hungry, and encourages the child to prepare food to eat, and participate in the activity.

Activity 3 : Call me

Material :

- *2* toy telephones (Appendix 6)

Procedure:

The therapist and child each have a toy telephone. The therapist picks up the phone, and dials to call the child. The therapist attempts to carry out a phone conversation with the child.

Activity 4: Oh... I'm Sick

Material:

- Play stethoscope (Appendix 6)
- Small containers with gems / or other colourful small candy
- White shirt

Procedure:

In this activity the therapist pretends at being a sick patient and the child must treat the therapist. The child can be made to wear a white shirt and a play stethoscope to resemble a doctor. Small containers with coloured candies can represent medicine.

TREATMENT GOAL:
DEVELOPING COMMUNICATIVE INTENT(GESTURAL & VOCAL)

The meaning that a speaker wishes a message to convey is known as communicative intent (Roth and Worthington, 2001). Communicative intent is a required skill for any individual to be able to initiate or sustain a conversational interaction with another individual. ASD children have been seen to be lacking in this skill area (Wetherby and Prutting, 1984)

Communicative intent has several communicative functions such as requesting an object, or action, a protest and a greeting. (Refer to Appendix 3 for the different communicative functions of communicative intent).

The intent to communicate can be developed by tempting or creating situations in which the child has to communicate (Wetherby and Prutting, 1984). The following are some activities with which the therapist can elicit communicative intent from the ASD child.

Activity 1: Communicative Temptations (Wetherby & Prutting, 1984)

Communicative Temptation One:

Material :
- A food item desired by the child

Procedure:

The therapist must eat a food item that is desired by the child in front of the child, without offering any to the child. Then wait for the child to make an attempt at communicating his desire for the food item. Initially attempt to elicit a gestural intent, and later a verbal one. The child is to be duly reinforced for any communicative attempt.

Communicative Temptation Two:

Material:
- wind-up toy

Procedure:

Activate a wind-up toy, let it deactivate, and then hand it to the child. Wait for the child to communicate a request for assistance. Appropriately reinforce any attempts at communication.

Communicative Temptation Three:

Material:

- Six blocks
- A box or container
- An animal toy

Procedure:

Give the child six blocks to drop into the box, one at a time. Then immediately give the child a toy animal to drop in the box. Wait for the child to communicate a protest or request for information on what to do with the animal. Appropriately reinforce any attempts at communication.

Communicative Temptation Four:

Material:

- Books (2 unfamiliar and 1 belonging to the child)

Procedure:

Sit next to the child and go through the books one at a time. Display all three books, wait for the child to request for his book. Appropriately reinforce any attempts at communication.

Communicative Temptation Five:

Material :

- A container of bubble solution (Appendix 6)

Procedure:

Open the bubble solution container and blow bubbles, and let the child see you enjoy the activity Close the container lid tightly and then hand it to the child.   Wait   for   a communicative response. Appropriately reinforce any attempts at communication.

Communicative Temptation Six:

Material:

- A balloon

Procedure:

Blow up a balloon and slowly deflate it, making a game of it. Hand the deflated balloon to the child, or hold the deflated balloon up to your mouth. Wait for a communicative response from the child. Appropriately reinforce any attempts at communication.

Communicative Temptation Seven:

Material:

- Cold / wet / sticky substance (i.e., melted toffee, glue)

Procedure:

Place the child's hands in a cold, wet or sticky substance and then wait for a communicative response from the child. Appropriately reinforce the child for any attempts at communication.

Variations:

- Any other substance which is disliked by the child may be used

Communicative Temptation Eight:

Procedure:

Initiate a familiar social game (i.e., peek-a-boo) with the child until he expresses pleasure. Then stop the game and wait for the child to communicate displeasure at stopping the game Appropriately reinforce the child for any attempts at communication.

Communicative Temptation Nine:

Material :

- A ball
- A round rattle
- A toy on wheels

Procedure:

Roll a ball to the child. After the child returns the ball three times, immediately roll a round rattle or a toy on wheels to the child. Wait for a communicative response from the child. Appropriately reinforce any attempts at communication.

Communicative Temptation Ten:

Procedure:

Wave and say "bye-bye" to a toy upon removing it from the play area. Repeat this for a second and third toy, and do nothing when removing a fourth toy. Wait for a communicative response from the child. Appropriately reinforce any attempts at communication. These four trials should be interspersed throughout the other communicative temptations, rather than be presented in a series.

Communicative Temptation Eleven:

Material:

- A Food item disliked by the child

Procedure:

Hold a food item that the child dislikes near the child and offer it to him. Then wait for the child to make an attempt at communicating his dislike for the food item

Communicative Temptation Twelve:

Material:

- A desired food item
- Container with firm lid

Procedure:

Place a desired food item in a clear container that the child cannot open while the child is watching. Put the container in front and within reach of the child. Wait for the child to make an attempt at communicating his desire for the food item or container to be opened.

Communicative Temptation Thirteen:

Material:

- A toy animal / doll

Procedure:

Hide the animal/ doll under the table. Knock on the table and bring out the animal / doll. Have the animal / doll greet the child the first time. Repeat this for the second and third times, and do nothing when bringing out the animal for the fourth time Wait for a communicative response from the child. Appropriately reinforce any attempts at communication.

These four trials should also be interspersed when presented, similar to communicative temptation number ten.

Communicative Temptation Fourteen:

Material:

- Noise maker
- Opaque bag

Procedure:

Put the noisemaker in the bag and shake it in front of the child. Hold up the bag and wait for a communicative response from the child. Appropriately reinforce any attempts at communication.

Communicative Temptation Fifteen:

Procedure:

Engage the child in an activity of interest that necessitates the use of an instrument for completion, (e.g., a crayon for drawing, a spoon for eating, or wire wand for blowing bubbles). Have a third person come over and take the instrument from the child, go and sit down on the other side of the room, while holding the instrument within the child's sight. Wait for a communicative response from the child. Appropriately reinforce any attempts at communication.

Activity 2 : The missing piece

Material:

- Puzzle (ready made or self made - Appendix 6)

Procedure:

Present the child with a puzzle that has either 1 or two pieces missing. Instruct the child to put it together. Wait for a communicative response from the child indicating that a piece is missing or to give him the missing piece. Appropriately reinforce any attempts at communication.

Activity 3:

Procedure:

Give the child any activity that requires the use of an instrument, (i.e., crayons and paper for drawing, paint and brush for painting etc..) and withhold one of the instruments required to carry out the activity (i.e., give the child some paper and ask him draw a picture). Wait for a communicative response from the child indicating that something is missing. Appropriately reinforce any attempts at communication.

TREATMENT GOAL:
COMPREHENSION OF VERBAL COMMANDS

Any of the activities in Chapter four may be utilized in achieving this goal. However, more emphasis needs to be paid to ensuring the child understands the command and carries it out. Here, some of the general language techniques such as modelling, imitation and repetition are incorporated into the activities to ensure the child has comprehended the task on hand, and is able to carry out instructions. Definitions of the general language techniques can be found in Appendix 4.

Activity 1: Get me the ...

Procedure:

When playing a game that requires materials, such as 'Oh ... I'm Sick' (pg. 85), set it up such that the required materials are on the other side of the room. The therapist must instruct the child to get each item required, one by one.

Activity 2 : Traffic lights

Materials:

- Three colour cards (red, yellow & green)
- Chalk

Procedure:

A series of roads must be drawn on the floor with chalk that the child is supposed to walk along. At the end of the road is a gift for the child. The therapist is the traffic light, and the child can only walk if the traffic light is green. The therapist controls the child's movement using a verbal command, initially accompanied by colour cards to represent what the child must do. The red card means the child must 'stop'. The yellow card means to 'get ready', and the green card means 'go'. Once the child is able to follow the commands as indicated by the colour cards, slowly fade out the use of the card, retaining only a verbal command of either 'stop', 'get ready' or 'go'.

<center>*Activity 3 :* Action cards</center>

Materials*:*

- Action cards

Procedure:

The ASD child comprehends better with visual aids. Thus, the therapist can have at her disposal action cards depicting things the child may be engaged in doing during the therapy session. When the therapist wants the child to do an action or follow a command, an action card is used to accompany the verbal instruction to the child. The child will have to be familiarized with each action card and modelled the expected response on seeing a card. This can be done in a game-like manner. Once the child knows the expected responses, the cards can be teamed up with verbal instructions at any time during therapy. Once the child performs consistently, slowly fade out the use of the action card, finally using only a verbal instruction.

TREATMENT GOAL:
INCREASING EXPRESSIVE VOCABULARY

Once again, in working on this goal, any of the activities mentioned in Chapter Four can be utilized, with parallel usage of modelling, matching and imitation. The area in which the child's vocabulary is to be improved is determined by the results of baseline assessment. Depending on the area's in which the child is lacking, that topic can be taken up in matching tasks, using the hierarchy given in appendix 14. Music therapy is another noted successful approach to increasing the communicative output in ASD children (Edgerton, 1994, Aldridge, Gustorff and Neugebauer, 1995). Thus incorporating music into the therapy sessions could prove to be useful. The following are some activities the therapist can utilize to increase the child's expressive vocabulary.

Activity 1: My Word Book

Material:

- An unruled note book
- Colour pictures

Procedure:

The therapist can create a book for the child in which the new words that the child is exposed to are logged. The book can be divided into different sections, for different types of words (i.e., nouns, verbs, adverbs, adjectives etc.). Each vocabulary item can be represented by pictures, and or words.

Activity 2 : Surprise box - My Box

Material :

- Two boxes
- Toys or objects that the child is unfamiliar with

Procedure:

A 'surprise box' can be kept on one side of the room, and another 'my box' can be kept on the other side of the room. The 'surprise box' should contain a minimum of 5-10 items that the child is unfamiliar with, and the therapist intends for the child to learn. Each session, the child can be made to go and choose one item from the 'surprise box' to learn about. The item is given to the therapist, who explains 'what it is'. Once the child is familiar

with the item it can be placed in the 'my box'. Additionally, each session, the child can be made either review all or selected items in the 'my box'. Once the child is able to name the items consistently in the 'my box', the item may be transferred to 'My book' in picture form and or word form.

TREATMENT GOAL:
CONTROLLING EXPRESSIVE EXCESSES

Many an ASD child presents with expressive excesses like echolalia, jargon, neologisms and perserveration. The therapist can attempt to control, manipulate or extinguish these excesses to facilitate communication.

Echolalia:

The therapist must evaluate in detail the child's usage of echolalia, find out exactly what type of echolalic utterances the child is uttering. Appendix 14 has the different types of echolalia that has been seen in ASD children (Fay et al., 1980). Once the therapist knows the type of echolalia exhibited, the next step is to find what context it is being used in, i.e., does it serve a communicative function. If the echolalia is serving a communicative function this can be modified more readily into a meaningful utterance.

A number of techniques used effectively in controlling echolalia in ASD children have been reviewed by Fay et al., (1980). Some of these are highlighted below.

1   Teaching *verbal imitation skills* is a useful method of controlling echolalia. Children with echolalic behaviour normally fail to "produce speech upon command" and in an appropriate context. Consequently, teaching speech imitation skills does not depend upon establishing novel behaviour, but rather on a shift in stimulus control. Poor stimulus control is apparent when commands are repeated rather than carried out or when words or phrases cannot be deliberately initiated even though they are high frequency items within a most likely delayed echolalic repertoire. Teaching appropriate speech to echolalic children can be viewed as the teaching of increasingly refined discriminations between appropriate and inappropriate speech imitation.

2.   Teaching imitation and stimulus control can be conceptualised as *prompting* and *prompt fading* Prompt fading is used to teach the child discriminations between those conditions in which it is appropriate to repeat and those conditions in which it is not. One of the most frequently used techniques for

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this is *volume prompting*. The discriminative stimulus (e.g., a question, such "What is this?") is presented almost inaudibly while the verbal prompt, the answer, such as "This is a ball") is presented loudly, such that only the prompt is imitated. The volume of the discriminative stimulus is gradually increased while the prompt is decreased in volume.

3. Another technique, the therapist could try is manual prompts i.e., the clinician actually holding the child's mouth shut.

4. Pausing prompts have also been reported as effective in teaching echolalic children to imitate when asked to do so, for example, in response to "say...(pause)... flower."

5. These techniques can be used effectively in conjunction with extinction, time-out, and verbal instructions such as "Don't echo', to further inhibit inappropriate echoic responding (Lovaas, 1977)

6. Cue cards with written words can be used as a visual prompt with children who demonstrated excellent written word discrimination skills, an ability that is not uncommon in autistics (Tramontana and Shivers, 1971).

7. Audiotaped recordings of verbal prompts may be used. In this case, the child learns to repeat tape-recorded phrases rather than the therapist's speech. This strategy may circumvent the need rely on irrelevant cues such as volume shifts or manual prompts. (Palyo et al., 1979)

8. The verbal prompt may be presented before questions or instructions are worded (Ausmana and Gaddy, 1974) For example, the therapist would say,

    "Sitting - What is the girl doing?"

    and reinforce as soon as the child repeats the word sitting without giving the child a chance to repeat the question.

9. The child's response alternatives can be presented along with the question in order to facilitate a non-echoic response (Ratusnik and Ratusnik, 1974). For example:

> "Here is the food we have for lunch: Rice, dhal, pickle, gulab jamun ... what do you want?"

In using verbal prompts with echolalic children, it should be realized that some of the problems that are commonly encountered maybe due to the excessively lengthy and complicated verbal instructions and prompts. For example, fewer problems may be encountered if instructions are presented non-verbally. Rather than asking the child "what is this?", objects could be placed on a response block or held up, then gradually fade in verbal instructions. Use of excessive verbalizations may be harmful rather than beneficial in the early stages of training.

Complete elimination of echoing behaviour should never be the objective of behavioural procedures. Attempts should be made to use echo behaviours to establish more appropriate speech. However, while the child may learn not to echo questions addressed to him, appropriate responses to such questions usually need to be separately taught (Lovaas, 1977; Palyo et al., 1979). Consequently, teaching efforts should focus upon the ability to imitate speech upon command, and upon the attachment of meaning to, and the functional use of, imitated speech.

Jargon, Neologisms & Perserveration:

Here, as with echolalia, verbal prompting and manual prompting can be utilized.

Examples:

1. Verbal prompting : when the child utters a neologism or jargon, or exhibits perserveration, the therapist gives the child a verbal cue or prompt such as "No", which might initially be accompanied by an action gesture such as finger or head shaking, or putting the index finger over the lips. Slowly, the prompting should be faded out.

2. Manual prompting : When the child utters a verbal excessive behaviour, the therapist immediately closes the child's mouth.

Additionally the therapist may wish to try using behaviour modification techniques such as time-out, negative reinforcement, shaping and extinction to reduce these undesirable verbal excesses.

Examples

1. Time-out : The therapist and child are looking at a picture of a child playing the park and describing its contents.

Therapist: Oh, look at the big tree.

Child: Yes, the big tree.

Therapist: It is near the swing, and it has birds in it.

Child: Swing... The big tree ...

Therapist: (immediately) ... has birds in it. It is near the swing.

Child : yes birds ... in the big tree ...

Therapist : The child is swinging ...

Child: the big tree ...

    (immediately the therapist removes the picture from the child's vision and looks away for 30 seconds, after which the picture is put back in front of the child)

Therapist: The child is having fun (therapist claps her hands together with

    glee). Her hair is blowing in the wind.

Child : Oh ... fun… Swinging fun.

    (therapist uses similar time-out if the child says 'the big tree' again during the conversation)

2. Negative reinforcement : For every neologistic utterance the child says, the therapist may place a finger on the child's lips and give a headshake to indicate 'no'.

3 Shaping : The therapist shapes one of the child's neologistic utterances.

4. Extinction : The therapist uses this technique on neologistic or jargon utterances.

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These techniques can be implemented during any of the activities carried out with the child during which he exhibits an expressive excess.

TREATMENT GOAL:
DEVELOPING DIFFERENTIAL EXPRESSION OF 'YES' AND

To reply 'yes' or 'no' to a probe usually requires decoding the question, mentally responding to the message, and choosing the appropriate answer. For a child who tends to be as concrete-centred as the ASD child, this is indeed an abstract task (Fay et al., 1980).

An important factor in normal acquisition of 'yes' is the intonational clue (upward inflection) of the terminal word of the probe (Fay, 1975). Intonation can be a powerful tool to help the child comprehend.

Again, visual aids may be used to assist in developing appropriate 'yes' 'no' responses. For example, picture cards with an adult nodding (yes), and an adult shaking her head (no) for the therapists action, and similar ones with a child carrying out the action for the child. Whenever, a particular response is expected, the picture card can be used to prompt the child and elicit the required response. As with any prompts, this should eventually be faded out.

Activity 1 : Is this yours?

Materials:
- objects belonging to the child (i.e., hat, book, pencil box etc...)
- objects belonging to the therapist (i.e., pen, watch, book etc...)

Procedure}

The objects belonging to the child, and the therapist are put together in a box. The therapist takes out one object at a time, and asks the child "Is this yours?". The correct response should first be modelled, then the child can be made to imitate, and then elicit the required response with an accompanying prompt, finally fading the prompting away.

Activity 2 :

Procedure:

Routine events in the therapy situation can be used to set up many models of correct usage of affirmation and negation. For example, the therapist and child are seated in the play

corner just finishing off an activity before it's time to leave. Once the activity is over, the following takes place:

Therapist: "The game is over!", "it's time to go" (gets up, the child

imitates her. The therapist takes the child's hand and walks out of the therapy session without putting on their shoes).

Child : "shoes" (and looks at his feet)

Therapist: "Oh **no** ... we forgot our shoes ..." (laughs) "Do you want

your shoes?"

Child: "Want shoe ..."

Therapist: **"Yes** (nodding), you want your shoes?", (rising inflection)

Child: (nods)

Therapist: **"Yes** (nodding), you want your shoes" "Are your shoes

inside?" (points to the room)

Child : (nods) (therapist immediately nods and says 'yes' along with the

child's head nodding)

Child: "yea... (therapist immediately says 'yes' again and nods, with a large

smile ... and takes the child inside)

Therapist: "Lets put our shoes on ... (holding up the wrong shoes)

are these your shoes[9]"

Child: (nods) ...

Therapist: "No (shaking head) these are **not** your shoes.. (again

pointing to the wrong shoes) Are these your shoes?"

Childs: (shakes head) (therapist immediately shakes head and says 'no' along

with the child's head shaking)

Therapist: "No, these are **not** your shoes!" (shaking head, takes the

child's shoes and points to them) **"These** are your

shoes!" (smiling and nodding) "Are these your shoes?"

Child : "Yea.... Me shoes" (smiling)

Therapist : **"Yes,** your shoes (nodding) ...lets put them on"

Thus the therapist has provided the child with a number of models of 'yes' and 'no' in a natural context.

Activity 3: How absurd!

Materials:

- Simple objects (i.e., socks, shoe, hat,)
- Absurdity picture cards (appendix 6)

Procedure:

Absurd situations are created for the child using props, and the child evoked to respond with affirmation or negation. For example, the therapist puts socks on her ears, and asks the child "Do you wear socks on your ears?" ... or puts a hat on her head and asks the child "Do you wear a hat on your head[0]"

Variation:

- Absurdity picture cards can be shown to child as a level up from a real situation, and the child can be asked if the picture is correct.

TREATMENT GOAL:
IMPROVING PERSONAL PRONOUN USAGE

Activity 1: Who has it?

Materials:

• A toy of interest to the child

Procedure:

The therapist and child should be seated on the floor opposite each other with one or two dolls seated on either side. The therapist places the toy with a third person and starts of a conversation with the child regarding who has the toy, using lots of modelling of correct pronoun usage. For example,

Therapist: "Who has the toy?", (looks around at the child, the third

person and finally herself)

Therapist: "I don't have it..." (then looks at the child) "Do you have

it?". (Therapist awaits the child's negative response)

Child : "Me no have it",

Therapist: "Oh.... Who has it then[9] I don't have it" (points to herself, then

looks at the third person) "Do you have the toy?"

Third person : " I have the toy ... look" (Therapist waits for child to look

towards the toy)

Therapist : "Oh look, he has the toy ... I don't have the toy (points to self) ..

You don't have the toy (points to child) ... Do you have the toy?"

Child : "No, I don't have the toy, he has the toy"

Variations:

The conversation can be controlled to promote the personal pronoun on which the child is having difficulty.

Activity 2: Pass-the-ball

Material:

• Music with a beat
• A large colourful ball

Procedure:

   The therapist must first teach the child to pass the ball around while the music is playing, and hold the ball if the music stops. The therapist and child are seated opposite each other (This activity works best if there are more people). The music is turned on and the ball is passed between the therapist and the child. When the music stops, the ball is held, and the holder must say "I have the ball"

<p style="text-align:center">Activity 3: Intensive repetition</p>

Procedure:

   The therapist should make it easier for the child to learn a rule of pronoun usage by repeating sentences illustrating the rule again and again in a short space of time. For example,

     Child : Him no has hat (pointing to a picture of a child without

        a hat)

     Therapist: **He** has no hat? I wonder why. **He** has a hat (point

        to another childs in the picture with a hat), and he has a hat

        (point to another child), and he has a hat (point to another

        child), but he has no hat (pointing to the original child in the

        picture) Maybe he left it at home.

Thus, you would have provided the child with six examples of "He" in less than a minute. If this kind of repletion is provided throughout the session in natural conversations, the child has a better chance of learning the rule. However, don't provide intensive repetition for every rule the child has difficulty with. Choose one or two and stick to those.

<p style="text-align:center">Activity 4 : General Modelling</p>

Procedure:

   In general, the therapist should provide the child with as many models of correct pronoun usage throughout the therapy session. Prompting may be used when required to elicit a correct response

TREATMENT GOAL:
IMPROVING WORD, SIGN OR PHRASE RETRIEVAL SKILLS

Activity 1: Name them fast

Materials:

- Timer
- Category card books (Appendix 6)

Procedure:

The child is instructed to name as many items in a category as he can in a given amount of time. For example, "Name as many animals as you can in one minute". The therapist writes down his responses, and gives the child feedback on repetitions. If the child gets stuck, prompts may be given in the following hierarchy,

           1. Descriptive clue

           2. First phoneme

           3. First syllable

           4. A picture

           5. The name

Variation:

- Signs or phrases may be used in place of words

Activity 2: Concentration

Procedure:

The therapist and child may either stand or sit opposite each other but within hand reach. This is a clapping game that requires the repeated sequences of clapping both hands together, and then clapping one each of the child's hands. While clapping, the following chant is said by the therapist, (dots beneath the words show when the clap should occur)

'Con-cen-tra-tion, concen-tration concen-tration, keep, the,

  •   •   •   •   •   •   •   ••

rhy-thm, keep the rhythm of the beat Na-mes, o-f, frui-ts, ap-ple'

On the next clap the child must say a fruit, and so on, alternating between therapist and child, until one person misses the beat (doesn't name a fruit in time).

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Variations:

- Any category can be named (i.e., animals, vehicles, people, places etc...)
- Phrases can be used instead of words

Activity 3: Name Place Animal Thing

Material:

- Paper and Pencil (for children with good writing skill)
- Category card books for Names, Place, Animal and Thing (Appendix 6)
- Timer
- Alphabet wheel (Appendix 6)

Procedure:

The therapist and child each have a piece of paper, with four columns drawn on it with the headings name, place, animal and thing.

The alphabet wheel, card books and timer are placed between the child and the therapist. Each takes turns at spinning the wheel. When the wheel stops spinning, the timer is switched on, and the letter on which the pointer stops is the stimulus letter. A time limit (e.g., two minutes) is set, and started when the wheel stops spinning The object of the game is to write down one name, one place, and one thing beginning with the selected letter before the time runs out. Once the time is up, or both the therapist and child have written down the items, their answers are compared. Each correct answer is given one point, but if there is a common answer between the therapist and child, no marks are awarded. If one category is left blank, a card can be picked from the respective card book and alphabet for an answer. This can be done several times, and the winner is the person to get the maximum number of marks.

Variations:

- In the case of a child who has poor writing skills, the game can be played orally.
- Any category heading can be used, including phrases
- If being played orally, signs can also be used instead of words

Activity 4 : What am I

Material:

- 'What am I?' book (Appendix 6)

Procedure:

The therapist and child are seated opposite each other. The therapist opens a page in the 'What am I book. For example, it opens to "Candle". Read the clues for "Candle" on the back of the card on at a time to the child. I.e., I get very hot, I melt quickly, I give light, What am I? The child must guess what the object is. If the child is still not able to guess, give the fourth clue, I am made of wax. If the child is still unable to guess, show him the picture so that he may name it.

For the child who can read, the What am I book may be given to him to ask the therapist "what am I"

Variations:

- For the advanced child, the card book can be given (or just the word can be given), with the instructions not to look at the clues, but to make up his own clues.
- "Who am I?" variation can be done with people instead of objects (i.e., family, friends, famous people)
- "Where am I?" variation can be done with places (i.e., beach, mountain, river, waterfall etc ... or countries)

TREATMENT GOAL:

ESTABLISH RULES OF CONVERSATIONAL EXCHANGE

(LISTENING & TURN TAKING)

A conversation is like a game between two or more players, who may or may not be able to talk. It is a complicated game as it has so many rules. And the only way an inexperienced player (the child) is going to learn these rules is by playing the game with a more experienced player (the therapist). Once they learn the basic rules, their ability to participate in a conversation improves, which dramatically increases their opportunities for learning language (Weitzman, 1992).

There are a number of strategies that the therapist can employ while helping the child learn the rules of conversation. Weitzman, (1992) has given the following,

- Treating almost anything the child does as if it were an attempt to communicate. E.g., in the case of an infant burping, the therapist will say " Oh, what a big burp! Now you feel better", or when a child startles in response to a noise, the therapist says "What was that big noise?". Thus the child is being given a turn in the conversation, even though he may not know it yet.

- As the child develops, you expect more from him. If the child is making sounds, hold out for those kinds of sounds when you are trying to get the child to take a turn.

- A child can learn much about turn-taking from games like peek-a-boo or social routines (having a specific way of being played, with only a few actions or words, are repetitive, and have clearly defined turn's for each person), and with practice, the child becomes familiar with the routine and takes his turn spontaneously. Eventually, he may initiate the routine, and the therapist must follow him.

- Get the child's attention - Be face to face with him

- Take the child's turn for him if he doesn't respond, then continue with the game. Keep the game going so that the child learns how it's played, even if he doesn't take his turn.

• If the child seems uninterested in the game, try another game.

- Provide the child with plenty of opportunities for practice

- Once a child knows a game or social routine well, change it slightly so that he learns to take turns in different situations

- Create new routines by treating the child's actions and sounds as initiations

- Wait expectantly to signal to the child that it is his turn

- Vary the games actions or words, especially when the child's interest begins to fade.

- Don't take the child's turn for him if he can do it himself.

- Set the stage for the child to initiate well-known routines by getting into position for the game, but not starting it.

Activity 1 :   Peek-a-boo (As described on pg 37)

Activity 2 :   Nursery Rhymes

Procedure:

The therapist sings a nursery rhyme to the child, complete with actions. This is repeated several times, so that the child is familiarized with the song, and the corresponding actions. Next, pause at appropriate spots in the song and look expectantly at the child, as if to say "It's your turn to do something[1]". If the child attempts to respond, reinforce him with praise and smiles, and do the action as it is supposed to be done, then continue with the rhyme If the child does not respond, give him prompts to help him along.

For example, the rhyme twinkle twinkle little star with accompanying actions of twinkling stars represented by opening-closing movements of the fingers.

The nursery rhymes used should be selected based on the child's culture and ethnic background.

Activity 3: Role Playing (Oh I am sick! - As given on pg 85)

Procedure:

The therapist and child take different roles in the role-play, and must act out a situation as lead by the therapist.

Variations:

- Any situation can be taken up in the form of a role playing activity
- Other children, or therapists may be invited to participate in the role play
- Complexity of the roles can be increased by changing the number of actions and events, e.g.,

    simple - patient sick, calls for doctor, doctor comes and checks patient, gives medicine, doctor goes

    Complex - Patient is feeling ill, tries to go to school, but feels too sick and comes home again. Patient tries to eat something but throws it up. Patient calls the doctor on the phone, and tells him what is wrong. Doctor suggests some remedies, and sets up an appointment for the next day. The next day, patient visits the doctor and waits in the reception for his appointment. The doctor calls him in, and does a thorough check-up The doctor prescribes some medicine and arranges for a follow-up visit. Patient goes home, buying medicines on the way home.

TREATMENT GOAL:
DEVELOPING QUESTION AND ANSWERING SKILLS

The child should be given as many opportunities as possible in which he will be required to either ask questions or answer questions or both. It is the therapists task to create different situations which will evoke questioning and answering behaviour, that is the communicative functions of requesting information or supplying information about a particular object, person or event. In the initial stages, the therapist will have to give as many models of appropriate question and answering behaviour as possible to the child so that the child will become familiar with the rules. Next, the therapist must evoke the required response from the child in different situations and contexts, giving cues and prompts when required. As with any other task, remember to fade off the prompting as soon as the child is seen to respond consistently. Finally repeated practice must be given to ensure stability of the response in different contexts.

Activity 1: Role-playing

Material:

- As required for the role game enacted

Procedure:

The same procedure as in pg. 84 and pg. 85 is used. However, in this case, more emphasis is placed on asking questions and answering them. For example, the doctor asks the patient questions about his illness, which the patient answers.

Activity 2 : Story reading

Material:

- Reading material appropriate to the child's level

Procedure:

Either the therapist reads a story aloud, or the child is made to read the story (if reading skills present). The story is read several times to ensure that the child has comprehended the story. The therapist then asks the child questions about the story.

Activity 3: Surprise Box-My Box

Procedure:

The same 'surprise box' and 'my box' described on pg. 94 can be utilized. Here, the child is allowed to take one 'new' item from the 'surprise box' and he must find out about it by asking questions of the clinician, such as 'What is it?', 'What is it used for?', 'Who uses it?', etc... Once the child is familiar with the object, he may put it in the 'my box'. Next, the clinician will choose an object from the 'my box', and ask the child similar questions about it.

TREATMENT GOAL:
FACILITATING CONVERSATION REPAIR

The ability to persist, and if necessary repair unsuccessful communication attempts may be the most important factor in assuring successful expression of intent (Prizant and Wetherby, 1985).

Individuals with ASD may not persist in expressing intent if the initial communicative attempts are unsuccessful. Furthermore, due to limited knowledge of communicative means, attempts at repair may be few and may not include shifting to alternative means when communication is unsuccessful (Prizant and Wetherby, 1985).

Strategies for helping an individual acquire knowledge about communicative repair vary according to developmental and communicative level of functioning. For children at preverbal levels, communicative effectiveness may depend upon a child's ability to combine communicative means (e.g., use vocalizations plus gestures), or shift to an alternative communicative means. Frequently, children who learn to use augmentative systems also learn to apply knowledge of alternative means in attempting to repair communicative breakdowns (Prizant and Wetherby, 1985).

At verbal levels children may need to learn that there are alternative ways to express intent through language. Furthermore, if breakdowns occur due to lack of intelligibility or comprehension of the language of others, the use of requests for clarification (e.g., "Please say that again?" or "I don't understand", may have to be taught explicitly to enhance a child's ability to repair breakdowns in communication. The ability to develop strategies for repairing communicative breakdowns is essential in assuring that what one intends to communicate results in the communicative act functioning as intended (Prizant and Wetherby, 1985).

TREATMENT GOAL:
IMPROVING INTERPRETIVE SKILLS OF FIGURATIVE SPEECH

Taking the figurative literally is one of the problems which autistic people with verbal ability face. It is caused by figurative expressions, abstract words that are too 'elusive' and words with double meanings (Peeters, 1997). An example cited from Peeters (1997) is of a boy who was told after a walk in the rain that he had to wipe his feet. He promptly took off his shoes and socks and wiped his feet on the mat. Another ASD child insisted on putting his bicycle inside every evening. The parents only understood why several weeks later: their son had heard someone say, 'Night is falling.'

If the 'normal' meaning of words is changed, autistic children can become very confused. Ordinary children love to turn the world upside down, but for children with autism, it is terrifying. It is already difficult enough to understand the world in its literal sense. If everything can mean the opposite as well, then no thank you. The most gifted people with autism, who have large vocabularies, who do not seem to have many difficulties with syntax or word sequence, still have problems differentiating between major and minor issues.

The following are some activities that the therapist can use to help the ASD child to make sense of speech that doesn't mean what it means.

Activity 1 : "Picture it"

Material :

• Category card books (Idioms, similes, slang, proverbs and jokes) (Appendix 6)

Procedure:

The therapist can utilize picturisations of idioms, similes, slang, proverbs and jokes in category card books, to visualize the literal and figurative meanings of speech for the child. Using the visual aid, the therapist can explain the literal meaning of the phrase, and the figurative meaning of the phrase, and then explain and show the difference between the two. Various types of figurative speech can be explained to the child.

Activity 2 : Listen for it!

Procedure:

The child can be instructed to listen carefully for figurative speech used in his daily environment (i.e., at home, at play, at school etc.), make a note of them, and bring them to the therapy session. In session, the child is asked to explain, what he thinks is the literal and the figurative meaning of the phrases collected. If the child is correct, reward him appropriately. If the child is wrong, explain where and why he has gone wrong. Keep a record of the various 'figurative' speech the child comes into contact with, so that they may be brought up in later sessions for review.

TREATMENT GOAL:
DEVELOPING AN ALTERNATE SYSTEM OF COMMUNICATION

Non-speech systems for communicating (e.g., picture boards, sign language, and sight-word boards) provide individuals with limited communicative ability with more conventional and more efficient means of communicating (Prizant and Wetherby, 1985; Fay and Schuler, 1980; Peeters, 1997). While these findings pertain to sign language mainly, other non-speech systems have also been used, including plastic symbols, Blissymbols, pictorial and written word systems, microcomputers, as well as variations and combinations thereof (Schuler, 1985).

Very little data is available regarding the use of pictorial systems, such as communication boards, pocket picture books, etc. The report on the successful use of a picture language consisting of coloured pictures of objects, by an adolescent with autistic traits (Murphy, Steels, Gilligan, Yeow & Spare; 1977) however supports the feasibility of a pictorial approach, an approach that seems to be growing in popularity, particularly as applied to able bodied but otherwise severely handicapped individuals (Mirenda, 1985). Computer assisted systems, incorporating a keyboard and a display screen would seem at least equally compatible with autistic cognitive styles and processing preferences.

Thus, using the picture approach or attempting to teach sign language to the ASD child, on whom speech and language training has had little effect, seems to be a practical option to establish communication in an otherwise non-communicative child.

The following are some simple augmentative approaches the therapist can utilize in communication training for the ASD child.

Activity 1: Picture Cards

Material :

- Picture cards

Procedure:

The ASD child comprehends better with visual aids. Thus, the therapist can create a series of functional cards, depicting actions the child may engage in during therapy as well as the rest of the day, made into a picture book to be handled by the child. Additionally, the therapist can have a picture book, with pictures representing actions the therapist wants the child to do.

As new concepts and vocabulary are taught, picture cards can be added on and organized in terms of frequency of use, and functional needs. The basic steps according to Kiernen and Jones (1985) that can be used are:

1. *Identification and selection of 'topics' for communication,* (e.g., asking for an object or reward)

2. *Selection of symbols to represent the object(s) reward(s) concerned* (e.g., colour photographs or line drawings to represent the object or reward)

3. *Establishment of setting* (i.e., a rigorously controlled environment with minimal distractors)

4. *Establishment of single element communication* (e.g., Child is taught to move a symbol into a tray)

- Teaching symbol use :

Symbols are to be pasted on to stiff 9 cm square cards and covered with a plastic material. A tray 63 cms long by 9 cms wide must be constructed to accommodate up to seven symbols. Initially a symbol card and a blank card of the same size are placed side by side projecting one centimetre from the tray. The reward is held up and the child's attention called, if necessary. On trials prior to acquisition of the correct response the child is physically prompted to push the appropriate symbol card into the tray. Simultaneously the reward is given to the child. When the child has consumed the reward, or experienced it for the designated time, the cycle is repeated. Prompts are to be faded as quickly as possible. Twenty trials are given in each session, Sessions last between 10 and 20 minutes.

Positioning of the symbol and blank cards is to be randomised across trials. Once the basic response of placing the symbol had been acquired the distance

between the symbol and tray is gradually increased to 6 inches. Incorrect choices are followed by the response 'no', the choice is then corrected and the reward indicated is given.

Criterion performance is achieved when the child looks at the reward when it is held up and selects the correct card on ten consecutive occasions within a 20 trial session. Spontaneous corrections are accepted as correct responses.

All responses are to be recorded in terms of the number of times the child is called before his attention is attracted, whether the response was initially correct, or whether the child needed to be prompted, or whether an incorrect response was made and corrected either spontaneously or by the therapist. Form of errors, are also recorded. Vocalisations if present are recorded as well.

Step 4 is to be repeated in order to give at least two response sets which can be used in Step 5.

5. *Establishment of selection of rewards.*

The objective in step 5 is that the child should select his preferred reward through use of symbols. In other words the child is to be taught to ask to be given a particular reward through use of the symbol. There are three phases in step 5.

• Presentation of alternative rewards.

The purposes of the first phase of step 5 is to rehearse correct response to both rewards and to accustom the child to receiving both rewards within a single session. The two rewards used in step 4 are presented in random order to the child. On any trial the child's attention is called, one reward is held up. The other reward is not visible to the child during a trial. The appropriate symbol response is required for both rewards in a series of ten correct responses out of 20 within a session.

- Selection between rewards.

During all the steps thus far described a discriminative stimulus is displayed, the reward, a response was made by the child and their response followed by presentation of the reward. In phase 5b, the child is allowed to choose which of the two rewards presented he prefers. This phase moves a step further towards 'communicative' use of symbols.

Both rewards are held up to the child and the therapist asks the child 'what do you want?'. The child is given the reward appropriate to the symbol that he produces first. The same procedure is followed on the second and third trails. If the same reward is selected on all three trials the alternative reward is held up alone, on the fourth trial. This allows a cheek on the adequacy of recall of the symbols for the least selected reward. This procedure is used following any run of three consecutive choices of either of the rewards throughout the session.

Criterion response on the second phase of step 5 comprises of ten consecutive correct responses to the 'questions', given within three seconds of it being asked and involves correct symbol correspondence.

- Selection between non-visible rewards.

The third phase of step 5 requires the child to select between rewards which he knew was available but that are not visible when choice is made. This phase would assist in getting generalization to a naturalistic setting.

Initially two rewards are shown and then concealed before the child is allowed to respond. The child is then asked 'what do you want?' and rewarded by being given the reward selected by the symbol responses that are made. Criterion response is the same as for phase (b).

6. Understanding of symbols and signs.

The first 5 steps involve learning that has been expressive. In this sixth step, the programme attempts to assess the child's ability to understand the symbols. The procedure involves giving the child two symbols. The therapist then holds up a copy of one of the symbols. The child has to match the therapist's symbol by selecting the appropriate one and placing it in the tray in order to be rewarded. Two and four symbol alternatives are then presented. Here the child has either two or four symbols. In order to be rewarded the child has to select the symbol corresponding to the symbol shown.

7. & 8. Use and understanding of 'no'

The seventh and eighth steps are potentially significant as communication involves an intention to affect the behaviour of another.

Activity 2 : Word Cards

Material:

- Word Cards

Procedure:

This is similar to the Picture cards, excepting that written words are used instead of pictures. This can be utilized effectively with ASD children who have good writing and reading skills. Here, the word cards can be utilized to develop written communication. The basic steps involved here are,

1. Develop a beginning functional vocabulary with word cards
2. Determine the correct semantic and syntactical sequencing of the word cards
3. Transfer the concepts learned with word cards to written communication

Conclusion

There is no dearth of literature or books written about autistic spectrum disorders (ASD), or their language characteristics, or various treatment procedures and approaches, few of which have proved effective, and many of which have not.

However, for the average therapist, not only is access to this material limited, practical utility and feasibility is almost nil. Hence there is a dire need for a resource of basic information that the average therapist can use when faced with an ASD child. So this manual was developed with the 'average therapist' in mind. As unless the therapist knows what to do, the ASD child has no hope. In no way is this manual intended to propose a hierarchical treatment protocol, nor a treatment program to habilitate the ASD child. The therapist, when faced with an ASD child, should be able to use this manual as a guide or framework from which an individualized, structured and organized therapy plan can be formed for an ASD child. That is, first carry out the intervention assessment to establish a baseline level of the child. Then evaluate the language profile that the child presents with, and choose appropriate goals to counter those deficits, and finally, choose activities that will help to achieve those goals.

It is our duty and responsibility as a therapist to do the best we can for the ASD child with what we have available. Duchan (1985) gave a "Retribution Checklist for Diagnosing Deviant Professionals" that an autistic child might like to use on us, the therapist.

1. Insists on having people name or point to objects.
2. Will not allow others to do what they call "self stimulatory" behaviours such as finger flicking or rocking back or forth.
3. Will not imitate self-stimulatory behaviours of others.
4. Resist sameness Prefer to alter events rather than enjoying their sameness.
5. Do not appreciate differences in intonation and rhythm in language (has not yet developed the ability to decentre)
6. Cannot yet understand or respond to meaningful echolalia even though they insist on having others repeat things after them.
7. Walk on whole foot, often placing heel down first.

8. Complain of dizziness after whirling and seldom engage in lunging and darting about.

9. Prefer moving toys forward and backward (e.g., trucks and cars) or stacking them (e.g., blocks) to lining them up.

10. Unusual need for mutual gaze. Often refuse to interact with people unless the people look them in the eyes.

11. Have not developed beyond the checklist stage in their ability to understand or evaluate others.

We must thus endeavour to fail this checklist and pass in their eyes.

Treating the ASD child is a challenge of insurmountable heights, not to be shied from. It takes zeal, effort, creativity and staunch commitment to attempt to unlock the door to their inner sanctum. It is hoped that this manual gives the therapist a platform from which to realize the maximum potential in helping the ASD child to communicate.

Out of clutter, find *Simplicity.*
From discord, find *Harmony.*
In the middle of difficulty lies *Opportunity.*

~ Albert Einstein

Appendices :

Appendix 1 : Stages of Attention

- *Stage 1*   (Approximate age 0 - 1 yr)

   Can pay fleeting attention, but is highly distractible

- *Stage 2*   (Approximate age 1 - 2 yrs)

   Pays rigid attention to an activity of his own choice

- *Stage 3*   (Approximate age 2 - 3 yrs)

   Single-channel attention

   Can attend to activity of adult's choice but is difficult to control

- *Stage 4*   (Approximate age 3 - 4 yrs)

   Single-channel attention

   Can control his own attention

- *Stage 5*   (Approximate age 4 - 5 yrs)

   Integrated attention

   Can attend fully, but for short spells only

- *Stage 6*   (Approximate age 5 yrs +)

   Integrated attention

   Can pay well-controlled and sustained attention

                              (Aarons and Gittens, 1987)

Appendix 2 : Prompting Hierarchy

When prompting is necessary, provide only as much assistance as the individual needs to experience success.

Level: Independence

Level 2: Add verbal information (e.g., an instruction)

Level 3: Add nonverbal information (e.g., gesture, model desired response)

Level 4: Add some physical assistance (e.g., touching or guiding the child)

Level 5: Putting the child through the required motions

Appendix 3 : Definitions of categories of communicative function (Wetherby and Prutting, 1984)

Category		Definition
Interactive:		
1. Request Object	:	Acts or utterances used to demand a desirable tangible object. Includes requesting consumable and non-consumable objects
2. Request Action	:	Acts or utterances used to command another to carry out an action. Includes requesting assistance and or other actions involving another person or between another person and an object.
3. Request Social Routine:		Acts or utterances used to command another to commence or continue carrying out a game-like social interaction. This is a specific type of request action involving an interaction between another person and the child.
4. Request Permission	:	Acts or utterances used to seek out another's consent to carry out an action. Involves the child carrying out the action.
5. Request Information	:	Acts or utterance used to seek another's consent about an object or event. Includes wh- questions and other utterances having the intonation contour of an interrogative.
6. Protest	:	Acts or utterances used to command another to cease an undesired action. Includes resisting another's action and rejection of an object that is offered.

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7. Acknowledgment of Other: Acts or utterances used to gain another's attention to indicate notice of their presence. Includes greeting, calling and conversational devices such as politeness markers and boundary markers.

8. Showing-off   :   Acts used to attract attention to oneself. The act is a gestural performance which may or may not involve an object as a prop or a vocal/verbal accompaniment to guide attention to the source of showing-off. The initial performance may be accidental and the child repeats the performance after realizing that it attracted another's attention.

9. Comment   :   Acts or utterances used to direct another's attention to an object or event. Includes pointing, showing, describing, informing and interactive labelling.

II : Non-Interactive

1. Self-regulatory   :   Utterances used to verbally direct one's own actions   Utterance immediately precedes or co-occurs with the child's motoric behaviour.

2. Label   :   Acts or utterances used to focus one's own attention to an object or event by identifying that referent.

3. Performance : Vocalizations used to accompany familiar actions or schemes applied to objects. Includes sound effects and ritualised vocalizations produced in synchrony with the child's motoric behaviour.

4. Exclamatory : Acts or utterances that express an emotional reaction to an event or situation. Includes expression of surprise, pleasure, frustration and discontent that immediately succeeds a salient event.

5. Reactive : Utterances produced while the child is examining or interacting with an object or body part. There is no evidence of communicative intent but the child is focusing attention to an object/body part and appears to be reacting to that object. May serve a practicing., or self-stimulatory function.

6. Non-focused : Utterances produced although the child is not focusing attention on any *object or* person. There is no evidence of communicative intent. May serve a practicing or self-stimulatory function.

3. Performance

Vocalizations used to accompany familiar actions or schemes applied to objects. Includes sound effects and ritualised vocalizations produced in synchrony with the child's motoric behaviour.

4. Exclamatory

Acts or utterances that express an emotional reaction to an event or situation. Includes expression of surprise, pleasure, frustration and discontent that immediately succeeds a salient event.

5. Reactive

Utterances produced while the child is examining or interacting with an object or body part. There is no evidence of communicative intent but the child is focusing attention to an object/body part and appears to be reacting to that object. May serve a practicing., or self-stimulatory function.

6. Non-focused

Utterances produced although the child is not focusing attention on any *object or* person. There is no evidence of communicative intent. May serve a practicing or self-stimulatory function.

Appendix 4 : General intervention techniques (Adapted from Haynes and Schulman, 1994, and Hegde, 1996)

Prallel Talk

Parallel talk occurs when the parent talks about what the child is doing, such as describing actions or objects that the child is interacting with. The parent might say to a child who is pushing a car, "You're pushing the car." Essentially, the parent "codes" linguistically what the child is feeling or doing (Van Riper & Emerick, 1984).

Self-Talk

In self-talk the parent performs an action or attends to an object while providing the linguistic code to describe it (Van Riper & Emerick, 1984). For instance, a parent might be putting a cake in the oven and say, "I'm putting the cake in the oven." In both parallel and self-talk situations the child is presented with a model that provides linguistic tags for ongoing events, feelings, and objects for which there is joint reference between parent and child. Either context could conceivably assist in language development.

Repetition

As mentioned earlier, the frequent repetition of parents (almost one-third of utterances) in early interactions could facilitate language learning. Often an utterance is broken down into portions and then combined again (e.g., "Throw the ball over here.... Throw it ... over here... Throw it to me… Give me that ball"). Recycling the message in many different ways, some of which are slightly discrepant, can logically aid in acquiring a language.

Expansion

One of the earliest mechanisms thought to be important in language stimulation is expansion. This involves taking a child's incomplete or telegraphic utterance (e.g.,—read book") and making it into a complete, adult like sentence ("Mommy will read the book"). Expansion obviously gives the child the opportunity to see how an utterance would be said by an adult and helps to "fill in the blanks" of a youngster's primitive constructions. Snow et al. (1976) found that middle-class mothers expand utterances significantly more than lower socio-economic parents. Some studies have found no experimental evidence that expansions aid in language development (Cazden, 1965), while other investigations support the effect of

expansions on language learning (Seitz & Stewart, 1975).

Recast Sentences

Some authorities view recast sentences as simply a variation of an expansion, but they are mentioned separately here because a body of literature is beginning to emerge on these mechanisms. A recast sentence, like an expansion, preserves the meaning of the child's sentence but adds new syntactic information. In the previous paragraph we stated that an expansion takes a telegraphic utterance and makes it adult like. A recast sentence can take a child's sentence that is adult like ("I like the dog") and change the syntactic structure to another sentence type ("You do like the dog, don't you?"). It is a subtle distinction, but perhaps a relevant one. Nelson, Carskaddon, and Bonvillian (1973) found that recast sentences presented to 3-year-olds increased their scores on syntactic measures in comparison to a group that did not receive intervention with recast sentences. Nelson (1976) increased complex sentences and verb forms in the spontaneous speech of 2 1/2-year olds by selectively using recast sentences in training sessions. Thus relevant recasts may play a role in the development of certain types of linguistic constructions.

Questioning

Howe (1980) has indicated that caretakers often ask children questions. Many of these questions (over 50% in some cases) do not really seek information because the caretaker already knows it or because the answer is obvious from the context. The purpose of these questions, then, must either be tutorial in nature or serve to initiate specific interactions. If a parent is reading a book with a child and looks at a picture of a boy climbing a tree, he or she might say, "What's the boy doing?" Another kind of question may serve as a prompt or contingent query. A child may say, I going (unintelligible)," and the parent says, "You're going where?" This question prompts the child to attend to a particular constituent and gives the message that communication failure has occurred.

Direct Teaching

Friedlander, Jacobs, Davis, and Wetstone (1972) report three varieties of direct instruction in language used by parents. First, there is "directed mimicry" in which the child is essentially told to imitate something (e.g., "Say ball"). Second, sometimes parents tell the child that something has been said wrong ("No, that's not a dog ... it's a cow") Finally, prompts in the form of non-linguistic,

nonverbal, or physical cues may be given. Here they refer to physical nudges or intonational cues, such as a parent poking a child to facilitate saying "You're welcome" or "Thank you." Early researchers (Brown & Hanlon, 1970) suggested that parents engaged in very little overt correction or teaching, but more recent studies have reported the occurrence of some direct and a greater amount of indirect feedback on the correctness of child utterances (Moerk, 1983; Hirsh, Pasek, Treiman, & Schneiderman, 1984, Demetras, Post, & Snow, 1986). Parents also engage in frequent routines that have verbal behaviours as an integral part such as politeness, trick or treat, and greetings (Gleason & Weintraub, 1978). These routines are taught most often on an elicited imitation basis, and the child is corrected if the correct utterance does not occur at the appropriate time.

Extension

Extension is sometimes known as modelling or expatiation, and it occurs when an adult responds to a child's utterance on the same topic, but the response is not simply a rephrased version of the child's utterance. For instance, if a child says, 'I like milk," and the parent responds, "You will grow big and strong if you drink milk," an extension of the child's utterance has occurred.

Shaping

A child who does not imitate a response needs the shaping procedure in which successive approximations of target response is reinforced. For example, f the child cannot imitate the word Mommy, you ask the child to make an mmm sound or to simply put the lips together, or to move the lips., and out of these initial responses, you shape the terminal response. In gradual steps, you add more complex features of the terminal response. The mmm sound is shaped into Ma, which is then shaped into Mom, which is finally shaped into Mommy.

In shaping a response:
- Break a complex or difficult response into smaller, more easily learned components
- Identify an initial response the child can imitate or produce with manual guidance
- Identify intermediate responses that are linked
- Identify the terminal response (the final target)
- Begin training with the initial response
- Use instructions, modelling, manual guidance, and prompting

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- Reinforce the imitated or spontaneously produced responses.
- As the initial response is reliably produced, move to the next response
- Each time one of the intermediate responses is reliably produced, shift training to include additional components of the terminal response
- End training with the terminal response; provide more training on this

Instructions

Most clients, even young children, can benefit from instructions that describe a target behaviour and, when appropriate, specify how it is produced.

- Give instructions in simple, direct language
- Combine them with modelling
- Assess the client's understanding of instructions (e.g., ask the client to repeat the instruction)
- Repeat instructions throughout training as found necessary

Prompting

Many children need prompting soon after the modelling is withdrawn. Gestures sometimes work as prompts and help evoke responses from an unsure child (for example, the gesture of drinking from a cup to evoke the response drinking) Instead of completely withdrawing

modelling, you can withdraw it partially; partial modelling works as prompts: "Say I see two can often evoke the response books (when shown pictures). Next, the clinician might say, " Say 1 see... ; " then, "Timmy, say, I . . . " This
method of reducing the power of a stimulus is called fading. Every time you use prompting, you also should use fading.

Manual Guidance

This technique involves providing physical assistance to execute a response. It is perhaps more useful in shaping a response and in comprehension training. For example, the clinician might gently push the jaw downward to encourage the child to open the mouth and vocalize. Similarly, the clinician might take the hand of the child and touch the right picture when comprehension is being trained.

Recast

Expansion of a child's utterance type into a different type of utterance is known as recast. This technique is used in play-oriented, unstructured treatment. The clinician and the child engage in play activity. As the child says something, the clinician expands it into a different syntactic form than the one the child produced or presumably intended, For example, the child may say "Big ball", the

clinician then might recast this into a question by saying is this a big ball?" Or, the clinician might recast it into a negation by saying "No, this is not a big ball." Whether this technique is effective has not been established in controlled studies.

Incidental Teaching

This is a technique conducive to teaching language in more naturalistic settings. It also is useful in latter stages of training when the clinician needs to move on to conversational or less structured treatment. Incidental teaching is a procedure in which natural communicative situations are used to reinforce a variety of target behaviours (Hart & Risley, 1982). By this time, the clinician will have trained many kinds

Incidental teaching is an excellent procedure for the parents to use at home. The procedure can be used in many natural conversational situations. It allows for spontaneity. Expansion is frequently used in incidental teaching. For example, when the child says "Mom, I want cookie," the mother may say "Do you want a cookie?., I will give you a cookie, here is a cookie. Take a cookie." The mother used the article a in different contexts to show how it is a part of many forms of sentences. Some clinicians ask the parent to require a

response from the child, others do not. Again, it may be more effective to ask the child to imitate one of the correct responses and reinforce the child. For example, the mother, after having expanded, and just before handing the cookie, might ask, "Say 1 want a cookie." The child might imitate the full response which would be immediately reinforced by the presentation of the cookie.

Incidental teaching can be useful in promoting response generalization and maintenance. Using natural opportunities, parents can teach new behaviours or sustain (reinforce) clinically learned behaviours. There is experimental evidence supporting the effectiveness of incidental teaching.

Mand-Model

This is a variation of the incidental teaching method, therefore, it is a more naturalistic teaching method. Treatment is conducted in play-oriented, naturalistic settings. First, the clinician draws the child's attention to a stimulus such as an attractive toy. Next, the clinician mands (request, command, demand) a response from the child by asking the child to "tell me what you want or "tell me what this is." If the child fails to respond, the clinician then models the correct, complete

response. The clinician then prompts the child to imitate the modelled response. The clinician finally reinforces the correct response by handing the toy to the child. There is controlled evidence about its effectiveness (Rogers-Warren & Warren, 1980).

The Cloze or Completion

The classic sentence completion method is used to have the child produce target responses. For example, you can show the picture of a man and that of a woman and then say "This is the picture of a man. But this is the picture of a ...." The child is likely to say "Woman." This is similar to partial modelling.

Joint Book Reading

A technique that exploits children's love for stories read to them from books containing large, colourful pictures is called joint book reading. In this procedure, the clinician reads the same story repeatedly so that children will memorize most of it. The clinician uses various prosodic features to draw attention to specific language structures. When the children know the story well, the clinician pauses just before specific expressions in the story that serve as language tar gets.

The children then are prompted to complete the sentences, thus encouraging them to use the target structures. In different readings, the clinician pauses at different junctures to sample a variety of cloze expressions from the children.

In joint book reading, the clinician also may ask the children to "read" the book by looking at the pictures (essentially telling the story through picture prompts). There is some evidence that joint book reading is effective (Kirchner, 199 1; Whitehurst et al., 1988).

Script Therapy

Scripts refer to knowledge children have about routine events, episodes, and personal experiences. For instance, a child's knowledge about the routines involved in shopping is a script. Scripts in this sense are not written; they are "mental" representations of events and experiences. ,

In script therapy, such knowledge-based representations are used to teach language skills, especially conversational or narrative skills. Script therapy is similar to joint action routines (interactions).

If a child does not have a well-established knowledge of events to be used in

treatment, the clinician creates it by recreating the event repeatedly in the clinic. For example, if the child does not have a script of eating out in a restaurant, the event is repeatedly created as a role-play so that the child acquires the knowledge (the script).

In using the script therapy, the clinician begins by describing the sequence of a selected event verbally (e.g., taking part in a birthday party). The clinician then assigns roles to each of the children and himself or herself (guests, parents, pizza delivery person). Using props, the clinician acts out the event. The clinician then repeats the event with roles reversed. The event may be repeated until the children are fully familiarized with the event and language expressions used. The clinician then begins to pause as the event is acted out for the children in the group to express themselves to carry the event further, increasingly complex language structures may be introduced gradually. Each child may be given an opportunities to complete the clinician's expressions as he or she pauses at different junctures.

The method appears more useful in group language therapy More research is needed to establish its efficacy

Few related procedures are variations of the script therapy or vice versa F, For instance, event structures are similar to scripts, they are used just as scripts in language therapy. An event structure is a description of a routine event which is acted out to teach various forms of language.

Joint action routines or interactions also use repetitive and routined activities in language treatment in the manner described under script therapy.

Whole Language Approach

An approach to language intervention based on a theoretical approach to reading and writing is called the whole language approach. The approach recommends that language teaching should not be broken down into speaking, reading, and writing, instead, all aspects of literacy including speaking, listening, reading, and writing should be taught simultaneously as an integrated whole. The approach also recommends that language teaching should include academic goals.

There is a great need to evaluate the effects and efficacy of this approach to clinical language teaching. It is not clear whether whole language is more effective

than traditional methods of teaching language to children with language disorders. Available clinical evidence suggests that children with limited language skills benefit from a teaching approach that simplifies the target behaviours. Controlled clinical treatment research is needed to demonstrate that the whole language approach is at least as effective as the other well researched approaches in teaching language to children with language disorders.

The message of the whole language approach that language skills are integrated is well taken. Anytime a skill is broken down into components, the components need to be put together and practiced as a whole.

RESPONSE REDUCTION PROCEDURES

Clinicians not only need procedures to increase the target behaviours, but also those to decrease undesirable behaviours. Children in language treatment produce incorrect language responses (as the child who says book for books) and undesirable general behaviours (such as off-seat behaviours or non-attending behaviours). The clinician needs procedures to reduce both the incorrect language behaviours and undesirable general behaviours. There are two major classes of response reduction procedures: direct and indirect.

Direct Response Reduction Procedures

In direct procedures, a contingency is placed on the behaviour that needs to be reduced, in the indirect procedures, no specific contingency is placed on the response to be reduced; instead, a desirable behaviour is increased by reinforcement so that the undesirable behaviour decreases.

Corrective Feedback

When the child omits the target response or produces an incorrect response, clinicians typically give corrective feedback in the form of verbal "No" or "That is not correct." Such corrective feedback is a part of all treatment sessions. The clinician should give the corrective feedback immediately after the wrong response is produced. Also, the clinician should measure the frequency of target behaviours so that if one type of feedback is ineffective, another type may be selected.

Reinforcement Withdrawal.

Withdrawing specific reinforcing stimuli or reinforcing state of affairs is an effective strategy to reduce unwanted

behaviours. There are two variations of this basic procedure: Response cost and time-out. Both have been extensively researched and shown to be effective.

Response Cost.

In this procedure, a reinforcer the child has earned may be withdrawn every time an incorrect response is made. For example, the clinician may take away a token for every wrong response (the child is reinforced with the presentation of a token for every correct response).

Time-out

In this procedure, the clinician terminates a reinforcing state of affairs. The clinician says "Stop" as soon as a child makes a wrong response and turns his or her face away from the child for a few seconds (5 to 10 seconds), Then the clinician re-establishes eye contact and continues the conversation or treatment trial presentation.

Extinction.

In this procedure, the clinician simply stops reinforcing an undesirable behaviour For example, if the child begins to cry during a treatment session, the clinician simply tells the child that "we can get back to work when you stop crying" and turns his or her back to the child and sits motionless. The clinician does not pay any attention to the child as long as he or she is crying. As soon as the crying stops, the clinician promptly turns toward the child, smiles, reinforces verbally or otherwise, and continues the treatment activity.

Indirect Response Reduction Procedures

In all indirect procedures, no contingency is placed on the behaviour to be reduced; instead, a positive reinforcement contingency is placed on a desirable behaviour that indirectly reduces the undesirable behaviour. There are several such procedures, only two will be described here.

Differential Reinforcement of Other Behaviour.

In this procedure, the clinician identifies a behaviour that will not be reinforced and any one of several desirable behaviours, none specified, will be reinforced For example, a clinician might tell a boy who keeps reaching for the stimulus materials on the table that he will not get a token as long as he keeps doing it but will receive a token for not doing it. Note that the instruction does not specify the behaviour that will earn the token. The clinician then will give a token if the child

keeps his hands on the lap., for keeping his hands on the table; for using his hands to hold the stimulus picture; and so forth. A variety of acceptable behaviours will be reinforced. As a result, the undesirable behaviour singled out for non-reinforcement will decrease.

Differential Reinforcement of incompatible Behaviour.

In this procedure, the clinician selects for reinforcement a desirable behaviour that is physically incompatible with the undesirable behaviour. For example, a boy who hits the one sitting next to him may be reinforced for drawing; drawing and hitting are incompatible. A child in language treatment who often leaves the chair may be heavily reinforced for sitting; the two are incompatible. Note that in this procedure, too, the undesirable behaviour is reduced indirectly by reinforcing another behaviour.

Appendix 5:: Types of echolalia (Fay et. al., 1980)

Some autistic children remain forever mute. Others become indefinitely plateaued at a psittacine level of echolalia and self-stimulating vocalizations Still others progress slowly toward a level of true language even while remaining extensively echolalic. For them the long period of echolalic is more than a static state of unaltered reproductions.

Thus, there are many degrees of echolalia that reflect levels of emergence from an automatic state. Baker et al. (1976) provided subcategories of imitations and echoes for a comparative analysis of autistic and developmental receptive aphasic disorders:

1. Immediate repetitions of self - prompted or appropriate
2. Immediate repetitions of self - imprompted or inappropriate
3. Immediate repetitions of others - prompted or appropriate
4. Immediate repetitions of others - inappropriate
5 Immediate repetitions of others - exact
6 Immediate repetitions of others - reduced
7. Immediate repetitions of others - expanded
8. Immediate repetitions of others - mitigated
9. Delayed echo - communicative
10. Delayed echo - uncommunicative

These classifications define both structural and functional criteria. This section considers immediate, delayed, and mitigated echolalia together with the relative function of each as an expression of communicative intent and of language.

Appendix 6 : Easy to make materials for therapy

1. **Colour Wheel / Alphabet wheel:**

   Materials Required:
   - A circular piece of thick cardboard
   - Colour paper
   - Nail
   - Stick or wooden ruler

   How to make it:

   First, stick triangle of coloured paper in segments of the circular card. I.e., divide the circle into quarters or sixths. Next, nail the circular card at the centre point on to the top of the wooden ruler or stick. Ensure that it is nailed loosely enough for the card to be able to spin. To make the alphabet wheel, stick the letters of the alphabet around the circumference, attach a pointer to the centre of the circle. Thus, when you spin the wheel, it should stop with the pointer on a particular letter of the alphabet.

2. Box with different compartments

   Materials Required:
   - Box
   - Cardboard

   How to make it:

   Depending on how many compartments you wish to make, cut out that strips of cardboard of the length and width of the box. For example, if you wish to make four compartments, you will require two cardboard cutouts. One equal to the length of the box, and another equal to the width of the box. Next, on both the cardboard cutouts, at half its length, make a slit across half the width. Join the two cutouts at the slits together to make a cross shaped structure. Insert this into the box to compartmentalize it.

3. Focusing cone for flashlight

   Materials Required:
   - Thick paper

How to make it:

Roll the paper into a tube around the diameter of the flashlight. This way, the light will be focused rather than diffuse.

4. Hopscotch Design

Materials Required:

- Chalk / Paint

How to make it:

Using either chalk or paint, the design above is to be drawn / painted on a floor space.

5. Toy telephone

Materials Required:

- 2 plastic cups
- Some thread

How to make it:

A hole is made at the bottom of the cup, and one end of the thread is knotted there. The other end of the thread is knotted at a hole in the other cup. Each cup is used as the receiver part of the phone by a person.

6. **Play stethoscope**

Materials Required:

- An old head band
- Thick string
- A Bottle cap

How to make if:

One end of the string is tied to the middle of the head band, and the other end to the bottle cap. The head band is used upside down as the ear piece part, and the bottle cap serves as the diaphragm part.

7. **Bubble solution and wand**

Materials Required:

- Liquid Soap & Water

- A drinking straw (4 inches long)
- A piece of thin wire

How to make it:

First, make the wand. Take the thin wire and make it into a circle with a length of it sticking out like a handle. Attach the handle part to the straw length-wise. Next, bend the wire until the circular portion is directly inform of the straw opening on one end. This is the wand for blowing bubbles. To make the bubble solution, take some water and add sufficient liquid soap to make it a bubbly solution.

8. Self-made puzzle

Materials Required:

- Thick card
- Colourful picture (e.g., a baby sleeping from a magazine)

How to make it:

Glue the picture on to the card. Next, cut the picture up into the required number of pieces for the puzzle.

9. Action Cards / Category Card book / Who am I? Book / Word book

Materials Required:

- Thick card pieces
- Colour action pictures (e.g., a boy sitting on a chair)

How to make it:

Glue the picture on to the card. Make several, and then join them together with string to make a book. Similarly various categories of books can be made according to your need(e.g., nouns, verbs, people, places, idioms, proverbs, jokes) using pictures from magazines, or by drawing it, that represent the item. The Category card books can be made into 'Who / What / Where am I? Books, simply by writing the name of the picture on the back along with the clues for the picture, in big block letters. Word cards, can be made separately by having written items on each card, and then joining them together to make a book.

Summary & Conclusions

Autistic spectrum disorder (ASD) is a spectrum disorder in which autism falls on the lower end and Asperger's falls on the upper end of the continuum. The Term Autistic spectrum disorders was first suggested by Wing and Gould in 1979 as the most appropriate 'label' for the continuum that this population of children displayed.

Being a neurobiological entity (Volkmar, 1998) the disorder presents with a variety of symptoms, which are broadly defined by Wing's (1988) triad of impairments, of

- Reciprocal social interaction
- Verbal and non-verbal communication, and have
- Restricted range of imaginative activities

ASD is defined largely by a deficit in language (Lovaas, 1966). It has been proposed that there is a 'set of language and communication deficits' manifested by children in the ASD continuum in different combinations and severities (Rutter, 1966a). Thus the focus of this study was on the language and communication deficits manifested by the ASD population.

The treatment option available for dealing with language deficits in ASD are numerous, of which some have proven useful, and others not. Currently, there is no one treatment that has been found to be effective for the whole spectrum, and a symptomatic treatment approach was seen to be the most appropriate.

Many of the reviewed therapeutic strategies are either inaccessible or impractical for utilization by the average therapist in the Indian context, hence establishing the need for this manual.

The main aim in developing the manual was to provide the therapist, when faced with an ASD child, a resource from which tailored intervention planning can be done, based on the symptom manifestation of the child.

An extensive, but by no means exhaustive, review of literature was done of available sources and a language profile for ASD's was assembled. All the collated literature with

regard to language development and language characteristics of ASD's was reviewed. From this, the various asset, deficit & excess behaviours in the language domain of ASD's was ascertained. The language behaviours cited as most critical in ASD's in literature were assembled to constitute the language profile.

From this profile, several symptom specific treatment goals were derived. Next, guidelines, intervention strategies and activities were collated and formulated in general, and specifically for each goal.

The resource manual consists of the following chapters.

- *Introduction*
- *Chapter I: Language Profile*

    Consists of two main items. The Intervention assessment required for baseline profiling of the ASD child, and secondly, the language profile of an ASD child.

- *Chapter II: Treatment Goals*

    Contains treatment goals derived from the language profile.

- *Chapter III: General therapy guidelines and intervention*

    Strategies

    Consists of general therapy guidelines and intervention strategies that the SLP may find useful in prior to and during therapy. It is divided into the following subsections:

    1. The learning environment
        - Setting up the room
        - Access of materials
        - Lighting
    2. Materials and Stimuli
        - Visually cued instruction
        - Material size and 'real' pictures
    3. Reinforcement
    4 Planning the sessions
        - Time management

- Task variation
- Task selection
- Presentation of Tasks

5. Cultural issues

6. Generalization

7. General suggestions

Chapter IV: Specific therapy activities and intervention strategies

This chapter contains specific therapy activities and intervention strategies that the therapist can utilize for each goal presented in chapter two. A minimum of two activities are presented for each goal, excepting certain goals for which descriptive strategies are provided.

Conclusion

Appendices:

1. Stages of attention development

2. Prompting hierarchy

3. Categories of communication function

4. General intervention techniques

5. Types of echolalia

6. Easy-to-make materials for activities

The resultant manual thus consists of four chapters. Chapter one deals with profiling the child's language skills to establish a general baseline, and then along a specific language deficit continuum for Autistic Spectrum Disorder. Chapter two contends with different treatment goals derived from the child's profile (in Chapter one) to assist the clinician in planning the therapy goals. Chapter three comprises of some of the general intervention guidelines that a clinician will find useful to help create the best 'language learning' environment for the child. Lastly, Chapter four is a collection of ideas, activities and tasks to help the clinician plan out how exactly a particular goal can be achieved All the material presented in the manual can be modified or altered to suit age, developmental level and cultural background of the child.

• The manual was thus developed with no age or language boundaries, to provide the therapist a comprehensive resource which should serve as a platform from which the therapist can formulate an organized and structured treatment plan, specifically suited to the child's individual symptom manifestation.

Limitations of the study:

1.   Standardization of the language profile could not be done due to time constraints
2.   Other non-linguistic domain have not been take up owing to their magnitude and time constraints

Suggestions for further research:

1.   Efficacy of the manual may be evaluated on a large number of ASD children
2.   A developmental hierarchy could be established for the items in the language profile
3.   Standardization of the language profile presented in the manual may be carried out.
4.   Similar manual can be developed for other domains like cognition and socialization.
5.   Similar manual can be developed for language specific items taking data from different Indian languages.

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