CHALLENGES IN LEARNING ENGLISH LANGUAGE: A STUDY ON AUTISM SPECTRUM DISORDERS (ASD) IN CHILDREN OF KAMRUP METROPOLITAN AREA

Dissertation submitted to Jawaharlal Nehru University in partial fulfillment of the requirements for the award of the degree of

MASTER OF PHILOSOPHY

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CERTIFICATE

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List of Abbreviations

ASD	Autism Spectrum Disorder
AS	Asperger syndrome
ESL	English as a second Language teacher
SPED	Special Needs Educator
SLP	Speech Language Pathologist/therapist
HFA	High-functioning Autistic children
LFA	Low Functioning Autistic children
SSA	Sarva Shiksha Abhiyan
IEDSS	Inclusive Education for Disabled at Secondary Stage
CRC	Composite Regional Centre

DEDICATION

This work is dedicated to all the wonderful learners with autism, my parents and the three eternal mentors of Kosen-rufu.

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Ravi Kumar Yadav

Chapter 1
Introduction

1.1 Aims and Objectives of the study:

The Aim of the present study is to explore and examine the challenges in teaching English language to children with Autism Spectrum Disorders who are also learners of English as a second language and are enrolled in different academic intervention programmes. Further the study will attempt to explore the following areas in the same domain of study:

- What kind of shared efforts are being made by English as a second language (ESL) teachers and Special educators to support the Language learners on the spectrum?
- To investigate the languages used in therapy of the learners and find out how effective they are in autism spectrum disorders.
- To explore the various challenges involved in the English language learning of the learners on the spectrum and the measures available to provide inclusive learning environment for this special population of learners on the spectrum.

From the discussion above the researcher is of the view that the following research questions will be able to show the evidences which prove how equipped the present educational machinery is in helping the learners on ASD in Kamrup Metropolitan district, Assam.

1.2 Research questions

- What are the challenges of learners on the spectrum in Kamrup Metropolitan Area, Assam?
- What institutional remedies are in place and how effective is the existing system of education for the learners on ASD?

- Which language is used in therapy?
- What are the ways in which the ESL teachers can collaborate with the special needs educators (SPED) to provide an inclusive and supportive learning environment for the language learners on the spectrum?

1.3 Background

Autism spectrum disorder (ASD) is characterized by a delay in the development of an individual which leads to several impairments in communication, social understanding and behavioral traits (Centers for Disease Control and Prevention [CDC], 2015). Communication being a very important social phenomena the first question that arises is—"Can children on the autism spectrum acquire a second language?" Many researchers like Petersen (2010); Elder et al., (2006), supported the possibility of children with ASD to acquire a language other than their first language. It is though interesting to note that language therapists often ask parents to use only one language with the child and avoid using more than one language for communication. "Bilingual families of children with Autism Spectrum Disorder (ASD) are often advised by child development professionals to speak only one language to their child (Besnard, 2008; Kremer-Sadlik, 2005; Leadbitter, Hudry, & Temple, 2009; Petersen, 2010, p. 1)".This discussion directs us to the question of teaching a second language to learners with ASD or not. Research has reported successful learning outcomes in children with ASD when taught two languages (Reppond, 2015).

Inclusive education for all has actually drawn a lot of learners with ASD to join schools and intervention centres. With this increase in the intake of students each year the special educators and therapists have a great responsibility as well as opportunity to come up with innovative and inclusive learning strategies for this special group of learners.

Communication in human beings is very important and this the social feature of human beings. According to Beebe and Ivy (2004), "Communication is the process of acting on information; human communication is the process of making sense out of the world and attempting to share that sense with others by creating meaning through verbal and non-verbal messages". Communication can be called fruitful where the information is sent

and received effectively with creating any confusion. Context plays a very vital role in communication as the meaning follows the context and if the context is not clear the information is lost in communication (De Vito, 2014).

According to Carlyle (2013), "a student whose first language is not English but who is in the process of learning English is known as an English language learner (ELL)".
These learners on the spectrum have a number of impairments in social and linguistic understanding and these conditions makes it difficult for them to negotiate with their social and academic environments. Very often the autistic learners find it challenging to convey their thoughts through language due to deficits in practical social skills in language, also called '*pragmatics,*' which is very significant from the point of view of communication. "Communication systems must have a pragmatic function: that is, they must serve some useful purpose. Examples of functions that human language has include helping individuals to stay alive, influencing others' behaviour, and finding out more about the world" (cited in Reppond, 2015).

1.3.1 Deficits in ASD

Elder, Seung, and Siddiqui (2006) based on their study report that, "The prevalence of autism is estimated between 30 to 60 per 10,000 children based on recent surveys (Fombonne, 2003). Core clinical symptoms include deficits in verbal and nonverbal communication, socialization, and stereotypic or repetitive behaviors. The deficit in communication, including delays in speech-language development (Lord & Paul, 1997; Rapin & Dunn, 2003), can pose special challenges for children with autism who reside in bilingual homes. (p. 53)."

Deficits in social communication (Pragmatics)

Autism spectrum disorders are characterized by a persistent difficulty in using the social features of any language both in verbal as well as non-verbal communication. The language faculty being impaired in an individual with autism these pragmatic deficits form a clear diagnostic pointer for identifying these individuals. The most commonly observed manifestations of these deficits are:

- Serious deficits in communicating socially with others for example, greeting people or passing information in a socially acceptable manner.

- Impaired ability to adapt communication according to the context or requirement of the listener or audience, for example, ability to distinguish formal from informal language.
- Lack of ability to follow rules in storytelling and interactions, for instance, impaired turn-taking ability, self monitoring for correcting errors, and use of both verbal and non-verbal language.
- Difficulty in inferring implied ideas and novel or non-literal use of language such as, idioms, metaphors, jokes etc. (DSM-5)

These deficits restrict the individuals with pragmatic disorders from communicating effectively in participating in social events, relating to people socially, achieving academic success, professional advancements and other similar social avenues.

Deficits in language

- "impaired acquisition of words, word combinations, and syntax—
    - initial words are often nouns and attributes, while words representing social stimuli, such as people's names (i.e., subjects) and actions (i.e., verbs), are delayed;
    - the child loses words previously acquired;
- use and understanding of nonverbal and verbal communication—
    - facial expressions, body language, and gestures as forms of communication are delayed in the latter part of the first year of life and remain unconventional throughout development;
    - unconventional gestures (e.g., pulling a caregiver's hand toward an item) emerge prior to more conventional gestures (e.g., giving, pointing, and head nods/headshakes);
    - understanding of gaze shifting, distal gestures, facial expressions, and rules of proximity and body language is limited;
    - receptive language appears more delayed than expressive;
    - use of immediate echolalia and/or delayed echolalia (scripted language) is observed;

- vocal development deficits, including
    - atypical response to caregiver's vocalizations,
    - atypical vocal productions beyond the first year of life,
    - abnormal prosody once speech emerges (speech may sound robotic);
- symbolic play deficits, including
    - delayed acquisition of functional and conventional use of objects,
    - repetitive, inflexible play,
    - limited cooperative play in interactive situations;
- conversation deficits, including
    - limitations in understanding and applying social norms of conversation (e.g., balancing turns, vocal volume, proximity, and conversational timing);
    - provision of inappropriate and unnecessary information in conversational contexts;
    - problems taking turns during conversation;
    - difficulty initiating topics of shared interest;
    - preference for topics of special interest;
    - difficulties in recognizing the need for clarification;
    - challenges adequately repairing miscommunications;
    - problems understanding figurative language, including idioms, multiple meanings, and sarcasm;
- literacy deficits, including difficulty
    - reading for meaning (functional use of books),
    - understanding narratives and expository text genres that require multiple perspectives (e.g., persuasive and comparative/contrastive),
    - getting the main idea and summarizing,
    - providing sufficient information for the reader when writing;
- executive functioning deficits, including
    - lacking/limited flexibility,
    - poor problem solving,
    - poor planning and organization,

- lack of inhibition.” (ASHA, 2018)

Deficits in behavior

Individuals with ASD show a number of behavioral issues due to their atypical cognitive construct. They have difficulty in activities which are not routine or repetitive. They also experience discomfort in moving from one activity to the other. These individuals face challenges in using the learned skills in new situations. They also exhibit unusual ways of object use and very strange attachment with their object of play. Behavior wise the individuals with ASD have sleep issues and behavior such as anger, laughter or crying is observed ay unexpected occasions. These individuals usually cut themselves off from people due to anxiety and lack of social communication ability and skills. The individuals on the spectrum usually use their own ways to self-regulate their anxieties, such as, rocking motion, hand gestures and chewing on things like cloth or play objects. They also use expressions such as aggression and tantrums to express emotions. Repetitive behavior is a typical characteristic of individuals with ASD and they frequently exhibit echolalia along with very formal and bookish expressions. Such individuals face a lot of problems managing themselves.

1.3.2 Prevalence

On the global scale, prevalence of Autism Spectrum Disorder shows an upward rise from 0.7 % to 1% (Chakrabarti, 2001; Elsabbagh et al, 2012; Fombonne, 2002). It is estimated that in a population of 10,000 about 60-65 individuals are affected by ASD. More recent study (CDC) from 14 countries reveals 147 children affected by ASD per 10,000 in United States (Baio, 2014) which shows an increase in prevalence in past 20-25 years. Although, this may be a speculation because estimated reports from Asian nations like China (9.8 per 10,000), Japan (10 per 10,000) and South Korea (9.8 per 10,000) are inconsistent across time and country (Kim et al., 2011; Sun & Allison, 2010).Based on these Asian studies, Karande (2006) and Vibha Krishnamurthy (2008) estimated that nearly 1.7-2 million individuals were impacted by Autism Spectrum Disorders.

World Health Organization’s analysis of Indian data estimates a prevalence of 1 in 10,000 children a decade back has raised to 3-4 per 1000 live births (Manivannan, 2013).

According to One World South Asia report (OWSA, 2012) India houses about 10 million individuals with autism. The estimated rate of autism in India varies between 1 in 500 to 1 in 150. In India between the age of 2 and 9 about 1 to 1.5 percent children are affected by autism (Arora, 2013).

Studies based on preschool children using standardized diagnostic measures of tested reliability and validity show an estimated “prevalence of 60-70 per 10,000 or 1 in 150 across the spectrum of autism disorders and 1 in 500 for children showing complete syndromes of autism” (Baird G et al., 2001). In a populous country like India there is a grave shortage of epidemiological studies on ASD in the country. The available data is mostly speculated. Estimates suggest that India might have more than 2 million people with ASD but this is yet to be verified clinically. Some estimates also suggest that the actual figures might surpass the 4 million mark. Further, it is estimated that the prevalence ratio of ASD in male and female population is 4:1 respectively.

However, it is important to note that over the decades there has been a gradual increase in the number of cases diagnosed for ASD. This rise can be attributed to several factors such as increased awareness among clinicians, better screening facilities, better and evolved diagnostic tools, broader classification system etc.

1.3.3 Types of Autism

Usually there are three distinctions within autism,

(i) "classic" autism or Kanner’s syndrome

In 1943, Leo Kanner a professor of psychiatry at John Hopkins University wrote the first description of autism which introduced the world to the characteristics of autism. Autism is a developmental disorder which is characterized by delay in language development and deficits in Social, Communicative and behavioral features of the individual. It may or may not show intellectual impairments in different individuals.

(ii) Asperger Syndrome (AS)

Asperger syndrome is the milder version of autism which is characterized by usually intact language and intellectual ability. These individuals generally exhibit social impairments in pragmatics along with atypical behavior and areas of interest.

(iii)"Atypical autism "Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)

Individuals who cannot be identified either as a case of autistic disorder or Asperger syndrome are kept in this category of PDD-NOS. the symptoms of PDD-NOS are usually mild to very mild and less frequent than seen in autistic disorder. The deficits are generally seen in areas of social and communicative functions. (CDC, 2015)

1.3.4 Diagnosis

According to the DSM-5 Diagnostic criteria Autism Spectrum Disorders are characterized by persistently impaired social and communicative interactions. The main diagnostic features are as follows in DSM-5, 2103.

The individual on the spectrum exhibit impaired social and emotional responses, for instance, atypical or unusual social approach and failure in turn taking, failure to begin or continue social communication. Non-verbal communication is also affected in ASD which helps in carrying out social interactions such as, lack of coordination between verbal and non-verbal communication, atypical eye contact and impaired gestures. Some of the individuals completely lack facial expressions and can use non-verbal means of communication. Due to impaired social cognition these individuals face challenges trying to develop, maintain and understand bondings of relationships. For example, they may find it difficult to manage their behavior according to the social context or they find using imaginative play difficult accompanied by a disinterest in making friends.

Autism Spectrum Disorders are reported to be seen from the age of 3 and are lifelong conditions with only management of symptoms possible in individuals. In developing children the symptoms are sometimes visible in the initial developmental stages in some children. On the contrary, some children do not show any signs of the disorder till the second year of their development or even beyond that. Still other children on the spectrum show normal development till first 18 to 24 months of early development but suddenly they lose all the acquired skills and fail to regain any new skills in future (CDC, 2015).

Social communication is totally impaired and there is a atypical repetitive behavioral pattern in individuals with ASD. Although, the symptoms are latent in early development phase of growth it only becomes apparent with age when the deficits become pronounced. The clinical impairments are in social, occupational and other significant functional domains. The impairments do not always mean an intellectual disorder as its cause, because intellectual deficits can co-occur with ASD very frequently. Individuals on the spectrum have difficulties in communication and they can:

- Not respond to their name by 12 months
- Not point at objects to show interest (point at an airplane flying over) by 14months
- Not play "pretend" games (pretend to "feed" a doll) by 18 months
- Avoid eye contact and want to be alone
- Have trouble understanding other people's feelings or talking about their ownfeelings
- Have delayed speech and language skills
- Repeat words or phrases over and over (echolalia)
- Give unrelated answers to questions
- Get upset by minor changes
- Have obsessive interests
- Flap their hands, rock their body, or spin in circles
- Have unusual reactions to the way things sound, smell, taste, look, or feel. (CDC, 2015)

1.3.5 Recovery and Therapy

The exact causes of ASD are still allusive and exact descriptions are still to be achieved. Research proves that early diagnosis goes a long way in deciding better and effective medical and educational interventions in children with ASD. Bock and Stauth (2007) suggest that the complex nature co morbid impairments in autism intervention demands a multi-intervention approach to support he needs of the child on the spectrum. In their healing program they include a variety of therapies such as Nutritional where they recommend intake of highly nutritious whole food, avoiding food items that might cause

allergy, keeping in mind the sensitivity of the child to items like yeast, gluten, and casein which are to be avoided along with other items like carbohydrates, wheat and milk products. In supplementation therapy there is a range of supplements given to the individual to help detoxify, support metabolism, provide energy, aid digestion and support brain functions. Severe autistic cases demand detoxification where methylation and chelation therapy are used to detoxify and organ stimulation. Although, autism is supported mainly through therapies medication also forms an important part of recovery process. Medicines for various kinds of infections like fungal, bacterial and viral along with inflammation is usually used in treatment of the conditions coexisting in this individuals on the spectrum (Bock & Stauth, 2007).

Treatments available for Speech, Language and Motor issues

Most common symptoms associated with ASD vary a lot and hence they require a complete set of therapeutic support. The most commonly involved allied health support services are:

Speech Language Therapy: It is the most preferred behavioral therapy which focuses on the core deficits in ASD related to speech challenges. The therapy takes into account the working of speech along with the associated social features and meaning creation. Speech Language Pathologists (SLP) does an assessment of the patient's ability and challenges in the verbal language and decides the course of intervention by setting goals. The therapy can be given in groups or individually depending on the need identified by the professionals.

Augmentative and Alternative Communication (AAC)

Advance in technology has opened up new avenues of support for non-verbal individuals with ASD by developing a number of devices e.g. Augmentative and Alternative Communication (AAC) and the Picture Exchange Communication System (PECS). The PECS devices are easily used by teachers, parents and other caregivers and the child develops skills in vocabulary and expression of desires and feelings through pictures. There are a number of AAC devices available today e.g. iPads, programmed handheld computers and iPhones etc.

Occupational Therapy (OT):

The problems in cognitive skills of the individuals with ASD along with the physical and the motor skills are the area of focus in occupational therapy. This therapy aims at developing independent life skills in the individuals focusing mainly on skills in self care along with play skills and learning skills in children with ASD. Therapy is usually conducted by certified professionals who evaluate the patient's level of development, learning profiles, social skills and needs. Appropriate therapy procedures are decided after deciding on the goals to achieve in various skills.

Sensory Integration Therapy

The deficits associated with ASD in areas of information processing like visual, auditory, olfactory, and sensory and those related to movement are addressed by Sensory Integration therapy. It can be a part of occupational therapy but also is administered as separate therapy. This therapy is carried out by certified professional occupational and physiotherapists. The process starts with correct assessment of the sensitivities based on which individual therapy is designed to suit the recovery of lost sensory coordination. This therapy uses equipments like trampolines, slides etc. Sensory integration therapy prepares the child for taking up learning and social participation by calming the child's behavior.

Physiotherapy

Children with ASD usually find it challenging to walk, jump, run or even sit due to various motor skill impairments. Physiotherapy targets these deficits in movement which limits the child access to the avenues of development. This therapy develops the muscle tone, walking balance and muscle coordination. The therapists are certified professionals who assess the patients before deciding a plan of action. Therapy sessions are generally of half to an hour's duration and include physical exercises with equipments for assisted movements (Autism Speaks, 2018).

1.4. Existing Literature

Across the world the prevalence of autism spectrum disorders is on the rise with an ever increasing number of children being diagnosed with ASD. The prevalence across gender in 5 boys for one girl diagnosed with autism spectrum disorder. Along with the prevalence, the avenues for medical and educational support are also growing to support this special population of growing children. Learners of non-English speaking communities face a greater challenge to meet their English learning needs for survival. Keeping in mind the rising number of learners on the spectrum the educators have to come up with plans to decide and implement policies to set up an efficient educational support system for these special needs learners.

A major challenge in educating the English language learners on the spectrum is the choice of language, rather, a single language for supporting therapy as well as educational intervention. Research findings discussed below will challenge the misconception based on the wide range of symptoms and underlying deficits which are characteristic of autism. The intervention and support of individuals with autism needs regular support from people in the immediate environment of the child and not just the professionals in order to live a socially, academically and culturally active life.

A case study done by Elder et al. (2006) on a Korean child of 3 years, who had a language delay and was diagnosed with autism, for 24 months reported that although the child was Korean his parents were settled in America and spoke proficient English. The parents wanted their child getting education in English and also learn Korean to have an added advantage. The findings of the intervention based study revealed that the child was able to perform a number of skills after getting interventional support in both the languages (i.e. Korean and English). The bilingual educational intervention supported the development of both the languages simultaneously. The development in the mother tongue directly influenced the development of the second language. Another observation made from the study findings pointed that the development of vocabulary in children is a key measure to decide on the intervention practices based on the outcomes. It was clearly evident from the evidence in this study that vocabulary improvement in first language directly affected that of the second language. The improvement in learning levels of the

children on the spectrum is not only beneficial to them it also helps in reducing the stress levels of the parents of such children who are under continuous stress due to the condition and challenges of their wards. In this study the parents were happy to see the child picking up both the languages, English in social and educational context and Korean with parents at home (Elder et al., 2006).

Findings from a research carried out at Ontario Institute for Studies in Education of the University of Toronto by Jim Cummins (1979) reported that delays in efficiently acquiring first language in children leads to a problematic acquisition of second language. Hence, proficiency in the first language was crucial in determining how successful would be the learning outcomes of a second language. This problem can further reduce the proficiency in both languages. Based on this evidence of cognitive limitations, professionals suggest single language in intervention to save the child from burden of learning two languages. Although, these professionals discourage taking up two languages the families are at the losing end with their bilingual construct and English not being a preferred language compared to the mother tongue (Kremer-Sadlik, 2005).

Contrastingly, recent studies have shown that children successfully acquired second language despite having low first language acquisition levels without causing any cognitive overburdening of the learners with ASD as mentioned in Cummins' (1979) study. The other studies reported by Kremer-Sadlik (2005) are those of Bruck (1982) and Crutcheley et al. (1997). Kremer-Sadlik (2005) while commenting on Crutcheley et al.'s work, notes that bilingual children with pragmatic deficits show similar or higher scores on language ability tests than the monolingual ones. This study is especially significant according to Kremer-Sadlik (2005) as the pragmatic impairments are very common in high functioning learners with ASD.

Peterson (2010) in a different study tried to challenge the myth that only one language should be used in intervention of children with ASD by the bilingual families. Finding from this study reveals that learners with ASD are capable of learning more than one language without hampering the learning process. Some bilingual children also showed major advantage while learning through two languages. Peterson (2010) claims that second language learning should not be discouraged in ASD due to negative rumors that

the family will have to reorganize themselves in the home setting for a single language for children with ASD in presence of more than one language.

The above discussion on the various studies drives the point home that learners with ASD posses the ability to learn a second language, provided there is a planned intervention and support given to parents. In cases where the first language is not the dominant language of the society the child must have access to learn the mother tongue simultaneously with the prevalent language to support the learning of this differently able population of learners with their own sets of limitations and abilities.

1.4.1 Autism in India

Autism finds mention in Indian scientific literature in 1944, in work of A. Ronald, a Viennese pediatrician posted in Darjeeling, West Bengal. In his work Ronald has discussed the diagnosis, causes, kinds and remedy for autistic children observed by him. It was around the same time when Kanner published his paper on Autism. The first reference of the term 'autism' in Indian literature is reported in 1959 which was followed by further publications appearing throughout 1960s. In 1970s the first initiatives in descriptive work on this disorder began.[1]

Since the late 1980s autism in India has seen a very active growth compared to the preceding decades. Social awareness about autism was plummeted by the release of Academy award winning movie 'Rainman' in 1988. Following this many parents started talking and writing in popular media thereby creating awareness among the masses. The Indian autism scene owes its present development to Action for Autism (AFA) which pioneered as an advocacy group for individuals with autism in 1991. Gaining impetus from this initiative few other organizations concerned with autism started appearing across different locations throughout the nation which also included some schools. The pioneers were "Ashain Bangalore, Ashiana Institute for Autism in Mumbai, Communication DEALL in Bangalore, and Development Centre for Children with Autism (DCCA)in Hyderabad, Priyanj in Mumbai, and We Can in Chennai, in addition to

[1] http://www.autism-india.org/history-autism-india

these ‘Forum for Autism,’ a parent support group also started in Mumbai” (AFA website).

A major landmark development was the publication of ‘*Beyond the Silence: My Life, the World and Autism*’ by Tito Mukhopadhayay, an autistic boy. The book includes writings from when Tito was between 8 and 11 years old. This work was acknowledged internationally along with the teaching methods of Tito’s mother. Around the same time autism organizations like Assam Autism Foundation were taking shape in Assam to support the individuals on the spectrum.

Professional awareness on ASD had also been limited only with a countable number of pediatricians and psychiatrists were available who specialized in this ailment and as a result the diagnosis of the disorder was also limited. Study on various approaches in diagnosis by Daley and Sigman (2002) involving health care professionals such as psychologists, pediatricians and psychiatrists offers valuable insights on the seriousness of autism in health care sector. The survey report revealed that the major concern was the impaired social functions in autism. Lack of awareness on ASD was another significant factor found across families, professionals and general masses. Finally, professionals reported unavailability of proper treatment facilities as a great challenge for all the stake holders.

With regard to the socio-cultural dimensions of autism, research reveals the various ways in which the cultural aspects play a huge role in the symptom recognition and acceptability along with other factors like environment, cultural values and the socio-economic conditions can affect and influence the diagnostic support available to the individuals on the spectrum (Daley, 2004). Gupta and Singhal (2004, 2005) reported from his study how, a positive attitude towards the autistic children and the support available from others have a positive effect on families psychological wellbeing. Challenges of the families with children on the spectrum e.g. information, financial support, facilities available and social aid are discussed by Krishnamurthy (2008). The findings reported a gap between the early screening of symptoms and the final diagnosis which affects the intervention process by further delaying it.

Schools and institutions for educational support to children with ASD are growing with time and have become centres that parents look up to, middle class families are keen on getting their child into schools to acquire the necessary skills to support their lives. In case of autism the parents are under stress and need support from the institutions in planning the developmental and educational goals for their children with special needs and require intervention assistance.

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1.4.2 Autism and Special/Inclusive Education in India

Government of India has taken a lot of Initiatives for strengthening the inclusive education scene in India based on the United Nations directive. Some of them are:

- ***"Sarva Shiksha Abhiyan (SSA):***
- Achieving UEE-Universal Elementary Education is the primary objective of SSA. The three main facets of SSA are (i) access, (ii) enrolment, (iii) retention of children in the age group 6-14. Providing quality and meaningful education notwithstanding the type, category and degree of disability of any child with special needs, is ensured by SSA. A zero rejection policy has been adopted in SSA. The enactment of Right of Children to Free and Compulsory Education Act, 2009 strengthens SSA's objective of UEE. This intervention by the government has provided a new thrust to the education of CWSN-children with special needs, Autism is recognized and hence individuals suffering from autism have been added to CWNS, furthering the objective of UEE.

- ***Inclusive Education for Disabled at Secondary Stage (IEDSS)***
- The scheme –IEDC; Integrated Education for Disabled Children was launched by the DoSW -Department of Socail Welfare in 1974 and in 1982-83the Department of Education was endowed with the functioning of this scheme. This scheme was further revised in 1992 and provided the much needed educational opportunities for CWSN, facilitating their retention and integration in the general school system. IEDSS replaced this scheme in April 2009, this scheme gives special assistance for the inclusive education of CWSN of Class IX to XII, suffering from blindness, low vision, leprosy cured, hearing impairment, locomotor disabilities, mental retardation, mental illness, autism and cerebral palsy. Monetary Funds are disbursed for activities such as identification and assessment, assistive devices, allowance for transport, escorts, readers, uniforms, books and stationary, stipend

for girls, etc. There is also a provision for engagement of special teachers, creation of barrier free environment and teachers' training in IEDSS.

Making Schools Barrier Free

All States have been directed to ensure that all primary and secondary schools are made disabled friendly, in a prescribed time bound manner, taking into account the needs of different categories of disabled children. Each district will also have a model inclusive school.

- Capacity Building of Special Teachers

a) Course curricula has been developed and standardized by the Rehabilitation Council of India (RCI) for :
   (i) Diploma in Special Education (Autistic Spectrum Disorders), introduced in July 2003, and is operational in 11 institutions registered with RCI, producing 20-25 teachers every year per institute.
   (ii) B.Ed. Special Education (Autistic Spectrum Disorders) will become operational from the session beginning in July 2010 at 4 institutions across the country.

b) Some other organizations imparting diploma in special education (ASD) include Spastics Society of Karnataka, Bangalore; School of Hope, Delhi; Action For Autism, Delhi; Jai Vakeel, Mumbai and Pradeep, Kolkata

c) State Nodal Agency Centre (SNAC) and State Nodal Agency Partners (SNAP) of the National Trust have conducted trainings on
   (i) Inclusive Education for Private School Teachers to handle the special needs of students with National Trust disabilities in inclusive classrooms. In the Govt. Schools, this is being done under the SSA Program. 38 programs were conducted during 2008-09.
   (ii) Special School Teachers Training - National Trust has specially focused on Early Intervention and Autism. This program was conducted in 15 States during 2008-09. For Early Intervention, the National Trust has a partnership with Voice & Vision (A unit of Hilton / Perkins, U.S.A.), Mumbai for training one Special Teacher in the Aspiration Programme.

- Government of India confers the National Award for teachers who are engaged with CWSN to deliver special education and their inclusion in the education system of our country. (adapted from Chairman's message, 2013)

However, Das and Shah (2014) in their work titled—'Special Education Today in India'—noted that despite the government initiatives still not even 1 percent of the disabled children get education in inclusive set ups. The percentage of disabled children who never attended educational institutes is highest in Nagaland (39%) and Assam is in the second place (MOSPI, 2016)[2].

India has its own unique set of problems which make inclusion a distant dream far from realization. Problems/factors like poverty, the absence of binding laws for inclusive education, a lack of resources and its unique cultural and social backgrounds are the major hindrances in the inclusion of disabled children, including those with autism, within regular educational set up (Das & Shah, 2014).

Another major reason for failed inclusive education in India is supposedly the dual administration of special education (Das & Shah, 2014). Whereas, special schools fall under the purview of Ministry of Social Welfare, the responsibility of inclusive education falls on the department of education under the Ministry of Human Resource development (Jangira, 2002). Moreover, efficient inclusive education demands the coordination of different stake holders like the welfare sector, the women and child development sector and the health sector. Surprisingly/sadly, such coordination is not seen, whether it be at the central, state, district or sub-district level. To add to that there is a lack of proper regulatory structure for monitoring and ensuring successful implementation of inclusive education programs at all levels (Alur, 2002; Jangira, 2002).

[2] In 'Disabled *Persons in India A Statistical Profile- 2016'* Published by Statistics Division, Ministry of Statistics and Programme Implementation, Government of India.

A very important challenge is a serious want of supportive attitudes towards inclusive education in India. Research on teacher attitudes in India reveals that although many general education teachers support inclusion morally, most of them have serious reservations about their capability to contribute in successful implementation (Bhatnagar & Das, 2003; Das, Kuyini & Desai, 2013; Shah, 2005).

Finally, the most important challenge is an alarming shortage of trained professionals to meet the diverse needs of children with disabilities, especially those with intellectual disabilities like autism. Numerous studies pointed out that majority of regular teachers report that they have received no proper training in special education instructional methods but they have to deal with special children (Das, 2001; Jangira, Singh & Yadav, 1995; Shah, Das, Desai & Tiwari, 2014).

1.5 Research Methodology

The present study followed a Qualitative research Method, given the dynamic field of special education which is ever changing due to new developments in pedagogical practices. Qualitative approach was more open to the variation in the experiences and expertise of the different participants and hence it revealed many variables which would not have been possible otherwise.

The study was carried out in Guwahati, the capital city of Assam (India). The location provided a wide variety of multi-lingual and multi-cultural participants in one location. Being a well connected city it is also a hub of better medical and educational avenues, this made it a better place to look for the research participants for this study at one location. Five (5) institutes were identified for the present study these institutes were all dealing with autistic children.

For the study 31 participants (N=31) involved in medical, social and educational intervention of children with autism were recruited. Out of these 31 participants 10 (n=10) were English as Second Language (ESL) teacher, 10 (n=10) were Special

Education (SPED) Teachers, 5 (n=5) Speech therapists (SLP), 5 (n=5) Parents of children enrolled in intervention programs and 1 (n=1) School Inspector of the Kamrup Metropolitan district.

1.5.1 Descriptions of participants and respondents

25 certified educators/therapists were identified as Participants for this study: 10 Special Education (SPED) Teachers were selected from various special schools as well as inclusive schools across the city. Their minimum educational qualification for inclusion was a graduate degree with certification in Special education. The inclusion criterion was a post-qualification experience of at least 5 years in teaching and handling children with autism.

10 English as Second Language (ESL) Teachers were taken from private as well as public inclusive schools in the city. Inclusion criteria allowed only participants with graduation and above in English with at least 5 years of post-qualification experience of teaching English as a second language to children on the spectrum.

Further, 5 Speech Language Pathologists or Speech therapists (SLP) were selected from various institutions and clinics across the city. The minimum inclusion criterion was a degree in the relevant subject and a certification of Speech Therapist/Speech Language Pathologist. Only Speech therapists having an experience of at least 10 years of practice were included in the study.

Other participants included five Parents of English Language learners on the spectrum who were enrolled in intervention programmes in various inclusive Schools and day care centres throughout the city and finally One School Inspector of the Kamrup Metropolitan District serving office and not retired.

1.5.2 Data Collection Methods/ Instruments

Three methods of data collection would be used to provide a triangulation of the data:

(i) Personalized Questionnaires:

Educator and therapist participant were distributed to the various participants in order to elicit their responses on the experiences they have gained over the years

in teaching learners on the spectrum. Many of them were bilinguals and did not use English in the home environment. The questions were designed based on personal expertise of each of the participants in their areas of specialization e.g. ESL, SPED and SLP.

All the questions were open ended in nature, this was deliberately done to give the participants the liberty to access their long careers in their area of special needs education while answering the questions which provided a number of perspectives initially un thought of by the researcher. The choice of open-ended questions also helped the participants answer at length on the various aspects of language teaching and pedagogical practices carried out in the classrooms. The participants went beyond the conventions to share their enthusiasm in the study and suggested a lot of ideas to incorporate in the special and inclusive education of the English language learners on the autism spectrum.

(ii) **Personal Interview:** Parents and School Inspector were interviewed using a semi-structured interview guide. The semi-structured approach allowed flexibility in adapting questions according to the need of the study. There were open-ended questions to elicit maximum information possible from the participants. (See Appendices for complete questionnaires & interview guides)

(iii) **Participant Observation:** Special education teachers and English as Second Language Teachers will be observed while dealing with learners on the spectrum from a distance and notes will be taken to understand the classroom challenges and the dynamics of the interaction. These notes will help the researcher to analyze the findings in a more holistic manner.

1.5.3 Procedures

In April 2018 educators and therapists across the city of Guwahati were contacted in order to ascertain their participation in the survey to find out the professional experiences and view points in the education of learners with ASD. The participants were given detailed information about the nature and the objectives of the study and they were given the contact information to express their interest in participating in this research. Some of

the participants were contacted through emails while others were contacted over phone at their places of work.

The interested participants fulfilling the inclusion criteria were given consent forms to read and sign. After procuring the participant's consent the personalized questionnaire, designed based on specialty (i.e. ESL, SPED, or SLP) were explained and handed over to be returned after a week. The ESL and SPED teachers were also observed in their classrooms or a week.

When the questionnaires were returned they were stored in a folder without marking names or any other identification markers. All the responses were gathered into groups according their specialty. All survey data was analyzed for important themes and coded for noting the significant findings and trends from the survey.

For the interview group (i.e. Parents and School Inspector) prior schedule was decided for meeting and at the decided time the interview was conducted in the place convenient to and chosen by the participant. The responses were transcribed for further analysis.

1.5.4 Data handling and Data Analysis

Data collected from the selected sources will be coded and categorized by the researcher to identify the inherent themes. The data will be analyzed and interpreted to establish the findings and finally it will be presented and discussed in the report.

The data collected from questionnaires and interviews will be explained in Chapter 3 of the present work. Analysis and interpretation of the collected data will be presented very vividly and discussed in the same chapter and conclusions will be drawn using both qualitative and quantitative approaches.

The second chapter will present the various underlying cognitive theories of autistic way of thinking with respect to the specific limitations and the deficits of the learner diagnosed with autism. It will carry out a comprehensive discussion on challenges that hamper the learning process in normal learners as well as those struggling on the Spectrum. The theories will explain the impairments which are so characteristic of the

autistic individual. This understanding will lead to a better understanding of the learner in order to provide inclusive and effective social as well as educational intervention.

1.6 Significance of the study

This study elicits information regarding the concerns of various stake holders helping this special population of students which include Special Education teachers, English language Educators, District authority and Parents in providing better avenues for learning English as a second language in a culturally diverse location like Kamrup Metropolitan area.

The personalized Questionnaires and the semi structured interviews brought together valuable insights of people directly involved with the autistic children in their intervention process. The findings will contribute in re-evaluating and strengthening the existing state of educational-interventional practices and make it more inclusive and improve the English language learning outcomes of students on the spectrum.

This study being very new of its kind in India will provide a lot of input for further research in developing better curriculum and material for students on the spectrum Learning English as a second language as well as deciding on a better language for therapy/intervention.

1.7 Limitations of the study

This research being very preliminary in nature has a lot of limitations and only provides a general idea of the present scenario of English language learning in learners with ASD. These study needs to be carried out with a bigger data set of participants and quantitative in nature to come up with concrete findings. The questionnaires and interview have only collected opinions of the participants and hence it will need re-verification through quantitative study to ascertain the real picture. There is a need for further action research to pin point the shortcomings in the intervention of the children on the spectrum in inclusive classrooms. The future studies need to include the policy makers as well as the curriculum designers in order to get a clearer picture. There is also a serious need to study the institutions providing qualified and trained professionals for educating the English

language learners on the spectrum. The results of this study are still very insufficient to make any claim in intervention decision making or in deciding on policy for the inclusive education of the learners with ASD.

This study also demands a longitudinal quantitative study to reveal the concrete trends and patterns in language learning challenges in children on the spectrum. The identified language challenges can also be studied in the light of intervention using new technology to ascertain the reasons for deciding on a particular therapy over other.

1.8 Summary of the Chapter

In this chapter we discussed the aims and objectives of the study which focused primarily on the various challenges in English language learning in learners with ASD. Research questions were identified to further the quest for answers to these questions. We also discussed the background in brief to explain the key concepts of autism at the very outset. The review of existing literature on second language teaching enabled an understanding of the various issues in language research and the role of bilingualism in learners with autism. The next section discussed the Research methodology for the study which included the research design, description of participants and data collection procedures and tools. Finally, the chapter discussed the significance of the study and summed up with the limitations of the present study and the factors causing these limitations. In the next chapter we will look at the various theories that influence the cognition and behavior of learners on the spectrum.

Chapter 2
Understanding Learners with Autism

To set the perspective very clear at the outset I would hereby suggest that the treatment met out to this chapter is more pedagogically inclined rather than delving into a detailed etiological discourse.

A thorough understanding of the learner on the spectrum is a prerequisite for educators.The understanding of the cognitive abilities forms an integral part of the intervention process. Rather, it's a basic premise as highlighted in the essential principles of good autism practice (Jordan, 2012, p. ix-x) which are:

- recognition of a distinctive autistic style of learning
- respect for the individual, not as a broad moral precept, but based on careful analysis of how s/he thinks and interprets the world
- accommodation to the individual's strengths as well as weaknesses
- the need for self-reflection in practitioners
- mutuality in engagements in learning seen as the most productive state for teaching and learning
- high expectations of all learners but with appropriate levels of focused support
- ordinary 'good practice' may not be sufficient for those on the autism spectrum 'good autism practice' will benefit others as well as those with autism

An individual with autism need to learn what for others is 'picked up' intuitively; they cannot afford to waste time on inefficient education or being excluded because they do not 'fit in'(Jordan, 2012).

This understanding becomes more significant in the light of the fact that autism doesn't manifest in a consistently 'pure' (borrowed from Rita Jordan) form. Individuals with autism will show a wide spectrum of difficulties, mostly additional general as well as

specific language impairments (SLI). There exists an exhaustive and endless list of diagnostic sub categories of assessment features on the spectrum but keeping in mind the scope of this study we will look at the common disturbances across the entire spectrum. Every learner on the spectrum shows a very individualized and unique learning style based on the level of deficits popularly known as –the triad Impairments (Wing, 1988). Let us discuss the major impairments for serving our understanding of the learners and formulating intervention strategies apt for their unique learning styles in the next section.

2.1 The triad of deficits in the autistic continuum

Based on the initial work by Kanner (1943) on autism, it has been hypothesized that Kanner's syndrome is a part of a continuum of spectrum of autistic disorders (Wing, 1988). The core anomaly in autism is "an intrinsic impairment in development of the ability to engage in reciprocal social interaction" (Wing, 1988). This impairment of social interaction can be further divided into three separate categories based on their severity and degree of manifestation. These are referred to as the triad of impairments of social interaction—or simply'the triad' (Gould, 1986; Wing, 1981a,1982; Wing & Gould, 1979).

2.1.1 Impairment of Social Recognition

1. The most severe form is aloofness and indifference to other people.
2. A less marked form is seen in those who do not make social contact spontaneouslybut who amiably accept approaches and do not resist if others pull them into activities.
3. Some people with this problem do make active social approaches, but in an odd,onesidedfashion. Their behavior is inappropriate because it is undertaken mainly toindulge some repetitive, idiosyncratic preoccupation.In its mildest and most limited manifestation, seen in adults who were sociallyimpaired as children, but who have made considerable progress, the problem ispresent in a subtle form that is difficult to describe and recognize on brief acquaintance,but is detectable on longer contact.

2.1.2 Impairment of Social Communication

Impairment in the area of social communication affects the giving and receiving ofnonverbal, preverbal, and verbal social signals, the pleasure in conversation, and, at a moresophisticated level, the ability and desire to talk about feelings and exchangeideas.

The manifestations of impairment vary as follows (Wing & Gould, 1979; Wing,1981a):

1. There may be absence of any desire to communicate with others.
2. At a less severe level, needs are expressed, but there is no other form of communication.
3. Those with speech may make factual comments, but these are not part of a socialexchange and are often irrelevant to the social context.
4. Some older children and adults talk a great deal, but do not engage in truereciprocalconversation. Instead, they ask questions repetitively or deliver lengthy monologuesregardless of the content of the conversation, the responses of the listener, or expressionsof boredom and desire to leave.

2.1.3 Impairment of Social Imagination and Understanding

The problem of impaired social imagination and understanding affects the ability to copyother people's actions with genuine understanding of their meaning and purpose. It interfereswith the development of the type of pretend play that involves the imaginative act of puttingoneself in the position of another person, real or fictional, and of experiencing their thoughtsand feelings, as distinct from empty copying of their actions.

Impairment of social imagination may be shown as follows (Gould, 1982, 1986; Wing,Gould, Yeates&Brierley, 1977).

Copying and pretend play may be entirely absent.

1. Copying of other people's actions may be present, but without real understanding oftheir meaning and purpose.
2. There may be repetitive, stereotyped enacting of a role, such as a television character,an animal, or an inanimate object such as a train, but without variation orempathy.
3. In older and more able people with social impairment there can be recognition that something goes on in other people's minds, but no understanding of how to guess ator otherwise discover what this may be.
4. Some people with the triad appear to have some ability to recognize other people'sfeelings, but the capacity exists on an intellectual level without empathic sharing ofthe emotions.

2.1.4 Repetitive Patterns of Activity

The presence of the triad of impairments of social interaction described above is essentialfor the diagnosis of a disorder in the autistic continuum. It is typically associated withunusual patterns of self-chosen activities (Wing & Gould, 1979; Gould, 1982).

Although characteristically occurring with the triad, repetitive behavior is not, on its own,diagnostic of the autistic continuum because it can be seen in young normal children, and inseverely retarded children, even if they do not exhibit the triad.

The many different types of repetitive behavior can be approximately grouped asfollows:

1. In those who have profound cognitive as well as social impairment there may bevirtually no spontaneous activity, but an insistence on adopting the same bodilyposture, often in the same place in the room or on the same chair. They maystronglyresist any attempts to involve them in occupation or recreation. They may show smallbodily movements, such as teeth grinding or clenching and unclenching of the fists.
2. Some display simple bodily stereotypies, such as rocking, finger flicking, aimlesspacing, or fascination with simple sensory stimuli.

3. More complex bodily movements may be seen, or absorption in complex stimulisuch as a particular piece of music, or repetitive manipulation or arrangement ofobjects, or intense attachment to particular objects, such as pebbles, bits of plastic,and empty detergent packets, which may be amassed in large quantities.
4. The repetitive behavior may take the form of insisting on carrying out particularsequences of actions, such as a bed time ritual, always following the same route tofamiliar places, or drawing or making models of the same types of objects, which,once finished, may be ignored or destroyed.
5. At the highest level, the problems are manifested in verbal or intellectual forms, suchas absorption in particular books which are constantly reread, or in amassingfacts onsubjects such as railway time tables, astrophysics, the characteristics ofBritishmammals, the genealogy of royalty.

2.2 Other Types of Deficits in the Autistic Continuum

Language

The pragmatic aspects of language, i.e., the comprehension and use of language withina social context, rather than the understanding of its literal meaning, are always impaired indisorders in the autistic continuum (Baltaxe, 1977; Cromer, 1981; Frith, 1982; TagerFlusberg,1981).

The formal aspects of communication, i.e., the mechanics of language, including vocabulary,syntax, and semantics, are delayed and deviant in development in most, but not allpeoplewith autistic disorders. Comprehension and use of language (spoken, manuallysigned, andwritten) may be completely absent or retarded in development to varying degrees.Such delay is not distinguishable from that in other conditions causing languagebackwardness (Frith,1982), but certain abnormalities are characteristic of the autistic continuum,although not always present. These include immediate and delayed echolalia, idiosyncraticuse of wordsand phrases, and confusion over words, such as

pronouns and prepositions that shift inmeaning with the speaker and the situation (Fay & Schuler, 1980; Kanner,1949; Schopler&Mesibov, 1985; Ricks & Wing, 1975).

Motor Coordination

On intuitive grounds, abnormalities of language do not appear to be surprising inassociationwith the triad of impairments. Less apparently predictable is the frequent observationofpeculiarities of motor coordination affecting posture, gait and complex skilled movements(DeMyer, 1976; Damasio& Maurer, 1978).These peculiarities are difficult to predict anddefine, because there can be any mixtureof motor skills and deficiencies.

Responses to Sensory Stimuli

Those with the triad may respond with indifference, fascination or distress to sensoryinput inany modality (Coleman &Gillberg, 1985; Kanner, 1943; Omitz, 1974; Rutter,1966).Ignoring sounds; oversensitivity to sounds; indifference to heat, cold, and pain;fascinationwith shiny objects, things that spin, and self-spinning; and dislike of a gentletouch, despiteenjoying being tickled and swung round appear to be particularly commonexamples,although there is great individual variation.

Cognitive Skills

Most people with the triad are mentally retarded, and all or most of their cognitive skillsare impaired to varying degrees.But the psychologicalfunctions that do not require socialperception and language for their performance, such asvisuospatial and mathematical skills,are usually, but by no means always, less affected thansociability and language (DeMyer,1976; Lockyer & Rutter, 1969; Wing & Gould, 1979).

In a small minority of cases, there can be above-average, even superior, levels of ability inone or more of these areas, sometimes referred to as islets of ability. Some have musicalskills,such as absolute pitch, accurate recognition or reproduction of tunes, and

the ability toplayamusical instrument or even to compose music. Unusually good rote memory seems tounderlie some of these special skills, such as knowledge of routes or timetables or theamassing of facts on specific subjects, although O'Connor and Hermelin's work (1984)suggests that calendar calculators use rule-based strategies as well as memory. Recall ofinformation outside the areas of special interest often seems to be impaired (Boucher, 1981).

(Wing, 1988, p. 92-98)[3]

What we discussed above is more of a diagnostic nature and more so educationally. After the diagnosis comes next deciding on the right, and informed, approach for educational intervention. Here, by 'informed' I mean an awareness of the key features of the autistic way of thinking. Let us now discuss some of the existing cognitive theories explaining the features of an autistic individual.

2.3 Theoretical Impetus

Theory of Mind

Theory of mind concerns the ability of children withautism (a) to appreciate their own and other people'smental states--such as their beliefs, desires, intentions,knowledge, pretence, and perception; and (b) tounderstand the links between mental states and action.This phrase 'theory of mind' was coined by Premack andWoodriff (1978).

Various researchers have come up with a wide array of approaches. Taking Rita Jordan (2012) to start with, she identifies four key interconnected features of autistic thinking. Not only learning/cognitive difficulties but autism can also be accompanied by mutism at times. Even in cases where speech is present there are evident delays in speech development and the speech produced shows robotic speech, lacking any social awareness of turn taking or reciprocity. They show abnormality both in production as well as reception of speech. Language is usually used in a literal manner to meet basic &urgent communication needs.

[3] Taken from chapter 7: The Continuum of Autistic Characteristics

Another interesting perception pattern found in autistic children is their propensity for small details which non-autistic people might miss or recalling precise details of past events (e.g. date and time) or noticing details of texture or sensitivity to high pitched sounds (Baron-Cohen, 1989). Although, this features are not consistent and in extreme cases people with autism may show complete 'mindblindness' (Baron-Cohen, 1995) lacking all signs of theory of mind. In severe cases of autism children have difficulty distinguishing mental from the physical as well the distinction of appearance from reality. As these tasks rely heavily on complex cognitive and linguistic skills the impairments are manifested also in the language use.

People with autism apparently have greater difficulty in perceiving uniformly and fail to ascribe social or personal meaning to what they see/listen (Jordan, 2012). Even normal children learn from their environment the regularity of the world around them but autistic children face challenges here. If the autistic child finds it difficult to perceive the regularities of the world around him or fail to share a view of the world as pointed out by the evident patterns, then they use the patterning of their own world which makes it so difficult for them to learn through the usual ways of learning strategies in regular settings without an expert intervention. As regularity is vital to learning, the irregularities in autism lead to conceptual problems or rather the conceptual problem lead to the irregularities in perception in the first place (Jordan, 2012).

Self and other

The conceptual problem is augmented while considering the concept of 'self and others' as argued by Hobson (1993) that infants have to have some idea that they belong to the same kind of class as others before they can start attributing emotions, thoughts, intentions, to others , on the basis of analogy with their own. Commenting on the interpersonal dimension of autistic children, Hobson (1995) says, "…it is not simply that autistic children have striking impairments in their interpersonal relations –theyalso speak and think inunusual ways, theyfrequently suffer from generalized intellectual deficits, and they commonly engage instereotyped activities or pursue idiosyncraticpreoccupations". He further suggests that autistic children lack the emotional bindings that we perceive

when relating to people in our social setups, irrespective of whether it is an infant, a grown upchild or a mature adult. Leo Kanner (1943) describes that child with autism "have come into the world with innate inability to form the usual, biologically provided effective contact with people" (p. 250).

According to Hobson (1995) autistic individuals are relatively incapable in forming intersubjective contact with others in conjunction with their possible deficiency of the idea of self. The autistic individual's experience of the 'other' is very lucidly presented by a high functioning young autistic adult interviewed by Donald Cohen (1980, p. 388) who describes how the initial years of his life were without people:

> "I really didn't know there were people until I was seven years old. I then suddenly realized that there were people. But not like you do. I still have to remind myself that there are people...I never could have a friend. I really don't know what to do with other people, really."

The characteristic ways in which the autistic individuals think and speak (if at all) are clearly atypical. They are marked by delay in development of creative symbolic play, which usually develops in the second year of a normal child's life. Autistic children exhibit certain degree of representational play but it is again relatively poor & limited in content (Hobson, 1995). The language is generally delayed and not in agreement with the non-verbal cognitive abilities of the child e.g. visuospatial pattern recognition. Social language skills of such children are again very peculiar as they fail to adapt what they speak to the social context in which they say so. Further, they lack an awareness of and are hence not at all concerned about the interests, needs, and existing knowledge of their interaction partners. Their thinking is very mechanical and inflexible and lacking contextual flexibility, they are insensitive to metaphor and often robotic in manner (Hobson, 1995).

Evidently, due to the lack of the idea of 'self and others' children with autism hardly show evidence of cultural learning; Michael Tomasello and his colleaguessee this as a result of lack of, or severelydefective quality, of human social cognition. Here is what

they have identified as the beginning of “cultural learning”, a means of cognitive advance that is unique to humans: “...the cognitive representation that results from cultural learning includes something of the perspective of the interactional partner... [an] internalization or appropriation of perspectives” (Tomasello, Kruger, & Ratner, 1993, p. 6).

Anomaly in perceiving other people’s mind (a normal theory of mind) appears to be a central and probably a universal abnormality and a key psychological feature among individuals with autism (Baron-Cohen et al. 1993b). Generally, a basic theory of mind is seen in people with autism, although, they fail to execute it at the same levels as their Intelligence in other tasks. In extreme cases all signs of theory of mind are missing in autistic individuals. The term ‘theory of mind’ can be used synonymously (to a certain extent) with ‘mindreading’ as it provides us a clear view of their key manifestations in the social and communication deficits and also their limited faculty of imagination and at the same time it provides applied psychologists a deeper understanding to come up with better interventional remedies.

The autistic child finds it difficult to differentiate between mental experiences (e.g. thinking of a dog) from physical experiences (e.g. holding a dog) and consequently perform poorly on the tests for mental-physical distinction ability. On the contrary, normal children can easily make such predictions from an early age of 3-4 years. This poses another challenge for the autistic learners, who as a result are deprived of the crucial feature for decision making and social appropriateness. Normal 3-4year olds are aware of the various functions carried out by the mind, i.e. dreaming, wanting, thinking, keeping secrets, etc. Still others are conversant also to the physical functions e.g. movement, breathing and other life sustaining processes. Children with autism on the other hand (having mental age above a 4 year old) show considerable knowledge about the physical functions, but fail in most cases to show a similar awareness of any mental function of the brain (Baron-Cohen, 1989a).

Usually, children of age 3-4 years can easily distinguish between appearance and reality of things, that is, talk about objects that have confusing identities. For instance, a candle

molded in the shape of an apple. Although, in this case, the candle looks like an apple in form, but in reality it is a candle. Autistic children fail to discern this dual identity in tests and either take it to be an apple or a candle (Baron-Cohen, 1989a). As this task involves multiple simultaneous processing of how the objects appears in form (to our mind) plus what it really is. These findings prove gain that here is a problem in the development of a theory of mind (Baron-Cohen, 2000). Such tasks rely on very complex language processing skills and hence they reveal a lot about the autistic ways of thinking and their impaired language.

One of the most important milestones in theory of mind development is gaining the ability to attribute false belief: that is, to recognize that others can have beliefs about the world that are diverging. To do this, it is suggested, one must understand how knowledge is formed, that people's beliefs are based on their knowledge, that mental states can differ from reality, and that people's behavior can be predicted by their mental states. Numerous versions of the false-belief task have been developed, based on the initial task done by Wimmer and Perner (1983). First order false belief tests measure a child’s understanding of the fact that different people can have varying thoughts about a given situation. As they infer only one person’s mental state they are called first-order tests. But the universality of theory of mind is questioned at times because a small proportion of autistic children pass the first-order tests, especially the high-functioning ones. For such cases there are second-order false belief tests. However, Happe (1996) argues that “this could still mean that these abnormalities are universal, since there are no reported cases of autistic children who pass first-order theory of mind tests at the right mental age”.Thus, a high functioning individual with an autism spectrum condition (e.g. Asperger Syndrome) who has normal intelligence should be able to pass such tests at 3-4 years. Typically, however, they are older than this when they pass such tests. equally Happe (1996) finds that on an average a mental age of 9 years is needed for children with autism to pass such tests, and that the youngest mental age of an individual with autism passing such tests is 5 and a half years (Baron-Cohen, 1989b; Happe, 1994; Baron-Cohen et al., 1997).

Second order tests include more complex embedded mental states like one person's thoughts about another person's thoughts. While first order tests correspond to a general mental age of 4 years level, second order tests confirm to a mental age of 6-years-old. High functioning autistic children or those with Asperger syndrome having higher IQ and language levels, might pass the second –order false-belief tests as sighted above. These High functioning individuals, however, may have difficulty in more advanced theory of mind tasks such as deducing complex mental states such as bluff and double bluff in story characters in an 8-year-old mental age level test (Happe, 1994) or in inferring complex mental states from an expression in the eye-region of the face (Baron-Cohen, et al., 1997).

Normally growing 4-year-old children are capable of keeping track of the other people's ways of thinking about the various things in the world. On the contrary, evidence from numerous studies have affirmed that autistic children have problems in adjusting their perspective in order to judge what the other person might be thinking, instead they report what they themselves know (Baron-Cohen et al., 1985).

Seeing to know

Understanding of where knowledge comes from and who knows what and who does not know what is a key milestone in the normal development of a theory of mind in children. This awareness becomes more crucial as it aids appropriate communication. Here also underlies the understanding of deception. As, prior to changing someone's existing beliefs about what is true, one has to first find out what the other person knows or does not know. (Baron-Cohen, 2000)

Normally developing 3-year-olds can understand the 'seeing leads to knowing' principle in that, when given a story about two characters, one of whom looks into a box and the other of whom touches a box, they can work out that it is only the one who looked who knows what is in the box. In contrast, children with autism perform virtually at chance on this test, and are as much likely to pick one character as the other when asked 'which one knows what is in the box?'(Baron-Cohen&Goodhart, 1994).

As deception involves trying to influence people to believe that something is true when it is actually false it is very significant in understanding other person's mind. By the age of 4 years a normal child shows an interest in deception and starts to master the techniques. Although, initial attempts are very often clumsy and ineffective. Comparatively, children with autism are found to have problems, both in, in production of deception and in understanding it when someone else is deceiving them (Baron-Cohen, 1992).

Mental state words

Apparently, 4 years old, normally developing children can also pick up words (mental words) that refer to what goes in the mind or what the mind can do. Such words include 'think', 'dream', 'pretend', 'hope', 'wish' and 'imagine' which are different from other kinds of (non-mental) verbs like 'jump', 'eat' or 'move', or other kinds of (non-mental) nouns,like 'door', 'school' or 'computer'. Children with autism face a lot of difficulty in making these choices (Baron-Cohen et al., 1994). "This is really a test of their mental vocabulary, but it may well be an indicator that conceptual development in this domain is also less well developed than would be expected for the child's general mental age" (Baron-Cohen, 2000).

Research findings above have established that autistic children produce limited mental state words in their natural descriptions of picture stories involving action and deception, as compared with normal children (Baron-Cohen et al. 1986; Tager-Flusberg, 1992). This limited use of vocabulary does not mean that such children are linguistically incompetent. Rather, when seen in the light of other experimental findings it appears that this restricted use of mental words occurs due to 'delays or difficulties in comprehension of mental state concepts or, at the very least, reduced attention' in such cases (Baron-Cohen, 2000).

Pretend Play

Numerous research evidences have reported thatchildren with autism show a lower rate of pretend play in their spontaneous play of (Wing et al., 1977; Baron-Cohen, 1987). The

results can be evaluated in a variety of ways.Say for instance, it might reflect a failure to reflect in one's own imagination –amindreading difficulty. Else, it might reflect a failure to switch attention flexibly from ‘reality mode’ to ‘pretend mode’, as a result of some aspect of what is called executive function (Jarold et al., 1994). Or it could mean both (Baron-Cohen, 2000).

Understanding Emotion

Emotions can be caused by physical events (e.g. falling over causes you to cry, or being given a present makes you feel happy). But emotions can also be caused by mental states such as desires and beliefs. For example, you can be happy because you get what you want, or because you think you are getting what you want. Normally developing 4-6-year-olds understand both types of emotional causes. In contrast, studies show that children with autism at this mental age have difficulty with the more complex mental states as causes of emotion (Baron-Cohen, 1991; Baron-Cohen et al., 1993a).

Stuart Powell and Rita Jordan (2012) while discussing perception in autistic children observes that their world view is, to large extent, very objective, i.e. ‘devoid of social meaning and emotional directedness’. This makes the physical properties of objects seem more significant than the functional, emotional or social significance. Autistic children respond to objects based on its ability to draw their attention. Further, they explain that “the more able children on the spectrum will begin to observe patterns in people’s behavior and try to work out cause and effect relations, but social and emotional stimuli may never give rise to intuitive insight into another (or even into themselves)” (Powell & Jordan, 2012).

Hence, autistic children fail to perceive emotions like someone’s joy or despair, even if some high functioning children can work out how certain facial expressions and behaviors are associated with sadness or happiness. If trained properly, they can recognize and respond to their own emotions and also apply these concepts to others.

Gaze Direction

We know now that even young normal children of 4 years can find out from someone's gaze direction when someone is thinking. Gaze also allows normal young children of the same age group as above to figure out which of the given objects a person wants (as one shifts the gaze towards the object of interest). Contrary to this, children with autism are relatively blind to such information from gaze direction. Although, they can answer direct questions like 'What is Raju looking at?' they cannot interpret the mental signification of the eyes of the others (Baron-Cohen & Cross, 1992; Baron-Cohen et al. 1995).

Intentions

According to Baron-Cohen (2000) exploring why people behave as they do is all about keeping track of people's intentions, since tracking actions alone gives us a description of what people do, but not why they do it. In an experimental test of this, 4-year-old normal children were asked to shoot a toy gun at one of six targets, stating their intended target... Normally developing 4-year-olds could correctly answer the question, 'Which one did you mean to hit?', even when they did not get what they intended, but children with autism more usually referred to the one that they actually hit (Phillips et al. 1998)

Understanding Figurative Speech [Metaphor, Sarcasm and Irony]

Researchers have tested whether autistic children made sense of figurative speech through story comprehension (Happe, 1994). At the cognitive level Figurative language also requires an understanding of the speakers' intentions in order to surpass the literal level of word and their literal meanings. This may include sarcasm and metaphor. Evidence from research suggest that a kind of advanced mind reading test (designed for mental age level of 8-years-old) shows more subtle mindreading deficits in high functioning autistic individuals on the spectrum (Baron-Cohen, 2000).

Similar findings using a simpler test on pre-schoolers to see how they understand someone's intentions to joke. Baron-Cohen (1997) explains his test:

> "Children as young as 3 years old heard utterances like "This is shoe", spoken by the experimenter while pointing at a cup, and were asked why the experimenter

said that. Whereas normal children referred in the explanations to ‘joking’ and ‘pretending’, children with autism tended to refer to the speaker having got it wrong (“It's not a shoe, it's a cup”).”

Pragmatics

Pragmaticsor the use of language appropriate to the social context is an essential aspect of appropriate social communication. Understanding figurative speech and humour is a subset of pragmatics.(Baron-Cohen, 1988).

According to Baron-Cohen (2000) Pragmatics includes at least the following:

- tailoring your speech to a particular listener
- adapting the content of your speech to what your listener already knows or nees to know
- respecting conversational principles such as being truthful, relevant, concise and polite
- turn taking appropriately so that there is space for both participants in the dialogue
- being sensitive to the other person's contribution to the conversation
- recognizing what is the wrong or right thing to say in a particular context
- staying on topic
- appropriately helping your listener to follow when a topic change is occurring.

All aspects of pragmatics involves‘sensitivity to speaker and listener mental states’ and hence ‘mindreading’, most importantly it should be noted that context is equally significant in pragmatics. This suggests that a difficulty in pragmatics could occur for at least two reasons. Firstly, some degree of mindblindness or secondly, some extent of what Frith (1989) calls ‘weak central coherence’ (use of context). We will discuss Central coherence in the following sections.Difficulties in mindreading in autism spectrum conditions appear early on (from at least the end of the first year of life, if you include

joint attention abnormalities, such as not following what others are interested in). They also appear to be universal (if tested appropriately) (Baron-Cohen, 2000).

Imagination

Imagination is central to theory of mind because it involves building an imaginary world that exists only in our own mind, and being able to reflect on this virtual world. Ina study Scott and Baron-Cohen (1996) investigated the ability of children with autism to draw pictures of unreal or impossible objects (such as two headed people) and revealed that autistic children were least interested or lacked the ability to produce such drawings compared to normal children (Baron-Cohen, 2000).

These results may be due to the so-called ‘executive function’ (the need to suppress routine approaches to drawing, and override these with novel approaches). We will discuss the executive functions in detail in the ensuing section.Experimentalevidences for continuing imagination impairments in both children with autism and Asperger Syndrome on a range of tasks not restricted to drawing(such as storytelling, and standard creativity measures)are numerous.(Asperger Syndrome is a milder form of autism, without the delay in cognitive development, but with the abnormalities of social interaction and repetitive or stereotyped activities.) This evidencesubstantiates the clinical descriptions of disabled imagination in people on the autistic spectrum (Baron-Cohen, 2000).

Applications of the theory to the classroom

The most practical application of an understanding of theory of mind is that teaching autistic children to mindread has been tried in the classroom (Baron-Cohen, 2000). If focused teaching methods are evolved in the light of the test results for specific impairments in the child’s understanding, such interventions will undeniably make a difference. Baron-Cohen (2000) cites an example of a “teacher (a psychologist) explaining to children with autism that thoughts are like photos inside people's heads (Swettenham et al. 1996). This gives children with autism a concrete analogy to help them grasp what thoughts are. Since children with autism have no difficulty

understanding what cameras and photos are, you can go quite a long way using this analogy".

In children with autism the deficit of mindreading can manifest very early, as early as the end of the first year of life, if we take into account the impairment of 'joint attention' – not following what others are interested in—it also seem to be a universal feature in autism.Future research in this field will most likely have valuable clinical applications in the area of both intervention/teaching, and diagnosis/assessment (Baron-Cohen et al., 1996).

We have discussed the various facets of theory of mind relevant to our research interest although this is not the end of it all, because whilst the theory of mind deficits may account for aspects ofthe social, communicative, and imaginative abnormalities,there are other symptoms (such asrepetitive behavior, and unusual perception) that are noteasily explained by this cognitive deficit. We will now look at another significant cognitive theory to find answers to the questions just mentioned.

Central Coherence Theory

Weak Central Coherence theory of autism was proposed by UtaFrith in 1989. 'Central coherence' is the human minds ability to derive overall meaning from a bulk of details. For example a person with strong central coherence, looking at an endless expanse of trees, would see "the forest." A person with weak centralcoherence would see only a whole lot ofindividual trees.[4]

This theory was the outcome of Frith's belief that all the existing theories of that time could explain the core deficits of individual with ASD, but failed to explain for their amazing strengths also popularly known as 'islets of ability'. For example some people with autism have exceptional ability in areas such as music, memory, or calculation. This clearly points out that individuals on the spectrum very often are exceptionally good at observing details, and can easily pick out minute details from a mass of complex data or

[4] (source: IAN website)

objects. The idea of ‘weak central coherence’ is able to explain both the deficits as well as the strengths in autism.

Frith (1989) calls this “a detail-focused cognitive style”, and believes that weak central coherence is not merely a deficit in extracting global form and meaning, but also “an outcome of superiority in local processing” which she considers more a bias than a deficiency as the weak central coherence makes the autistic individuals good at parts but not at wholes.

Frith was moved by a strong belief regarding a common cognitive cause for the deficiency as well as the islet of ability in autistic individuals. Eventually, Frith proposed that specific anomaly in the processing of information at various cognitive levels is evident in autism (Frith, 1989). Normal information processing tends to bring together an array of diverse information to yield a higher level of contextual meaning also referred to as “central coherence” by her. For instance, ‘the gist of a story is easily recalled, while the actual surface form is quickly lost, and effortful to retain’ (Frith, 1994).

Another example of central coherence is the effortless recognition of ambiguous words used in daily conversations e.g. son-sun, meet-meat, sew-so, pear-pair, etc. Similarly, information processing in context for global meaning is noticed in case of non-verbal input—for instance, a general tendency of misinterpreting details in a jigsaw puzzle piece based on the most likely position in the puzzle picture. This preference for higher levels of meaning might be a characteristic feature of non-autistic individuals with mental retardation-- who appear to be sensitive tothe advantage of recalling organized versus jumbledmaterial (Hermelin& O'Connor, 1967).

According to Frith, this universal feature of human information processing is disturbed in autism and a weak central coherence is the explanation for the special talents as well the impairments in autistic individuals. Frith predicts that autistic individuals would be comparatively better at tasks where attention to detail in given information is involved, but they will perform poorly at tasks demanding recognition of global meaning (Frith&Happe, 1994).

Looking at the autistic children's impairment on the embedded figure test[5] Shah and Frith (1983) observed the ease with which autistic children identified the hidden figures which required detailed distinction. This results support the autistic individual's quickness in locating tiny objects such as 'thread on a patterned carpet and their immediate discovery of minute changes in familiar lay-outs for example, arrangement of cleaning materialsonbathroom shelf), asoften described anecdotally' (Frith&Happe, 1994).

Shah and Frith (1993) suggest that the amazing ability (islet of ability) shown by autistic individuals on the Block Design subtest of the Wechsler Intelligence Scales (Wechsler, 1974, 1981)[6] is basically due to their advantage to see parts over wholes as the Central Coherence Theory predicts. The result also shows that this general advantage of autistic individuals is due to their better skills at segmenting the whole design into pieces. We can conclude, in the light of these findings, that general visuo-spatial factors are normal in autistic individuals (Frith&Happe, 1994).

While, on one hand a weak central coherence leads individuals with autism to major advantages in tasks involving preferential processing of details or parts over wholes. On the other hand, the same weakness in central coherence results in clear disadvantages in tasks involving interpretation and processing of stimuli independently in terms of general context & meaning.

One such case where the meaning of individual stimuli is changed by its context is that involving disambiguation of homographs e.g. 'bow' in two sentences "He had a pink bow" and "He made a deep bow" (Frith&Snowling, 1983). This sort of contextual disambiguation is challenging for autistic individuals as they lack the ability to process the final word 'bow' as part of the whole sentence meaning and hence they fail to choose the appropriate pronunciation in the given context (Frith&Happe, 1994). This impairment in using contextual cues is also demonstrated in the comparative inability of autistic individuals in answering comprehension question and to fill in the gaps in a story text.

[5](Witkins et al., 1971) This involves detecting a hidden figure (e.g. a house) among larger meaningful drawing (e.g. a rocking horse).

[6] Notable for their strong gestalt qualities and the difficulty which most people experience with this task appears to relate to problems in breaking up the whole design into the constituent blocks.

These findings clearly indicate that autistic individuals fail ‘to use meaning and redundancy in memory tasks’ (Frith&Happe, 1994).

Another such example comes from ‘islet of ability’ in noticeable drawing skills. Autistic individuals sometimes show exceptional ability of drawing which is characterized by a piece-meal (detail) to whole drawing style. Case studies report this unique style in drawing with anomaly in the organization of the picture or figure. Mottron and Belleville (1993) reported that an exceptional autistic subject “began his drawing by a secondary detail and then progressedby adding contiguous elements”, they summed up that his drawings exhibited “no privileged status of the globalform... but rather a construction by local progression”. On the contrary, normal (non-autistic) artists used as control started with outlines and subsequently added parts to their drawings. However, all exceptional talents cannot be ascribed to a similar local and detail-observant processing style (Frith&Happe, 1994).

Several theories in psychology proclaim some significant deficits to be primary in autism. The most influential such theory is that autistic individuals show ‘executive function deficits’ which eventually lead to social and intellectual abnormalities. The term *‘executive functions’* encompasses a multitude of higher cognitive functions(such as flexibility, set maintenance, organization, planning, and working memory) and hence has a greater possibility of overlapping to some extent with the concepts of both central coherence as well as the theory of mind. Even though, the theory of weak central coherence makes distinct and precise predictions even in the case of executive function. For instance, “inhibition of pre-potent but incorrect responses” may contain two separable elements i.e. Inhibition and recognition of context appropriate responses as in the above example of contextual disambiguation). A change of context is a factor that can render a pre-potent response incorrect. When inhibition is faulty or impaired the stimulus will be treated in the same manner irrespective of the context. But, autistic individuals may not have any difficulty in inhibiting action in a situation where context is not relevant at all. However, we cannot rule out that some individuals with autism might show a deficit in inhibitory control in the same way as some of them show perceptual deficits or specific language impairments (Frith&Happe, 1994).

Looking at the levels of weakness in central coherence shown by autistic children Block Design and Embedded Figures Test employ lower level perceptual processing whereas, similar work on memory and verbal communication reveals deficits of higher-level in central coherence. In normal (non-autistic) subjects' coherence can be seen at many levels, whether it be the precedence of global processing in perceiving hierarchy in figures (Navon, 1977) or the synthesis of a bulk of information and inferential extraction in narrative processing tasks (Trabasso& Suh, 1993).[7]Further, the level of coherence may be relative. For example, "within text there can be three intertwined levels—there is the word to word effect of local association, the effect of sentence context and the larger effect of story structure. It might be so that people with autism process the most local of the levels available in open-ended tasks"(Frith&Happe, 1994).

The basic implication of central coherence theory is that the autistic individuals have unique abilities of perception and cognitive processing where local processing of details supersedes against the inferior global and contextual information processing. Weak central coherence can explain a number of deficits in autism, this include 'hyperfocusing' a tendency towards stimulus over selectivity (Loraas et. al., 1979), showing poor grasp of pragmatics of language despite good expressive and receptive vocabulary (Schopler&Mesibov, 1985. However, weak central coherence can also confer a number of advantages e.g. children with autism perform above their mental age on the children's version of the EFT (Shah and Frith, 1983), and adults with autism are faster on the adult version of the Embedded Figure Test (Jolliffe and Baron-Cohen, 1997).

The practical implication of the findings of central coherence theory in children focused on the relationship between deficits in central coherence and the adaptive skills of autistic children have made very crucial revealing. For instance, weakness in central coherence has been associated to the reading patterns of autistic children, where they often show poor text comprehension, in spite of having good reading accuracy (Lamb et. al., 1990). Weakness in central coherence has explained why children with autism show good memory for details of a story but fail to recall the storyline as a whole (Happe, 1997).

[7]in a special issue of *Discourse Processes* on inference generation during text comprehension

Another, practical application of central coherence hypothesis is in its influence on children's ability to transfer learning across contexts. As a result, children with autism show good discrimination and categorization abilities, and yet poor generalization of learning (Ungerer&Sigran, 1987). It may be expected that assessment of learning that focus on the aspect of learning transfer more directly, such as Dynamic Assessments (DA)[8] prove more sensitive to the effects of weak central coherence.

Several factors affect the autistic child's modifiability in Dynamic Assessment tasks consisting cognitive factors, e.g. memory and language (Lauchlan& Elliot, 1997; Resing, 2000) along with 'non-intellective' factors e.g. motivation and self esteem (Tzuriel et al., 1988). Weak central coherence is another aspect of cognitive processing which may be impaired on the ability of autistic children to show improvement in performance on such tasks (Aljunied& Frederickson, 2011).

2.4 Executive Function

In lay words executive functions can be said to be set of mental skills that help people get actions executed. These skills are wired to the frontal lobe of the brain. Executive functions normally help us in activities like time management, attention, switching focus, planning and organizing, remembering details, avoiding wrong responses/actions, doing things based on our prior experience, multitasking, etc. Executive functions (collectively referred to as executive function and cognitive control) are a set of cognitive processes that are necessary for the cognitive control of behavior: selecting and successfully monitoring behaviors that facilitate the attainment of chosen goals. One of the most influential cognitive theories of ASD is the executive function hypothesis, which proposes that deficits in planning, inhibitory control, attentional set shifting and working memory are central to the disorder (Bishop, 1993; Ozonoff, 1995, 1997; Pennington and

[8]Dynamic assessments (DA) emphasize the assessment of gains in performance on cognitive tasks after the strategies associated with successful completion of such tasks have been taught. A common approach in DA methodology is to measure children's performance before and after 'mediation' (or teaching) is provided, and to use the difference in cognitive performance as a gauge of children's cognitive modifiability.

Ozonoff, 1996; Hughes, 2001). Higher order executive functions require the simultaneous use of multiple basic executive functions and include planning and fluid intelligence (i.e., reasoning and problem solving)

Research identifies autism to be a syndrome of impairments/deficits in higher level executive functions which are controlled by prefrontal cortex ((Damasio& Maurer, 1978; Ozonoff, Pennington, & Rogers, 1991). The functions identified in these studies consist of abstract concept formation and problem solving strategies, subordination of individual cognitive processes towards set goals, self monitoring and self correction, maintenance of reinforced response strategies and inhibition of impulsive responses. Autistic individuals, including high functioning autistic adults, tend to show major deficits in the above mentioned cognitive tasks and frequently exhibit repetitive mistakes (Ozonoff et al., 1991; Prior et al., 1990; Rumsey & Hamburger, 1988; Szatmari, Bartolucci, Bremner, Bond, & Rich, 1989).

Executive function is a proposed mechanism through which people normally carry out attention shifts, inhibit their prepotent responses, plan goal directed behavior and plan to solve problems strategically (Shallice, 1988; Baddeley, 1991). This idea originated from earlier work of Norman and Shallice (1980) in which they proposed that in the absence of 'central executive' or what they called 'Supervisory Attentional System' (SAS), actions are controlled by the external environment and the individual simply responds mechanically to the cues which evoke behavior. With the 'central executive' faculty or the 'SAS' action schemes or motor programs compete among themselves to be executed or easier to say find expression. The 'SAS' according to Shallice is a frontal lobe function. The anomaly in the 'central executive' or executive function leads us to conclude that children with autism might have frontal lobe damage. This is also a reason why most autistic children fail the 'theory of mind' test as discussed above in the previous section.

Hill (2004) in his review of executive deficits of autism observes that executive function is generally used as an umbrella term for functions such as planning, working memory, impulse control, inhibition and shifting set; as well as the initiation and monitoring of

action (Rabbitt, 1997; Roberts, Robbins, &Weiskrantz, 1998; Stuss& Knight,2002). Executive functions are usually impaired in individuals with acquired injury to the frontal lobes and also in children with congenital defects in the frontal lobes. These may include attention deficit disorder, autism, obsessive compulsive disorder, Tourette'ssyndrome, phenylketonuria, andschizophrenia (Ozonoff& Jensen, 1999; Pennington &Ozonoff,1996; Sergeant, Geurts, &Oosterlaan, 2002).

Executive functions in autism

Both social and non-social aspects of autism clearly reveal an impairment of executive functions. Characteristic autistic features like behavioral problem of rigidity and perseveration[9] can be explained by executive dysfunction in the initiation of new-non-routine actions and hence tendency to be stuck in a set task. Simultaneously, the ability to carry out routine activities could be fabulous and might be repeated in a ritualistic manner out of a liking for the same. Repetition in action in daily activities is very common feature in autism and they need regular prompts and external cues to initiate and switch their routine activities. All these external cueing is needed as they lack the inbuilt executive function (Hill, 2004).

Planning in autism

Deficits in planning are found in both children and adolescents with autism. Planning is a cognitively complex and dynamic mental process where sequential planned actions need to be monitored evaluated and updated all the time. This demands a conceptualization of realization of changes taking place in the given situation based on which alternative response could be decided upon and then implemented after revision (Hill, 2004). Children and adolescents with autism fail to perform on typical assessment tasks for testing planning such as the Tower of Hanoi, or a related Tower of London in which the subject moves disks from a prearranged sequence on three different pegs to match the goal configuration set by the examiner. This must be done is as few moves as possible and with specific rules (Bennetto et al., 1996; Ozonoff&Jensen, 1999; Ozonoff et al.,

[9] Perseveration according to psychology, psychiatry, and speech-language pathology, is the repetition of a particular response (such as a word, phrase, or gesture) regardless of the absence or cessation of a stimulus.

1991). However, Hughes et al. (1994) suggests that autism is not the only cause of impaired planning. Rather, general ability of the individual has some considerable influence on the executive function of planning. Learning difficulties certainly add to the severity of the impairments together with autism.

2.5 Understanding Autism

Mental flexibility in autism

Also called ‘set shifting’ or ‘Cognitive flexibility’ (Hill, 2004) refers to the ability of changing one’s thoughts and actions based on the change in the environment context In autism poor mental flexibility is apparent by means of perseverative, typical behavior and difficulty in managing motor acts. Perseveration is found to be a manifestation of deficits in mental flexibility base on studies. Performance on Wisconsin Card Sorting Test (WCST) reveals these impairment very clearly when autistic children are tested (WCST; Heaton,Chelune, Talley, Kay, & Curtiss, 1993; Nelson, 1976). Although, initially it appeared that autistic individuals show major perseveration in mental flexibility tests compared to various control groups, a detailed insight into numerous studies reveals that the real picture is more complex. Since inhibition is another feature of tasks such as WCST the same participant will not show both the impairments simultaneously (Hill, 2004).

Inhibition in autism

Investigations on autistic samples reveal that inhibition is another important feature of thought and behavior associated to executive function. In test of inhibition tasks like Stroop task (Stroop, 1935), the interference of one input is measured on the performance of another. For example, naming the ink colour of colour words when the word and ink are congruent (the word ‘red’ printed in red ink) or incongruent (the word ‘red’ printed in green ink). Findings from studies show equal interference by autistic children and adolescents when compared to normal control groups (Eskes et al., 1990; Ozonoff&Jensen, 1999). In autism inhibition of prepotent response is found to be consistently impaired (Russell et al., 1991).

Generativity in autism

The lack of spontaneity and initiation, the poverty of speech and action and a complete failure in pretence in autism has been attributed to deficits in the ability to generate novel ideas and behaviors spontaneously (Turner, 1997). Further, such impairments might be related to highly repetitive behavior in autistic individuals along with their rigidity towards change (Turner, 1997).According to Hill (2004) a small number of studies on regulation and generation of novel ideas which supposedly involve executive functions reveal interesting facts. For instance, Lewis and Boucher (1991) provide some evidence that successive drawings of autistic children show a greater thematic relatedness than drawings of non-autistic control children. Another test of word fluency requiring individuals to produce as many words as possible in a minute. Here also autistic individuals showed impairments compared non-autistic controls(Minshewet al., 1992; Rumsey & Hamburger, 1988), although othershave failed to find suchdifferences (Boucher, 1988;Minshew et al., 1995; Scott & Baron-Cohen, 1996).

Jarrold et al. (1996) argues that impairment in the spontaneous production of pretence in pretended play is due to the difficulty in generativity. Turner (1997) discusses the correlation between poor ideational and design fluency performance in autism and then highly repetitive behavior and notes that due to deficit of ability in generating novel behavior the autistic individuals cannot execute a routine behavior if the situation changes or a new and unknown situation appears. Turner further argues that these findings highlight the importance of studying generativity in autism as a potential explanation for the ability to control, regulate and modify behavior in all domains of functioning and not limited to those highlighted by executive function deficits in autism.

Self-monitoring in autism

It refers to the ability to monitor one's own thoughts and actions, as well as to self correct them. The typical perseverative autistic behavior shows a clear deficit in self monitoring. As this might be the cognitive operation required to disengage from the immediate

context in order to monitor and guide behavior according to mental states, environmental changes or future goals (Hill, 2004).

Memory in autism

Memory is particularly affected in autism due to dysfunction in the hippocampus(Boucher & Warrington, 1976; DeLong, 1992).Usually, short-term and procedural memory is normal in autistic individuals. Similarly, rote learning (e.g., of word pairs), is not substantially impaired (Boucher & Warrington, 1976; Minshew& Goldstein, 1993; Prior, 1979; Sigman et al. 1987). However, memory for verbal material is, in general, selectively deficient relative to recall of nonverbal material (Fama, 1992; Prior & Chen, 1976). Incidental memory for faces has also been found to be deficient in autism, relative to memory for objects (Hauck, 1992).

Memory deficits studied in various studies are closely related to language ability, especially its semantic aspects that deal with meaning. The use of meaning in memory might be expected to be particularly deficient in autism. Supporting this, autistic children with normal nonverbal IQs, compared to language-disordered children, showed increasing impairment as input material became more and more meaningful from Digit Span to Sentence Memory to Story Memory(Rapin, 1996).However,semantic encoding of verbal material by high functioning autistic adults remains unimpaired in recent studies (Minshew&Goldstein, 1993); yet, as was found by Tager-Flusberg(1992), independent use of semantic strategies for recall is deficient.

Problems with the executive function account of autism

One difficulty arises from a lack of consensus as towhich aspects of executive function are typical of autism.Another comes from the rather restricted ageand ability ranges of the samples assessed. A perhapsmore striking difficulty arises from the factthat executive dysfunction is found in clinical conditionsother than autism (e.g., attention deficithyperactivity disorder; ADHD). Certainly this problemlimits the potential to use executivedysfunction as a diagnostic marker for autism. It may bethat this difficulty will be resolved in thelight of future detailed work investigating executivefunctions in

autism.A further difficulty with the executive dysfunctionaccount of autism is that, while such difficultiesappear to be common, they may not be a universal featureof autism(Hill, 2004).

We have discussed the various cognitive theories related to the characteristic social, communicative, and imaginative features of autistic minds through 'theory of mind'. The theoretical discussion of perception in autism through 'central coherence theory' and finally, the most prominent feature sin autism that is of repetitive behavior and cognitive inflexibility through the 'executive function' deficits. Although, the debates among these theories are still on, we now have substantial knowledge to move towards the central point of this study which is language.Thebasic understanding of a typical autistic learner's mind will aid to our understanding as we proceed towards the language deficitsin autism in the next chapter.

2.6 Summary of the Chapter

In this chapter we discussed the triad of impairments which is a characteristic feature in autism which render the individual devoid of the social skills, the basic feature of the triad is an impaired social recognition faculty, impairment in social communication and lack of perceiving others and impaired creative faculty accompanied by an atypical repetitive behavior both in speech and action. All these features are clearly evident in the autistic individuals.

The chapter further covers the discussion of other co morbid deficits such as language impairments, impaired motor coordination affecting the posture and physical attributes, sensory responses are impaired and hence they are attracted to shiny objects that catch their attention, cognitive skills are severely impaired in case of mentally retarded individuals with ASD.

Next, the chapter delves into the theoretical bases of the impairments which are the theory of mind and central coherence theory. The theory of mind is helpful in perception of self and others plus mental states and action. Here we discuss the idea of self and others in autism, perceptions of mind and mental state words. Along with the very crucial

concepts related to intervention like pretend play, emotions, gaze direction, understanding intentions of others and understanding figurative use of language. The section closes by discussing pragmatics of language and its application in classroom. Central Coherence theory is discussed afterwards which is the underlying theory for deriving meaning at a global level.

Final section of the chapter deals with the deficits in executive functions which lead to impairment in key language and cognitive functions. The concluding section discusses the related cognitive faculties in autism such as mental flexibility, inhibitions, generativity, self monitoring and memory in individuals with autism. The chapter closes with recapitulating the executive function deficits.

Chapter 3
Challenges in Language Learning

3.1 Introduction

Every child is entitled to Right to Education in India and the inclusion of children or learners with special needs is growing with time. These special groups of learners with special needs are a great concern for all stakeholders. Such a special population is that of autistic learners with Autism Spectrum Disorder (ASD) which is prevalent throughout the country.

Language disorders are a hallmark of autism. Approximately 25% of all children with autism never develop functional language capabilities (Klinger, Dawson & Renner, 2002). Autistic children bring with them a diverse range of atypical learning behaviors which are a great deterrent to their communication learning outcomes. The learners with autism spectrum disorder have problem initiating conversation, responding appropriately taking turns and understanding intention and illocutionary force of utterances. They also exhibit poor understanding of emotional states of others and have difficulty in controlling facial expressions to express emotions (Cumming, 2014). Comprehension is also challenging in children with ASD (Williamson et al., 2014; Accardo, 2015). Apart from this, learners with autism very often have problem controlling their cognition to understand textual input (Cain et al., 2004); Duff & Clarke, 2015).

Further, studies show that learners with ASD could decode information but failed to show similar performance in comprehension reading text and could not infer such texts (Nation et al., 2006; Accardo, 2015). Children with autism learn differently than other kids. They need more attention and a distinctive teaching approach. It is responsibility of the teacher dealing with autistic children to ensure that the quality of education delivered to the special learner meet their learning capabilities. In order to do justice to these learners a teacher must learn and understand the challenges they face in learning. We will now look at some of the challenges posed in language learning for the children diagnosed with autism spectrum disorder.

The research on Language challenges has a great influence on deciding intervention approaches. Effective intervention focuses on the following areas:

- Imitation (verbal/non verbal)
- Joint attention
- Gesture use
- Declarative pointing
- Requesting behavior
- Rate of communication
- Play skills
- Parent-child responsivity
- Stereotypic behavior management
- Inattentive behavior management (Lofland, n.d.)[10]

3.1.1. Communication and Language

Autistic children are characteristically marked by a generally impaired or no language at all co morbid with mental retardation. They also exhibit other common deficits e.g. commonly those of sensory-perceptual or motor functions are widely observed. Learners who have deficits in social interaction, communication and behavior issues but have functional language and general abilities in learning are identified as case of Asperger Syndrome (AS) (Boucher, 2003). Keeping in mind the objective/scope of this study we will refer to all of them as cases of autism spectrum disorder (ASD).

In ASD, usually the communication is impaired due to deficits in social interaction and the language is also impaired and inappropriate. The language used is very literal and mechanical with a lot of repetitive behavior and idiosyncratic speech (Tager-Flusberg, 1996). Pragmatic deficits are very visible in the form non-reciprocal and one-way interactions (Baltaxe&Angiola, 1992; Fine et al., 1994). Non verbal communication is also impaired and hence it is expressed in the failure to use facial expression, gesture and

[10]Source: https://www.iidc.indiana.edu/pages/important-predictors#

vocal prosody even in the high-functioning individuals on the spectrum (Fine et al., 1991; Tantam et al., 1993; Howard et al., 2000).

Language impairment in individuals with ASD affects not only the acquisition of spoken language but also the acquisition of sign language. Compared to spoken language, sign language is easier to learn for individuals who have additional deficits like hearing loss or oral dyspraxia. In case of mentally retarded individuals with ASD where both oral and manual dyspraxia are evident it is better to teach some vocabulary of sign language (Rapin, 1996). However, it is quite surprising to observe that even high-functioning children with ASD find written language easier to master than verbal language (Jollife, Lansdown & Robinson, 1992).

In the domain of spoken language, *echolalia*(imitated repetitive speech) is very common in children with ASD. In language acquisition process echolalia plays an atypical part which serves many functions in these learners and shows how the autistic children access the meaning of language by decoding the complex structure of inputs unlike in typical development (Dunn & Sebastian, 2000).

Hyperlexia[11] --anun-instructed, inopportune, self driven ability in autistic children to decode written text is another characteristic feature associated to ASD (Grigorenko et al., 2002). Paul, a four year old boy with ASD, was tested by Atkin and Lorch (2006) for his special interest of intensively reading newspapers before the age of two years and his ability to read aloud words by age three. Although, his comprehension of language was, apparently, delayed but was present. He was tested for highly advanced decoding skills and having a reading vocabulary that exceeded the vocabulary of normal nine year olds. Atkin and Lorch (2006) concluded that these results hint towards the possibility of an atypical route of language acquisition and that "existing cognitive accounts are inadequate to account for the development of the literacy of this child".

[11] **Hyperlexia** is a syndrome characterized by an intense fascination with letters or numbers and an advanced reading ability. Hyperlexic children read at levels far beyond those of their age mates and often begin reading at very young ages, sometimes at age two. It was initially identified by Norman E. Silberberg and Margaret C. Silberberg (1967), who defined it as the precocious ability to read words without prior training in learning to read, typically before the age of 5.

It is observed that an exceptionally high proportion of expressive language in ASD is formulaic as the well formed phrases can be learned and used in speech as such, without any pragmatic influence, in chunks. This is evident in cases of delayed echolalia where the learned are repeated at a later time as response to questions by others (Loveland &Kotoski, 1997). Similarly, grammatical frames are also used repetitively by autistic individuals (Dobbinson, Perkins & Boucher, 1998).

Pragmatics involves the rules and conventions that direct the use of language for communicating with others. These often include social awareness (appropriateness of language) and socio-cognitive knowledge (understanding of illocutionary forces). An impairment in any of the above leads to impairment in the communication as a whole. Such impairment is observed in individuals with ASD, both non-linguistic and linguistic pragmatics is marked and pervasive even in case of high functioning autistics (Landa, Volkmar&Klin, 2000).

Learners with ASD commonly have difficulty understanding and using figurative language and irregular/unconventional use of words. For instance, language features like metaphor, irony and word-play as in jokes are difficult to understand for children on the spectrum, even when they have normal Grammar and vocabulary levels (Happe, 1994). Individuals with ASD also show apparent difficulties in deriving meaning from words and phrases used in narrow context-dependent ways and they also exhibit difficulty in understanding abstract terms (Eskes, Bryson& McCormick, 1990) especially deictic terms --i.e. terms that change their meaning according to time, place or speaker-- words such as ‘now’, ‘there’, ‘I’ (Lord & Paul, 2005). Some studies also report impairments which are specific in the acquisition of words referring to mental states or emotions in children with ASD (Tager-Flusberg& Sullivan, 1995; Hobson & Lee, 1989).

Grammatical impairments noted in children with ASD, who are able to acquire some language, in the findings of recent studies clearly show that the grammatical ability of such children are atypical and grammatical errors and abnormalities are very common in

autistic learners (Kjelgaard&Tager-Flusberg, 2001) especially in spontaneous speech (Dobbinson, 2000). In low functioning autistic learners grammatical competence is further reduced and communication is carried out using isolated words and rote-learned phrases (Boucher, 2003).

Phonology is considered to be least impaired in individuals with autism. Young and les able learners exhibit echolalia (Lord & Paul, 2005) which is mostly accurate, phonologically, thereby showing an intact knowledge of phonological categories. Although, in individuals with no language and absence of echolalia it is assumed that phonological, grammatical and semantic aspects of language is beyond acquisition (Boucher, 2003). In his paper titled *'Language Development in Autism'* Boucher (2003) discusses the 'time parsing' deficit hypothesis to describe the cause of impairments in ASD and argues that:

(i) All individuals with autistic spectrum disorders have impaired time-parsing of events with relatively extended durations, including conversational exchanges, and that this contributes to the linguistic aspects of their pragmatic impairment.
(ii) Individuals with High Functioning Autism (HFA) or Low Functioning Autism (LFA) have, in addition, impaired time-parsing of events of shorter durations, such as sentences, and this adds semantic and syntactic impairments to their pragmatic impairments.
(iii) Individuals with LFA but some language have further additional impairments of time-parsing at the level of words and morphemes, aggravating the semantic and grammatical impairments.
(iv) Individuals with LFA and no language have yet further additional impairments of time parsing at the level of syllables and phonemes—thus no capacity for any aspect of language acquisition.

This hypothesis successfully explains why some individuals with ASD have impaired language but not all of them show similar language deficits.

3.2. Challenges in Language learning

Learning a new language is always a challenge for typically developing children due to the cognitive demands of the acquisition process. The English language learners with ASD who are already struggling with their atypical development and deficits in the cognitive and associated faculties are further challenged by the complex cognitive processes. Now we will look at the major challenges in learning language in case of learners on the spectrum.

3.2.1. Challenges in Listening/Auditory/Multisensory perception

One of the hypotheses describing language impairment in autism is that sensory-perceptual impairments and abnormalities lead to language impairments in ASD and possibly a number of characteristic behavioral impairments (Spencer et al., 2000; Brown, 1999). Supporting these studies is the report of rising prevalence of hearing impairments and the covariance it shows with data on severity of autism, and not with IQ levels (Rosenhall et al., 1999). Further, it supports evidence of hypo and hyper –sensitivity exhibited by individuals with ASD to sound very often coexisting in the same person (Rosenhall et al., 1999).

Interest in the sensory and perceptual impairments and abnormalities related to autism spectrum disorders is gaining momentum (O'Neill & Jones, 1997) expecting research about the origins of autistic language impairments to emerge from this in future. Boucher (2003) predicts that audiologists will play a significant role in such research. He also discusses the practical importance of the awareness among medical practitioners regarding the high prevalence rates of neural and particularly of conductive deafness in children with ASD, as the outcome of undetected hearing loss in children with ASD can be very grave (Jure, Rapin& Tuchman, 1991).

Tests of listening preference in children with ASD both with developmental delays and typically developing children reveal that all studied groups prefer to choose a children's song over a pure tone, typical as well as children with developmental delays choose their mother's voice over recordings of numerous superimposed voices, contrary to all these

children with autism choose superimposed voices over their mother's voice (Klin, 1991, 1992). Brain measures of children with autism also show a lack of attention to speech. Event related potential (ERP) studies point out that high functioning child with autism exhibit differences in P3—a brain component associated with attention to significant environmental stimuli (Courchesne, Kilman, Galambos& Lincoln, 1984, 1985; Dawson et al., 1986, 1988; Kemner et al., 1995).

Responses to simple tones, complex tones and syntactic vowels in high-functioning children with autism and normal school age children examined in a recent study (Ceponiene et al., 2003) show that sensory processing and speech discrimination or *mismatch negativity (MMN)*[12] were comparable across study groups, only the P3 complex was abnormal for speech stimuli in children with autism. These studies clearly point out that MMN and other ERP components in responses to speech are normal in high-functioning children with autism but the P3 component is abnormal (Kuhl et al., 205). These results can be interpreted in three novel ways in case of preschool children with ASD.

a. Comparisons among study groups show that children with ASD differ from typically developing children both in neural and behavioral responses to speech. In response to a change in speech syllables, typically developing children exhibited the expected MMN, whereas children diagnosed with ASD did not.
b. Children with ASD exhibited a significant listening preference for non-speech analog signals when matched acoustically to motherese speech sample resembled computerized melody/tune. Normal children do not prefer these non-speech samples.
c. When children with ASD were separated into two groups based on their listening preference—non-speech vs. motherese speech—their response to speech showed

[12]The mismatch negativity (MMN) or mismatch field (MMF) is a component of the event-related potential (ERP) to an odd stimulus in a sequence of stimuli. It arises from electrical activity in the brain and is studied within the field of cognitive neuroscience and psychology. It can occur in any sensory system, but has most frequently been studied for hearing and for vision. In the case of auditory stimuli, the MMN occurs after an infrequent change in a repetitive sequence of sounds. The auditory MMN was discovered in 1978 by RistoNäätänen, A. W. K. Gaillard, and S. Mäntysalo at the Institute for Perception, in The Netherlands. [*source:Wikipedia*]

different neural patterns in the two groups. It was observed that the brain waves of children with ASD who preferred motherese matched those of typically developing children, exhibiting the MMN to a syllabic change, whereas the other subgroup of children with ASD who preferred non-speech samples continue to show the abnormal/defective ERP pattern (Kuhl et al., 2005) .

The lacking MMN in children with ASD showing severe symptoms of autism shows that central auditory deficits can affect a listener's ability to register an auditory change in a speech stimulus. In the light of existing studies involving a variety of social and non-social auditory stimuli, the abnormal listening preference of children with ASD suggests that they prefer sounds originating from non-human sources more than human sounds. These studies clearly suggest an associative link between phonetic and social speech processing in children with ASD. Recent studies on typically developing infants support the notion that social factors are significant in language acquisition (Kuhl, et al., 2005).

According to Woynaroski et al. (2013) speech perception is a multisensory high-level task where visual perception of social stimulus like the movement of facial muscles and the neck shapes the perception of a complex acoustic stream (Massaro, 1998). Earlier studies have suggested that children with ASD are impaired in "audiovisual integration in the face of intact unisensory abilities (De Gelder et al., 1991), difficulties in audiovisual integration due to deficient unisensory abilities (Williams et al., 2004) and a difference, but not impairments, in audiovisual integration because of specific visual impairments (Iarocci et al., 2010).

Foss-Feig et al. (2010) has reported that children with ASD combine non-speech visual and auditory signals (flashes and beeps) over temporal windows twice as broad as that of normal children. According to Summerfield (1987) cited in Woynaroski et al. (2013) "speech perception depends on accurate detection of dynamic temporal signals" hence it is reasonable to expect that speech perception in children with ASD might be seriously affected provided the tendency to combine visual and auditory cues over a longer period of time. Woynaroski et al. (2013) based on their finding conclude that children with ASD rarely integrate discrete pieces of complex, socially relevant information i.e. auditory and

visual speech into a unified one are at risk of responding atypically to environmental sounds and distractions.

Foxe et al. (2013) in their study on multisensory speech integration deficits in high-functioning children with ASD under noisy listening conditions have shown that multisensory speech integration abilities keep developing through early adolescence in normal children (Ross et al., 2011). Hence they suggest that with appropriate practice and motivation the child with ASD can still experience a multisensory learning even at a later age. It is worth noting here that children above the age of 12 years with ASD have "improved their ability of recognizing emotions from the upper aspects of facial stimuli" (Kuusikko et al., 2009).

3.2.2. Challenges in Speech

Among verbal children with autism onset of speech is typically delayed (APA, 1994).Current estimates suggest that about 30% of children with ASDare left minimally verbal, despite receiving interventions and a range of educationalopportunities over years (Tager-Flusberg& Connie Kasari, 2013). Most preschoolers with ASD are preverbalabout 25–30% turn out to be nonverbal or minimally verbal when they reach Kindergarten (Anderson et al, 2007). Further, 21–66% of children with ASD never developcommunicative speech in absence of intervention (Lord & McGee, 2001). It is only very rarely that Individuals with autism initiateappropriate speech and they quite often fail at typical social interactions such as requesting information, askingquestions, expressing affection or requesting interactions (Carr&Kologinsky, 1983).

Although the language impairment occur universally in children with ASD it does not manifest as a single deficit, rather a wide variety of deficits are observed including phonological, general semantic and syntactic deficits. There exists a complete spectrum of language behavior deficit while some individuals show almost typical abilities others are extremely impaired (Lord & Paul, 1997; Kjelgaard&Tager-Flusberg, 2001). These studies demonstrate that typically developing infants have:

i. The ability to discriminate among the phonetic units of speech

ii. A keen interest in spoken language, and
iii. The ability to learn from exposure to language (Kuhl et al., 2005).

In a study, comparing the narrative abilities of high-functioning adults with ASD against typical controls, Colle et al. (2008) on temporal expression and anaphoric pronouns during a story telling task. They could not find any significant difference in general narrative abilities of the two groups but noted specific pragmatic deficits in individuals with ASD. They confirmed that the autistic subjects used fewer personal pronouns, temporal expressions and referential expressions, due to deficits in theory of mind abilities (Colle et al., 2008).

Several studies on development of narrative discourse in autism have reveled both linguistic and social-cognitive skills. A large number of such studies reveal various degrees of 'mindblindness' in individuals with autism (Baron-Cohen, 1995; Frith, 2003). In order to use narrative successfully and efficiently, the speaker needs to structure and organize relevant information for the listener based on a careful comprehension of the listener's context (Sperber& Wilson, 1986), taking into consideration listener's existing knowledge and perspective (Astington, 1991). There are a lot of things in mind for a successful communication issues like what the listener already knows, what new information is being provided to them, and what the listener should know. Any deficit in achieving these goals may confuse the listener or bore them with unnecessary details (Colle et al., 2008).

3.2.2.1. Narrative Abilities

Several studies on narrative development in children with ASD show problems in using pragmatic markers of time and space (Bruner & Feldman, 1993; Loveland &Tunali, 1993). Some studies have shown reduced expressions of mental states (Baron-Cohen, 1988; Baron-Cohen, Leslie &Frith, 1986). While others revealed usage of idiosyncratic gestures along with inappropriate vocalizations during story telling tasks (Loveland et al, 1990). Still others pointed at reduced complexity of sentences and the count of causal statements (Tager-Flusberg& Sullivan, 1995).

Individuals with ASD, usually, are not proficient in adapting their speech to the listener (Baron-Cohen, 1988) they generally speak to strangers in the same manner as they would to a friend, due to this they very often end up making inappropriate comments which might offend strangers. They also have deficits in decoding expressions which are not literal or direct (Baltaxe& Simmons, 1983; Ozonoff& Miller, 1996). In comparative studies of narrative story telling abilities in high-functioning verbal children with ASD and those with Down Syndrome Loveland et al (1990) have shown that children with ASD can interpret meaningful events of the story and there was not much difference in the narrative lengths. Noteworthy is the observation that children with ASD produced comparatively larger number of "bizarre" utterances and less number of communicative gestures (Colle, 2008). These inappropriate utterances are explained a s result of violation in pragmatics, for instance speaker shift focus from the story to himself with "bizarre" comments. Research explains this anomaly as a reflection of impaired theory of mind (Baron-Cohen, 1988; Bruner & Feldman, 1993).

Individual with ASD show a number of less pronounced communication deficits such as an overly formal or 'bookish' choice of words as reported by Ghaziuddin and Gerstein (1996). Also, these individuals remain unaware of the listener's emotional states due to impairment in reading gestures and facial expressions of the listener. They exhibit a 'systemizing' focus on small details of an argument and discus it till its logical end in their pursuit of understanding the topic as a web of information (Baron-Cohen, 2002, 2006). Further, individuals with ASD have difficulties in maintaining the course of a topic of discourse and they end up inserting a number of unrelated irrelevant comments thereby failing to carry forward the discourse on the given topic by including (adding) new but relevant information (Tager-Flusberg& Anderson, 1991). This deficit is explained as a reflection of deficits in theory of mind where the speaker fails to evaluate whether the listener wants to stay on the topic or change the topic of discussion.

3.2.2.2. Anaphoric Pronouns

Studies involving narrative abilities of typical children have shown that appropriate anaphor reference expression develops at a later stage in language acquisition process.

Individuals with ASD produce comparatively similar amount of anaphoric pronouns as the typically developing children, but interestingly they very often use nouns to refer to the protagonist thereby compromising the fluency of the narrative (Colle et al., 2008). Further, in the same study it is noted that temporal devices—which are linguistic forms that contribute to the cohesion of narrative—were used less frequently by children with autism. Individuals with ASD preferred using simple and unlinked sentences lacking awareness of sequence of events that have taken place earlier in the narrative /story (Colle et al., 2008).

It was noted that children with ASD more frequently used a limited understanding of intensions and internal states of characters in a story. They could identify emotional and mental states but could not completely understand them as referred (Tager-Flusberg, 1995). Colle et al (2008) have shown in their research findings that high-functioning children with ASD exhibited problems in inferential domains of language e.g. metaphor, to decode what mental state words imply in a given context, and inability decoding the intention involved in speech acts despite their average verbal intelligence .

3.2.2.3. Prosody

Prosody has a very significant role in a range of affective pragmatic and syntactic communication functions, enhancing the meaning or changing meaning of expressions (Couper-Kuhlen, 1986). Prosodic elements have varying roles which can be paralinguistic or linguistic. Disorder is usually reported in the ‘form’ level such as inability in perceiving difference between pitch levels or at the ‘function’ level such as lack of ability in appreciating the communicative function of stress. A number of individuals with ASD exhibit aberrant and odd sound prosody (McCann &Peppe, 2003). Most studies on prosody in autism are centered on prosodic expression for pragmatic or affective goals and the observations of children with ASD reveals a speech showing poor inflection and unnecessary or inappropriate stress (Hargrove, 1997). Clinicians and researchers have extensively noted that even highly-verbal children with ASD can have a ‘bizarre’ speech. Such speech is described as containing monotonous or exaggerated intonations, slow syllable-timed speech, a rapid rate of speech or an acquired accent

novel to the other speakers in the peer groups (Baron-Cohen & Staunton, 1994). Impairments in prosody are usually lifelong and do not improve even when other linguistic domains improve. According to Shriberg et al. (2001), prosody is a neglected area in therapy of autism although a disoriented prosody might pose as a barrier to social acceptance of individuals with ASD.

Stress

Data from a study by Mc Alpine et al. (2014) shows that children with ASD demonstrated atypical stress patterns such as multisyllabic word stress or reduced stress in comparison to typically developing controls. The main area of inappropriate stress for children with ASD is the use of lexical stress in words and sentences. McCann (2007) reported that children with ASD misassigned the stress positions and very often stressed the first syllable in words. Fosnot& Jun (1999) report a atypical speech in children with ASD showing deficits in duration term, intonation and pitch during reading and imitative tasks. They also revealed that children with ASD show longer duration in declarative and interrogative sentences compared to typically developing children. Study results of Mc Alpine et al (2014) shows a consistent presence of atypical stress patterns in the speech of children with ASD. However, McCann &Peppe (2003) speculate that the speakers with ASD assign stress unintentionally as they have impaired executive functions.

3.2.3. Discourse Level Challenges

1.Phrasing and Chunking

Verbal phrasing or boundary prosody is referred to as ‘chunking’ to avoid confusion with syntactic or written phrasing. Chunking is the prosodic segmentation of utterances on grammatical, pragmatic or semantic grounds. As a receiver or listener, a deficit in chunking manifests probably as a ignorance that a speaker has finished and lack of ability to understand syntactic clusters in speech where it can be distinguished only through prosody. As a speaker, an individual might interrupt speakers, or fail to use prosodic demarcation to indicate coherent chunks thereby leading the listener into confusion. Both

these phenomenon of prosody are clearly evident in individuals with ASD (Shriberg et al, 2001).

2. Pauses

In narrative speech elicitation task/test involving wordless picture book for marked pauses in children with ASD the children made use of grammatical pausing similar to typically developing children and those with learning difficulties. Further, Thurber and Tager-Flusberg found that the children with ASD used non-grammatical pause on fewer occasions than other groups. McCann &Peppe (2003) suggest that this finding points towards reduced cognitive load and attribute this to a reduced communicative involvement in the interaction by the participants. Contrasting to Thurber and Tager-Flusberg (1993), Fos not and Jun argued that the children with ASD show greater frequency of nn\on-grammatical use of pauses for example, “It’s” in the sentence: “It’s a Rhino”, in a reading task.

Finally, some studies of echolalia (Local &Worton, 1996) have shown children with ASD manifesting spontaneous echoing of prosody of utterances which suggest that this may be possible for a part of the autistic population on the spectrum.

3.3. Language challenges: Reading Comprehension

Intervention brings with it a lot of challenges for the children with ASD such a s academic tasks like reading. Reading is a complex cognitive process and hence children with ASD find it difficult to read for meaning. The ensuing discussion will try to discern, what are the factors that make reading for meaning challenging for children with ASD despite most of them being skilled at decoding but less so at comprehension (Randi, Newman &Grigorenko, 2010).

Usually reading for meaning presents challenges even to normally developing children. Children are generally taught reading as ‘code-based’ instruction or phonics instruction which helps in the decoding of words by processing the sound-symbol correspondence and following the written pattern of letters in written words (Stahl, 2001). Reading goals

generally shift from word-reading level to meaning making level, this shift of level in understanding poses new challenges for the learner by increased complex cognitive demands of reading comprehension, with increase in difficulty and length.

Reading for meaning is particularly challenging for individuals with ASD. Such individuals show a range of strengths and weaknesses with varying range of intellectual abilities from high-functioning to low-functioning autism. Irrespective of where the children are placed on the spectrum they exhibit well formed word recognition skills, but show an impaired reading comprehension (Nation et al, 2006). Hyperlexia is observed in children with ASD before they acquire reading comprehension (Grigorenko et al., 2002, 2003). Children with ASD use the same decoding strategies of phonological and orthographic mapping as employed by normal readers. Randi et al. (2010) and others suggest that Hyperlexic word recognition develops in children with ASD early due to their preoccupation and intensive practice in word reading.

Word recognition skills appear to be well developed in children with ASD but the comprehending skills needed for constructing meaning are missing. Oakhill et al. (2003) in their study on typically developing children have identified the cognitive processes required for comprehension. Along with the decoding skills, other skills like text integration, meta-cognitive monitoring, inference making, and working memory have been identified as contributing factors in reading comprehension ability (Randi et al, 2010). Studies on reading in children with developmental disorders have shown that although correlated, the word recognition and comprehension skills develop independent of each other (Cain & Oakhill, 2004; Nation, 2001). Children with ASD have well-developed decoding skills but are poor comprehenders (O'connor& Klein, 2004). Nation et al. (2000) report 65% children with ASD with reading skills have comprehension deficits.

Reading comprehension is a complex cognitive process which involves various related elements. The understanding of a text depends on a number of factors. To read for meaning typical readers employ a wide range of cognitive abilities like inferencing and

attention; motivational strategies like deciding a purpose of reading and existing knowledge of vocabulary and the topic (Snow, 2002).

Research on how people develop reading comprehension skills have investigated the underlying process involved and propose two classes of processing events. First, the word identification process. Second, language processing of words into meaningful messages (Perfetti et al., 2005). Further, the researchers investigated higher-level factors helping readers to move beyond the literal meaning of the given text. They identified three elements of comprehension development which are also probable source of comprehension deficits. These factors are:

(i) Sensitivity to story structure
(ii) Inference making
(iii)Comprehension-monitoring

According to Perfetti et al. (2005), inference making is difficult to acquire by students and there are several factors underlying the difficulties in inference making.

Research on reading comprehension difficulties (Cain & Oakhill, 2004) describes reading difficulty at three different levels—the word-level, sentence level and the discourse level. At the word level, vocabulary stock hampers reading comprehension. But ironically, reading aids vocabulary and vice versa. Sentence level impairments have a major contribution in reading comprehension failures. This level involves syntactic knowledge and the context of sentence use. Higher level processing skills operate at the text or discourse level in deducing meaning. It is at this level, readers make inference use anaphoric references, recognize text structures, use context at the level of discourse, and monitor their comprehension (Randi et al.,2010). According to Perfetti et al. (2005) readers make use of these high-level cognitive processes when trying to achieve text coherence. These researchers argue that word to text integration uses word processing which includes the proficiency in linking word meanings appropriately in sentence contexts. They explain text integration deficits as a result of limited working memory and low lexical quality.

Children with autism spectrum disorder show a range of strengths and weaknesses and hence they demand a variety of interventions. As discussed in the previous section children with ASD have a tendency of paying attention to details hence they pay attention to single words more than the global meaning (Nation, 1999). Such children show advanced word recognition skills. Research has shown that children with ASD have strong syntactic processing and a weaker semantic processing (Tager-Flusberg, 1997). Other studies have shown that children with ASD take on sentence comprehension in the same manner as typically developing child (Paul, 1988). However, it was observed that normally developing children and those with ASD both used word order interpretations in sentences but a counted few used event strategies from both the groups. To explain this observation it was argued that children at the given level of development may have crossed the need of using event strategies concluding that language acquisition is not impaired but delayed in children with ASD. To add to this, it was observed that children with ASD did employ their world knowledge in understanding sentences. These findings point towards the fact that intervention targeted at linguistic processing may be effective at sentence level.

According to Perfetti et al. (2005) memory impairments possibly lead to reading comprehension challenges particularly in reading longer texts as joining sentences together for global meaning demands memory capacity. Children with ASD have impaired organization to facilitate memory (Williams et al, 2006). Apart from memory impairment and weak organizational strategies children with ASD also have an inclination of focusing on details due to which reader finds it challenging to organize text as a coherent unit. This failure in understanding global meaning in text is usually attributed to a ‘weak central coherence’ in autistic children (Happe&Frith, 2006). They however argue that strong and weak coherence are individual styles and those individuals with ASD having an ‘eye for detail’ are able to derive global meaning if they feel a need to do so. This observation is very significant in designing intervention programmes.

Inferencing from text is a crucial reading skill but children with ASD find it difficult to make inferences at abstract levels. In reading comprehension abstract reasoning skills are very important, particularly while reading narrative text. Expository texts such as

directions or rules or process descriptions demand comparatively lesser abstraction than the narrative texts which demand the reader on cognitive process to deduce traits of characters, draw conclusion and also identify causal attributes. According to Randi et al. (2011) children with ASD prefer expository text e.g. science text over narrative text as the narrative is challenging owing to its abstract reasoning demand. A possible reason for challenging nature of narrative tasks in children with ASD is that they have a delayed development of theory of mind, i.e. the ability to perceive intentions and emotions in others which directly impacts language of the child (Colle et al., 2008)

Although, research has clearly pointed out cognitive processes as well as teaching strategies are developed for developing comprehension many teachers do not pay attention to teaching reading comprehension strategies (Duke & Pearson, 2002). Teaching reading for meaning to children is very challenging as it comprises of an intricate set of skills and cognitive process which require individual attention to learners. In children with ASD it becomes apparently true as these children require personalized intervention in managing behavior as well as academic life (Koegel et al., 2009). As these children have a range of strengths and weaknesses there is a possibility that reading comprehension intervention of normally developing child might also be helpful for children on the spectrum. In the same way, children with ASD having Hyperlexia may concentrate on word recognition and avoid semantic tasks. Cartunghi (2002) has suggested cognitive flexibility measures which may help children think flexibly on reading tasks and they pay attention to both phonological and semantic processing.

3.4. Learning Challenges: Writing

High-functioning children with ASD are usually sent for mainstreaming in inclusive schools and classrooms. The academic setup demands these children to undertake academic activities like reading and writing. Research suggests that writing skills are challenging to develop in learners with ASD (Myles et al., 2003). Studies explain the reason of this difficulty in a number of ways (Pennington & Delano, 2012).

(i) Writing being a social event involving a writer with the audience. This communication act requires knowledge about the audience's perspective but as we have already discussed in chapter 2 children on the spectrum have deficits in perceiving others from their own. This challenge makes writing for a particular targeted audience difficult.

(ii) The process of writing is demanding with the learner having to manage a number of cognitive, linguistic and motor processes at the same timeduring planning, generating text, organizing and revising text (Singer & Bashir, 2004). Researchers have reported impairment in several of the above aspects (Anzalone& Williamson, 2000; Jansiewicz et al., 2006).

(iii)Studies have revealed that written language has a strong correlation with Oral Language evolvement (Shanahan, 2006). In addition to that the impairments in communication seen in children on the spectrum also hinders the acquisition of writing skill (Pennington & Delano, 2012) along with the deficits in social, linguistic and executive functions.

Myles et al (2003) in their study comparing children with ASD with individuals with disability showed that learners with ASD exhibit poor legibility, complexity and word count in handwriting tasks. Similarly, Church, Alisanki&Amanullah (2000) revealed that children with ASD have difficulty in areas of handwriting, organization, handling abstract ideas. In a classroom situation all these challenges are usually aggravated when learners express non-compliance to writing task thereby reducing their learning opportunities (Church et al., 2000).

In higher education writing presents a great challenge for students with ASD and even students who perform well in subjects like physics or engineering find writing difficult. As writing requires social skills and children with ASD have deficits in abstract ideas, organization of thoughts, taking more than one perspective (Dubin, 2014). Their compositions usually lack focus and are disorganized. Learners with Asperger syndrome also find note-taking challenging provided the volume of information to reduce into key points. Jurecic (2007) in her observation of writing s from her student with Asperger syndrome reported that the writings lacked structure thoughts although, the sentences

were correct. He failed to imagine a reader with a different background and knowledge than his own. He had serious difficulty in composing transitions, filtering background information and constructing arguments and counter arguments. His writings had a writer-based stance instead of a reader based one. A sense of audience is one of the key developmental goals in their intervention programmes. Finally, she suggests that intervention must be designed based on a complete awareness of the learner's strengths and areas of need as an individual.

In another study (Brown & Klein, 2011) comparing writing of individuals with Asperger syndrome to normal individuals centred on written composition and how theory of mind affects it. It was revealed that the individual with Asperger syndrome wrote comparatively shorter pieces and the quality of their written text (Both narrative and expository) were lower in quality as compared to typical subjects. The researchers found a contributive relation between theory of mind ability and length and quality of the text both in narrative and expository texts. Main areas of concern identified in Asperger syndrome were smooth transition between ideas and focus retention on the main topic (Dubin, 2014).

According to Adreon& Durocher (2007) the learning needs of the learners with ASD should be supported in writing tasks for example lecture notes or slides can be used when learners find it too challenging to write. Organizational support can be provided through explicit instructions for classroom organization and study materials be organized using colour-coded folders with divided sections (Dubin, 2014). Further, the larger assignments can be broken into smaller units which become convenient for the learners with ASD to submit separately in parts, and continuosly supporting them in managing their time efficiently.

Several researchers have proposed possible effective strategies in order to provide better learning support and better writing outcomes. Delano (2007) in her article "use of strategy instruction to improve the story writing skills of a student with Asperger syndrome" discusses what she called 'Selfregulated Strategy Development (SRSD)' model for intervention in adolescents with ASD. This model offers learners direct and

clear instructions in strategies to plan, write, revise, edit and monitor their writing tasks. Other researchers suggest assistive technology based support for learners with ASD. According to Caverly (2008) use of technology such a s voice recognition can do away with the physical challenges of writing in ASD. Still others like Van Bergeijk et al. (2008) recommend laptops, scribes and tape recorder to remedy the challenges of note-taking.

Research evidence suggest that deficits in oral communicative skills affect written text production in both typical as well as those with learning disabilities (Berninger et al. 2006;Mackie, Dockrell& Lindsay, 2013). However, in what ways the elements of oral language influence the writing outcome is still not clearly specified and it might vary based on how written text is assessed (Shanahan, 2006). Research has revealed various new dimensions underlying written text productions varying across age and study groups which include domains of productivity, complexity and accuracy (Puranik, Lombardo & Altman, 2008; Wagner et al, 2011). According to Abbott &Berninger (1993) text generation is the capability of translating abstract ideas into linguistic representations in working memory which can later be written. This process is carried out through selection of suitable words for creating sentences along with producing grammatical sequence of words. The process of writing also draws on various elements of oral language which include phonological processes, oral narration and receptive grammar (Berninger, Whitaker, Sylvester & Nolen, 1995; Green et al, 2003; Cragg& Nation, 2006; Mackie et al, 2013) (cited in Dockerell et al., 2014).Producing, grammatical accuracy and quality in written text are particularly related to the different components of oral language (Dockrell et al., 2014).

Written text produced by learners with ASD are shorter, less complex and have very few mental state terms compared to matched control groups (Barnes, Lombardo, Wheelwright & Baron-Cohen, 2009; Brown & Klein, 2011). As discussed by Brown & Klein earlier written texts lack focus on the main topic and the transition between ideas is abrupt. Research on writing of learners with ASD has shown limited text quality and no significant grammatical or spelling deficits (Myles et al, 2003). A more interesting observation is the relationship of autism symptomatology and refusal of writing tasks by

learners with ASD. It is possible that they don't understand the task demand or they are burdened by the social and communicative challenges of writing (Dockrell et al, 2014). Other speculations include difficulties related to deficit in idea generation (Norbury& Bishop, 2003). Evidence from several studies show that learners with ASD have difficulty narrating events and this might be affecting their written language as well (King et al., 2013).

Study results of Dockrell et al. (2014) reveals that writing is influenced by structural language abilities and these skills must be identified before testing text production in children with ASD. More importantly studying ASD population has shown that pragmatic aspects of language might have influence on quality of written text. Communicative deficit in children with ASD is reflected in their failure to produce coherent and cohesive text which shows a correlation. The researchers could not find any relatedness with non-verbal ability on any of the writing measures and suggest focusing on the specific areas of weakness. Their study findings indicate the area to focus on as the oral language and handwriting fluency in children with ASD. The regression analysis suggests that intervention at sentence level may be helpful for the writers on the spectrum and will support further production of complex text.

Handwriting challenges are frequently reported in learners with ASD, particularly legibility and letter formation, although these problems do not affect the written text as such (Myles et al., 2003). 'Atrocious handwriting'was first described by Hans Asperger in three of his four original cases of Asperger syndrome (Frith, 1991). During the translation of Asperger's work, Frith has discussed common handwriting challenges. She also identified challenges with pen control and visual perception along with small impairments in handwriting e.g. size, alignment, spacing etc. (Rosenblum, Smihon& Gal, 2016). Handwriting test using Minnesota Handwriting Assessment (Fuentes, Mosotofsky& Bastian, 2009) revealed that learners with ASD scored lower than typically developing children on the legibility component. This results in the letter legibility is supported by several other researchers e.g. Myles et al (2003) and Henderson and Green (2001). Poor letter formation in children with ASD is reported by Kushki, Chau &Anagnoston (2011) and the most common errors were the use of sharp edges instead of

smooth curves and bigger extensions of letters (Fuentes et al., 2009). This challenge can be attributed to impairments in fine motor control and visual motor integration due to visual perception deficits persistent in high-functioning learners with ASD they need more time for planning, reconstructing and produce written text on paper. Characteristically, the visual perception in ASD is unique and learners with ASD have a tendency of focusing on details and not perceiving the global picture (Dakin &Frith, 2005). Visual perception might affect the perception of letters and words with respect to paragraphs or the surface of paper.

Children with ASD write slowly and the letters are larger than those of typically developing children due to deficits in fine motor abilities. They also find it challenging to arrange their handwriting product in paragraphs. This can be due to cognitive and visual spatial deficits and atypical behavior in children with autism. (Dakin &Frith, 2008; Kushki et al., 2011).

3.5 Summary of the chapter

In this chapter, we have discussed the various challenges associated with the learning and teaching process in learners with ASD. The chapter begins with introducing the various factors influencing communication and language problems in learners on the spectrum along with the manifestations of the deficits in the communicative aspects of the language.

In the next section all the linguistic challenges are discussed in detail, one after the other. The major challenges identified in the light of existing research are in the areas of perception e.g. auditory, visual and multisensory perception; production, e.g. in speech and writing, and the related challenges in the areas of reading comprehension and narration. Finally, the chapter closes by discussing the learning challenges in writing tasks faced by the learners on the spectrum.

The next Chapter will describe and discuss the data collected from the various sources and explain the findings of the research. The Challenges discussed here will be of great help in interpreting the results of the findings in light of the ensuing analysis.

Chapter 4
Data Analysis and Interpretation

For the present study, which was a qualitative research, open-ended questionnaires were used for eliciting information from the resource persons involved in the learning and development of children with Autism spectrum disorder (ASD) and semi-structured interviews were conducted for collecting information from the parents of children with ASD and the district official looking after education of this special population of learners on the spectrum. See appendices 1. 2 and 3. Three different set of questionnaires were designed keeping in mind the respondents area of professional expertise and after taking consent from the participants these questionnaires were given to twenty-five educators, the three professional groups were—Teachers of English as a second language (ESL), Special Education Teachers (SPED), and Speech Language Pathologist or Language therapists(SLP).

For interviewing Parents and School Inspector of the district Semi structured questionnaires were designed with question related to the concerns of learners on the spectrum, see appendix 4 and 5 for details. We will discuss the interview questions and findings in the later section after discussing the questionnaires.

4.1 Questionnaires

The personalized questionnaires were divided into different sections of questions to elicit information on various areas of learning and possible challenges from the experience of the respondents. What follows next is a discussion of the data collected from various respondents under the various sections which are:

(A) Personal Experience/Education

(B) Student Oriented Questions

(C) Student Assessment

(D)District Support Questions

(E) Professional Opinion, and

(F) Language Choice Questions.

We will look at the participant's responses based on their professional experiences as well as the areas of conflict and supportive opinions. We will wind up the discussion with the interpretation of the analysis to find out the areas of challenges in language learning for children with ASD.

4.1.1 Personal Experience/Education

Knowledge of Second Language Acquisition: An important pattern observed during the study was that not all the professionals dealing with the child were aware of second language acquisition. Almost all of the ESL teachers were having graduation in English Literature where second language acquisition is not the part of the course content. Although, these teachers have received training in dealing with children on the spectrum the lack of proper training on second language acquisition emerged as a major concern in the study. All the participants of the research were bilinguals with English as a second language learnt in academic environment. Special educators had stronger hold on the second language acquisition and recommend second language intervention only after mother tongue is established. One special educator stated, "Second language is introduced gradually after assessing the child for language ability". Attitudes towards English as medium of instruction to this special population were also mixed.

Exposure to language learners on the spectrum: All participants except two got involved with English language learner with ASD on their jobs. Majority of the participants were Assamese speakers taught in bilingual settings and well versed with the multicultural diversity of the learners in the cosmopolitan social setup of Kamrup Metropolitan area. All the participants were teaching in an Assamese dominant academic

and social environment where Assamese is the *lingua-franca* and only in academic context English was used along with Assamese, Hindi, Bengali and northeastern dialects.

Professional Development: All the SLP and SPEDs had received training in dealing with language learners with disability through training and also during course of study. But most of the ESL teachers had only experience based knowledge over the years of the ways to help the language learners with ASD learn in better ways. One SPED reported certification through Continuous Rehabilitation Education (CRE), organized by the Rehabilitation Council of India. But he also reported that the content was not specific only for ASD. Another SPED reported receiving training in Universal Design for Learning (UDL)[13]. Most of the special educators were aware of concepts of occupational therapy, speech therapy, clinical psychology & physiotherapy.

Co-Teaching: All participants supported the idea of co-teaching as most of them are already using it every day in their special need classrooms. The classes always have more than one teacher along with special educators, often supported by clinical psychologists and speech therapists. This collaborative approach was considered most effective for learners with ASD, as the teamwork gave better learning and behavior outcomes through holistic care.

Collaboration: All participants unanimously supported this collaboration between ESL, SPED, General education, speech therapist and other experts involved in the intervention process. One educator sharing her enthusiasm remarked, "I have a positive experience of this kind of collaboration. When the child (with ASD) moves to normal schools such collaboration leads to a well rounded growth of the child". One of the participants noted that although this collaboration is very important the reality of mainstream schools is terrifying and said that, "I don't think they (low-performing children with ASD) are included in the mainstream. They are stressed out and frustrated due to their limitations in meeting the goals. Rather they should be kept at special centres and trained in life skills".

[13] **Universal Design for Learning** (**UDL**) is an educational framework based on research in the learning sciences, including cognitive neuroscience, which guides the development of flexible learning environments that can accommodate individual learning differences. The UDL framework, first defined by David H. Rose, Ed.D. of the Harvard Graduate School of Education and the Center for Applied Special Technology (CAST) in the 1990s. [*Source: Wikipedia*]

Assessment of needs of the learners with ASD was found to be another major concern of all the participants. They were of the same opinion that understanding the English language learner on the spectrum and their special needs was somewhere inadequate as the educators lacked the know-how of special needs education and the SPEDs were not English language experts. A SPED accepted this and commented, "….most of the SPED are not ESL experts (especially in phonetics)". Further, the general education teacher had a greater challenge lacking the knowledge about ESL and SPED methods and techniques. In particular SPED reported a dearth of trained ESL teachers and called them 'rare'. All of them agreed on the need of sharing techniques and methods of experts amongst each other.

4.1.2 Student Oriented Questions

Experience with language learners with ASD: Most regularly involved group of participants with English Language learners with ASD were ESL, SPED and speech therapists. These participants were experienced in the learning process followed by the institutions they were working at. They were also experienced in working with other intellectual disabilities like cerebral palsy, ADHD, etc.

Assessment: In special needs centres the children (preschoolers) were referred by speech pathologist and child development pediatricians. Once in the special schools the language assessment is carried out by SPEDs through assessments tools such as PLS, MCHAT, CDDC, etc. The history sheet of the child is maintained in separate folders and the assessment reports are used to guide intervention decisions.

Engaging students: All the special educators believed in the effectiveness of one-to-one and hands-on learning. These educators also agreed on the improvement of vocabulary through direct instruction using mother tongue for instruction. All the SPED and ESL teachers confirmed that learners with ASD learn best through audio-visual and tactile modes. Most of them involved use of pictures based intervention tools like visual cards,

bubbles, sticker, peg boards and flash cards along with auditory and visual activities to engage the students completely in the learning process.

Material: Students with ASD need one-to-one intervention and hands-on teaching; hence the curriculum is not rigid. All the educators use a variety of teaching techniques, strategies and an eclectic curriculum flexible to the needs of the learners with ASD. Picture organizers are the most preferred mode for almost all the participants supported by peg-boards and pre-teaching vocabulary. SPED and SLPs preferred use of real life material as tools for teaching vocabulary.

Parental involvement: All respondents were in complete agreement on the involvement of parents in the learning process of English language learners as it resulted in better learning outcomes and successful intervention. Most participants reported meeting with parents happened monthly through PTMs. SLPs had the opportunity of meeting parents more often in case of non-verbal children with ASD which amounted to almost two meetings a week sometimes. Normally participants met the parents every month to discuss progress of the child whereas half-yearly assessment reports were shared with the parents twice. More enthusiastic and involved parents visited more often, some even daily, to meet the ESL and SPED participants to discuss the days progress in special need centres. Some participants used school diary to communicate information to parents about the learner on the spectrum in inclusive schools. In immediate situations phone calls were also made for speedy exchange of information.

Participants reported that a lot of parents view autism as shameful and there was a continuous denial in accepting the facts. Some teachers also reported that the parents treated autism as an illness which will get cured over time. Despite these challenges all the parents want to provide the best available intervention and services for their children on the spectrum.

4.1.3 Assessment

There is a consensus among participants on careful assessment of the English language learners on the spectrum. SPEDs reported that no tools are available to assess whether it

is a student's disability or lack of language skills in the student's ability to learn. Some of SPEDs used customized worksheet or referred the learner on the spectrum to psychologists for IQ test. One SPED supported the use of behavior assessment, linguistic assessment, case history and family assessments in such cases.

ESL refer to SPED: All participants had complete agreement that ESL teacher and general teacher or any other professional at school observes any emerging educational need in the learner with ASD should at the earliest refer the child for assessment to determine if there are special education needs.

ESL involvement in diagnosis: The significance of ESL teachers in special needs diagnosis was supported by all the participants. SPED participants pointed that ESL teachers can actually provide very crucial and clear picture of learner's academic progress related to the dominant language in use. Progress is usually monitored to assess both the learning rate and level of performance in individual learners.

4.1.4 District Questions

What should schools do? All the schools are under the Sarva Siksha Abhiyan (SSA) and ensures the Right of Children to Free and Compulsory education Act, 2009. All respondents agreed that the district SSA authorities want that the learners with autism are catered to their specific needs without any discrimination. English language learners are ensured to get support for both their language needs and the SPED goals which are ascertained by the Individual Education Plan (IEP).

What is lacking? A very important point outlined by the participants was the availability of special needs educators at all inclusive schools of the district to offer flexible and inclusive learning environment for all the learners on the spectrum. One SPED suggested that universities should include ASD related subjects in higher education as compulsory for all to raise awareness amongst teachers. All the participants agreed on lack of trained professionals along with seriously overburdened special educators. According to a SPED participant, there were about 45 schools covered by a single government appointed Special Educator. One SPED commented, "There is a lack of professionals and

government approved institutions for providing professional skill training". Another important point raised by one of the SPED was that teachers should use English as a language of instruction to learners of English language which was very often found to be a vernacular language.

Classroom changes suggested, if teachers had authority: Although, the responses were different across participants. Observation of responses revealed two major concerns across the data collected. First, was a large scale need for infrastructural up-gradation. Needs for specialized rooms for therapy such as, Dark room, sensory room etc. were reported by the participants for therapy which was not efficient without proper infrastructural facilities. Secondly, the participants stressed upon the need for indoor games facilities and separate set ups for individual and group activities in the preschooler and beginner sections. For the ESL participants the changes suggested were mainly focused on time constraints both during teaching as well as assessment. One ESL teacher suggested use of simple language for instruction of English language learners with ASD. Many other participants stressed on making examinations more flexible with respect to time limits by allowing ample time to the learners on the spectrum.. During examination continuous motivation must be offered to the learners and most importantly questions should be adapted based on the special needs of the learners on the spectrum.

4.1.5 Professional Opinion

Feasibility of Collaboration among special needs educators: All the participants supported the collaboration of specialists and a majority of them reported positive experiences on this kind of collaborations. An SPED remarked, "When the child moves to normal schools such collaboration leads to a well rounded growth of the child". Most of the participants find it crucial for achieving common intervention goals and decision making through discussion among all the experts, bringing in their specializations and expertise. Many ESL teachers reported working with General educators and speech therapists for better support to the learners on the spectrum.

A very interesting yet serious fact from the response to questions on involvement of SPED, ESL and SLP was that they were not actively involved in the curriculum development for the ESL students with autism spectrum disorders. This appears to be a very significant observation of the study. Thereby, challenging the flexibility and adaptability of the curriculum to the special needs of the learners on the spectrum.

SPED and ESL working together: Participants showed interest in SPED and ESL teachers working. A major concern though was again planning and time constraints. Both the specialists actually shared the various ways in which they can support each other. SPED participants talked about supporting ESL teachers through suggesting adaptive teaching techniques while dealing with learners on the spectrum and providing the case history and background information about the learners with ASD. The assessments reports of learners available with the SPEDs were also crucial for planning language intervention and evaluation of the learning outcomes. ESL teachers supported the SPEDs by reporting them about the classroom observations and teaching and learning behavior of the children with ASD. Skill specific technique in language teaching was another point that ESL teachers made while listing ways of collaborating with SPED professionals.

Major challenges in learning: All the participants acknowledged the existing challenges which were a great obstacle in teaching/intervention of the language learner on the spectrum. The questionnaire enquired about challenges in three different domains of language teaching-learning which were:

(a) Behavioral/emotional
(b) Communicative/linguistic
(c) Interactional/transactional

In the behavioral/emotional category SPEDs reported challenges such as joint attention, sitting compliance, mood disorders and hyper/hypo behaviors as strong challenges in the intervention and teaching process and these challenges have direct impact on the teaching efficiency and learning outcomes according to the SPEDs. ESL participants had differing opinions on the behavioral aspects but the common themes remained same as

SPEDs. One ESL teacher reported non-compliance by learners on the spectrum as a major challenge particularly for more challenging academic work like reading, writing and responding to questions.

The challenges identified under the communicative/linguistic domain were low speech or non-expressive nature of learners, deficits in pointing, issues in complying with commands and instructions, inability to respond to name calls, rapport building, and difficulty in maintaining routine work. Further, difficulty in assessing the receptive skills due to absence of speech in learners on the spectrum was another challenge reported by SPEDs as most of the communication took place through pictures. ESL participants reported challenges in areas of translation from mother tongue to English, sentence formation, use of prepositions, articles, pronouns, reading difficulties, dysgraphia, problem in punctuation along with abnormalities in language mixing and use of incomplete expressions.

Interactional/transactional challenges pointed out by the participants included limited expression, absence of speech, giving instruction to the learner as even high-functioning learners with ASD do not respond to teacher's questions. The interaction between the teacher and learner needs a long time to become fruitful through continuous evaluation and observation. All participants agreed that while dealing with learners on the spectrum the professionals have a lot of responsibilities on part of each expert. SPEDs need to provide multimodal communication to learners using sign and symbols, hand gestures to communicate along with usual ways of interaction. Cultural context of all learning inputs be guided and repeated as routine work to enforce learning and the focus should be on eliciting responses from these learners. ESL teachers reported responsibilities like focusing on learning outcomes of the learner, follow up at short and regular intervals for continuous tracking of a child's progress. The teachers should be careful that they do not ignore any of the child's requests and repeat all exercises to reinforce learning.

4.1.6 Language Questions

Professional opinion on language of therapy/intervention: Almost all of the participants agreed on the use of mother tongue based instruction which they referred to as 'easy language' in language intervention. Only one SPED stressed that parents and neighbours should talk to the learners with ASD in English so that they are exposed to the language and this immersion was considered beneficial by the participants as English is usually the medium of instruction as well as the target language when the child goes for mainstreaming. One SLP preferred the use of one language for beginners while a majority of them were in favor of using two languages simultaneously with the children to give them more options to choose from. The most common languages used in the classrooms were Assamese, Hindi and Bengali. All the participants stressed on continuing the same language of instruction used in classrooms in home setting so that the learning process is not disrupted. One SPED remarked that when parents used a different language for instruction the child has difficulty in compliance as the associations of meaning with words changes hen the language changes. Majority of the special educators supported the use of mother tongue followed by English as a second language both at home and in academic setting.

Challenges in language: All participants reported an evident lack of speech in learners on the spectrum which posed as a huge challenge. The range of language production was another area of concern throughout the participants. Another challenge in language was reading deficits and writing issues. The teachers recommended adapting text of the curriculum to meet the needs of the individual child concerned, for example, increasing the font size for visual deficits or using drawing activity as a motivation for developing fine motor skills for improving handwriting. Pitch sensitivity was another aspect of concern and participants stressed that the pitch of instruction needed to be adapted based on the requirement of the learners.

4.2 Personal Interviews

Parents of learners with ASD and District Elementary Education Officer in lieu of School Inspector[14] of Kamrup metropolitan were interviewed using a semi-structured interview guide (See appendix 4 & 5). A semi-structured approach allowed flexibility in adapting questions according to the need of the study. The open-ended questions elicited maximum information possible from the participants. The following section will discuss the various themes of the semi-structured interview guide and the responses of the interviewees.

4.2.1. Questions for Parents

The interview questioned posed to the parents of learners on the spectrum were grouped into 7 thematic areas (See Appendix 4). We will discuss them here:

Diagnosis/Assessment experience: Majority of parents interviewed were from Guwahati only and most of them reported getting the diagnosis initiated by child specialists. A majority of the parents had no prior knowledge of Autism and confused it with delayed language development cases hence it was only after a considerable delay that it was correctly diagnosed. Most parents reported delayed diagnosis and there was an average gap of two years between diagnosis and the beginning of intervention process.

Information/Awareness of ASD: As there was no detailed information available from health care providers most of the educated parents looked for information on the internet, and from friends. But most of the parents reported dissatisfaction over the information on the internet. Information from other parents was also not easily available as everyone relied solely on the child development specialists. Parents did not report any group or forum where the parents can share their experiences and queries on ASD.

Parents Education/Training: Except for the parent meetings at the different institutes of intervention no specialized training or awareness programmes were reported by parents. Parents reported awareness programmes only on World Autism day. One of the parents

[14] School Inspector referred the researcher to the District Elementary Education Officer.

suggested that workshops can be conducted with parents of normal children to create awareness about the disability and hence reduce the prejudice against children with autism spectrum disorders and promote their inclusion in the social life. Most of the parents were not aware of the entitlements and rights of children with ASD. Information about the development of children with ASD could be accessed but the process was time consuming.

Education and Health Services: Most of the educational and health related services were provided by NGOs across the city and government services were not accessible to parents. Parents reported that government schools were available for other disabilities but not specific for autistic children. Government schools were not preferred by parents of children with autism. Another important fact that came to light was the cost borne by the parents for meeting the educational and developmental needs of the children with autism spectrum disorders. Most of the parents considered the therapy and intervention costs were very high and no financial assistance was available from government agencies.

Parents' Psychological Wellbeing: Most of the parents reported feeling of isolation initially after diagnosis of ASD in their children due to attitudes of family members and neighbours. But parents have reported a shift in their confidence and the way they deal with people's attitudes over time. Parents reported that there was no support available for them to meet their psychological needs either from NGOs or Government agencies. Parents reported a lot of their time is dedicated to follow-ups on child's developmental and educational needs. They have to attend to all the needs after the child comes back home from the intervention centres or inclusive schools which was an added responsibility that was demanding on parent's part.

Language of Communication at home: Most of the parents reported limited verbal expression and use of multimodal cues by the children with ASD to signal a particular need which the family members understood. Parents of verbal learners reported echolalia and use of hand gestures in expressing desires and communication. All the parents agreed that mother tongue was the language used at home in general day to day activities, but home work was carried out using English instructions. Although, the parents of higher

socio-economic conditions hired home visiting therapists mostly parents took care of the academic needs of the child with consultation from the interventionists or special educators. English was less frequently reported as a language of communication in family settings.

English Language and Mainstreaming: Almost all the parents supported the importance of English language in life of the child with ASD. But the parents of non-verbal children stressed on development of life skills more than the development of language. One of the parents stated "I want my child to learn the skills to support his life even when we (parents) are not around". Parents of the children with verbal abilities called for more flexible learning environment in the inclusive classrooms. According to these parents general educators often neglected the needs of the child and ignored the requests of the child. Parents also reported the use of teaching techniques of general classrooms with children on the spectrum and demanded a more flexible curriculum and examinations.

4.2.2. Questions for District authority (School Inspector)

District school authorities are the coordinators of various schemes of Sarva Shiksha Abhiyan (SSA) for the children with disabilities. The School of Inspectors was approached for an interview but due to her busy schedule referred the researcher to the District Elementary Education Officer (DEEO). The various questions asked will be discussed in the ensuing section under the various thematic areas (See appendix 5):

District support to autism: The participant reported no special department for Autism in the district. According to the interviewee Health and family welfare department looked after the autistic needs of the individuals in collaboration with Composite Regional centre (CRC), Guwahati. The major roles reported was screening of children annually across schools for identifying special needs by CRC. The diagnostic and assessment for autism was entirely supported by these two bodies.

Education and awareness: The participant was positive on the friendliness of government schools to the needs of children on the spectrum and said that they were accessible to the learners with disability. The participant denied any kind of campaign

promoting the recently passed ‘Right of Persons with Disabilities Act—2016’. Sensitization programmes by government agencies include events with popular personalities from different walks of life. These events also coincided with distribution of assistive devices and MR kits for mentally retarded children, but no such events were reported for children with autism spectrum disorders. According to the participant the efficacy in special needs education is monitoredby the district mission coordinator of SSA along with non-government agencies and an annual report is published every year to monitor the state and future requirements.

Professional development and training: When asked about the government initiatives for training and professional development of special educators, the participant reported that there were no government training institutes in the district except for the CRC which offered resource persons for training special educators. Mostly training programmes were administered by private NGOs approved by the Rehabilitation Council of India (RCI). In job training to special needs teachers was provided through workshops and seminars conducted by the RCI through NGOs as well as the CRC. An important revelation as that autism specific work has not been done so far in the district. The participant informed that Block level Resource persons were also providing training to general teachers to accommodate the special needs of the children with disabilities, but data on autism was not available.

Mainstreaming: The participant informed that the government schools were equipped enough to support inclusive education of the children on the spectrum. Infrastructural development an up gradation was reported to be underway to make the schools accessible to the children with special needs particularly those with physical disabilities. The concern of the autistic children was not considered separately and often it was clubbed together in the intellectual disability along with mental retardation and cerebral palsy. General teachers training was another question asked to which the participant replied that the training of general educators was conducted through workshops at schools from time to time.

Redressal/Support: The grievances of the children with autism spectrum disorders like any other special needs learner were redressed by the SSA through the Law Units located at approved institutions, according to the participant. The participant reported that there was no regulatory authority to take policy decisions in the district and lay out guidelines for autism related intervention and educational support.

4.2.3. General observation

The responses of the parents were very consistent and revealed the clear picture of the concerns shared by them regarding the early diagnosis and assessment of children. The responses to the questions revealed a serious dearth of study material on the autism spectrum disorder available to the parents. The parents felt deprived of knowledge and sometimes overwhelmed by the information available online. It seems to be high time that material be designed to be available to all the parents from the health and family welfare department who have children diagnosed with the autism spectrum disorder. The educational and health services offered by the government agencies was another major concern identified. Parent's psychological support system need to be evolved as they continuously live under great pressure from family members and the needs of child on the spectrum, they were exhausted managing work, family and the child's needs. Mainstreaming was more expected for verbal children whereas in case of the non-verbal learners learning to communicate and use life skills was the goal of most of the parents.

Although, the district authorities sounded enthusiastic, the inclusive schools were not at all equipped for receiving the children. There was a serious crisis of trained professionals to deal with the special needs of the autistic children, particularly in rural areas. Another major concern that emerged from the interview was the non availability of any government institution for training professionals dealing with the children on the spectrum. This crisis will add to the number of untrained professional working in the classrooms. The situation is really alarming. The CRC and the Health department initiatives are not at all enough to meet the huge demand of the metropolitan area. The authorities must involve child specialist and other experts to build a larger task force to

train general educators so that inclusive education can actually be realized not only for children with autism but also with other intellectual disabilities.

4.3 Discussion

4.3.1Questionnaire

The present study focused on identifying the challenges in English language learning faced by the learners with ASD. The data collection involved use of personalized questionnaires and semi structured interviews. The questions in the questionnaires focused on eliciting information related to the teaching and learning process in language intervention. The experts answered the questions based on their experiences and hence it provided a very practical overview of the existing situation inside the special classrooms.

The ESL teachers, SPEDs, and Speech therapists all shared their challenges and constraints which were completely grounded in reality. The purpose of the study was to identify the challenges and hence it does not aim at giving any recommendation for the people involved in the teaching and learning of these special children on the spectrum.

4.3.2The Challenges

Lack of coordination: The main concern identified in the study was a lack of proper coordination among the various professionals involved with the learners on the spectrum. The ESL and SPED expressed interest and also a few of them reported having coordinated amongst themselves to provide better intervention to the learners on the spectrum. But the lack of coordination was apparent in almost all the institutions.

Lack of Training, Education, Materials, and Open-Minded Educators: All the teachers involved in the learning process were united on the issue of lack of professional skill and training available in the city. The education on special needs particularly autism was very limited and it lead to a lot of professional remaining untrained to teach the learners on the spectrum. Educational material was also limited and the institutions being

run by private organizations it relied on donations and hence the teaching learning material (TLM) was a huge concern for the institutions.

Most of the educators came from general backgrounds and very often lacked the flexibility to adapt to the dynamic and emergent needs of the learners on the spectrum. The inclusive education scenario is again an area of concern where lack of open minded teachers is very evident.

Lack of Qualified Personnel: In all the domains there was a shortage of qualified personnel who could use the latest resources and techniques to provide better care to the learners on the spectrum. The existing educators as well as the therapists accepted a lack of avenues for upgrading their skills and expertise.

Remunerations: Most of the educators were very vocal in expressing their dissatisfaction over the existing packages available for the special educators. And the under payment of these educators led to their frequently changing jobs in search of better avenues which led to most of the institutions remaining understaffed.

Mainstreaming: Although, the mainstreaming of learners of English language was not very common. Those who went for mainstreaming faced a lot of challenges. The main concern in mainstreaming was the adaptability of syllabus along with untrained general educators who found it difficult to meet the needs of the learner on the spectrum.

Schools which had special educators were also challenging for the learner because the classroom needs and the limited support from the special educators hampered their learning outcomes. The examinations in inclusive schools also were challenging as they did not allow much opportunity to the learners on the spectrum.

Parental Involvement: The most important and repeated response in the questionnaires as the involvement of parents in the learning process. Many participants reported about the lack of cooperation from parents end as a great obstacle in improving the learning outcomes of the children on the spectrum.

Many parents relied solely on the therapy sessions and the school teachers for the educational support and did not get involved in the learning process at home. Those parents who were more actively engaged in the learning process of the child with ASD could help their child get better learning outcome and thereby building on the confidence along with the skills of the child.

4.4 Summary of the Chapter

In this chapter we discussed the questionnaires which were divided into various categories ranging from personal experiences to Professional opinion. The responses on the questionnaire revealed the various crucial observations made by the experts based on the experiences of the participants and actually gave a real picture of the existing scenario in language intervention classrooms for children with ASD. The participants included ESL, SPED, and SLP professionals involved with children on the spectrum.

The Personal interviews discussed the responses from parents and the school inspector of Kamrup district. Parents revealed a lot of information about the district services available from government in diagnosis/assessment of children, education/awareness of the parents, institutions of training, parent's wellbeing and language used at home to support the child with spectrum. Many interesting observations emerged from the responses and highlighted the shortcomings from the district end.

The discussion on the responses from the questionnaires and personal interviews revealed Challenges and gaps in learning English language in learners with ASD. We will now move towards the conclusion of this study.

Chapter 5
Conclusion

We have seen in the discussion the challenges faced by the teachers dealing with the children on the spectrum. The various limitations of cognitive and general impairments inflicted on the child is very detrimental in their learning process. Beginning with the triad of social and communication impairments we have seen how the different cognitive processes are impaired and how difficult it is for the learner to negotiate through these obstacles. Keeping in mind why we started and took up this study. We now, could see that the English as a second language teacher and special educators supported each other in the teaching process. Although, the ESL teachers were mostly from literature background and hence lacked the awareness of second language acquisition and language needs assessments.

We also saw how the challenges in different language areas operated in the language learning process. We could find the lack of professional training and hence poor professional quality. Another major challenge which was evident was the inadequate support available at mainstream schools which very often led to dropping-out from inclusive schools because of poor performance. The major challenges in Kamrup metropolitan area were identified as lack of government training institutes to receive training. There were also fewer government institutes catering to autism spectrum disorders. Disabilities like Blindness, hearing impairment, cerebral palsy and mental retardation took the limelight of most of the discussion whereas autism was unable to catch the mainstream disability discourses. From the responses of the special needs educators it became apparent that autism was more challenging to manage with the limited training of special needs educators as well as general teachers. Most of the workshops and seminars included autism as a part of the presentation but no autism specific training was available. Special educators dealing with autism reported that the gatherings discussed the problems but no one provided or even talked about remedies.

Professionals preferred the mother tongue based intervention initially simultaneously using English to help the learners towards mainstreaming goals. English was used in classroom therapy sessions, but the same could not be done at all the homes. The professional therapists and educators were underpaid and hence lacked the motivation to work. Although, the participants supported the benefits of team work, such teams could not be maintained for longer periods because people kept moving out looking for better avenues.

Support from district authority was merely on paper as most of the day care institutions were run by private NGOs with the aid from donors. Meeting the infrastructural needs of therapy was therefore impaired and the classes were run in rented accommodations with limited resources at the disposal of both the teachers as well as the learners.

In conclusion, it should be noted that this research has just looked at the overall picture of the education in children with ASD and therefore it will be wiser to carry out further research in order to make generalizations and derive conclusions from the results of this study.

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Appendix-1

Questionnaire for English as second language Teachers

ESL-Questionnaire

SECTION-A

1. How long have you been teaching?
2. How long have you been working at this school?
3. Have you ever worked with a student who has a disability before?
4. How did you get involved with English Language Learners (ELL's)?
5. Are you formerly trained in teaching ELL's, or became certified later?
6. In your career so far have you participated in any professional development activity? If yes, please list them along with the organizing body.
7. How have you (could you) collaborated with the general education and special education (SPED) teachers to benefit English Language Learner students with a disability?
8. What part of collaboration between Special Needs Education/ESL challenges you?

SECTION-B

1. Which educational/treatment approaches you use for children with Autism Spectrum Disorder (ASD)? Explain why?
2. What materials (curriculum, techniques) have you found most effective when teaching ELL students with a disability? Please name what you use.
3. How have you encouraged parental involvement in student learning?
4. What are the major concerns/grievances of Parents with Children on the Spectrum (ASD)?
5. What are the initiatives you take for ensuring parental/family support in Child's development?
6. Which communicative/linguistic skills you find most challenging to teach? Why?
7. What help you get from education department in monitoring the development of the children with ASD?

SECTION-C

1. What should schools do for English Language Learner students with disabilities to ensure a comprehensive learning experience?
2. What according to you is lacking from the district administration/education department?
3. What would you change up in the classroom, given that you had no restrictions, to be more productive with ELL students with disabilities?

SECTION-D

1. What experience can you give for the feasibility for Special Needs Education, ESL, General Education, and Speech Pathologists to collaborate to best accommodate this special population of student?
2. How involved have you been in writing Individual Education Program (IEP) of SPED students who have ELL needs?
3. Name some ways you can work with Special Need teachers to better teach students who have a disability and are English Language Learner (ELL)?
4. What are your major challenges while teaching children with ASD in the given areas:

a) *Behavioral/Emotional:*
b) *Communicative/Linguistic:*
c) *Interactional/Transactional:*

SECTION-E

1. Please give your professional opinion on the language being used to teach an ELL student with ASD:
2. What the challenges you face when teaching an English Language Learner with ASD?
3. How do you think one can overcome these challenges and make for a better learning environment for these students and, hopefully, give them a more successful learning outcome?
4. Is there any other concern/challenge you would like to share?

Appendix-2

Questionnaire for Speech language Pathologist/Therapist

SPEECH LANGUAGE PATHOLOGIST (SLP) QUESTIONNAIRE

SECTION-A

1. How long have you been a speech language pathologist (SLP)?
2. Were you introduced to Autistic English language learners (ELLs) during your studies or on the job?
3. What is your experience with second language acquisition? Please explain.

   Can you explain, briefly, what you know and do about working with Autistic ELLs?

4. Have you ever had to collaborate with any Autistic learners' school teacher? [Y/N] _____ If so, what challenged you about working with these teachers?

SECTION-B

1. How have you encouraged parental involvement in student learning and how often do you communicate with parents of English Language Learner's on the spectrum?
2. What is your opinion on the choice of language in therapy?
3. How do you know when it is a disability that inhibits a student versus just their lack of knowing English?

SECTION-C

1. Are there non-verbal tests/assessments which can be used to see if a student has ESL problems or something more? Please list which one you feel is the most accurate and why.

SECTION-D

1. What are some things that you do to collaborate with an autistic student's school?
2. What types of speech-language intervention would you recommend for a classroom teacher of a second language student you work with?
3. What experience can you give for the feasibility for speech pathologists to collaborate with other professionals and teachers to best accommodate this special population of student? *[This could be other therapists, the general education teacher, a SPED teacher, an ESL teacher, and/or the parents.]*

SECTION-E

1. **Please give your professional opinion on the language being used to teach an ELL student with disabilities:**

A. What is your professional opinion as to what language parents should speak to their ELL student with disabilities? *(Just choose the ones your opinion is to answer)*

a. Should a student only be taught in the dominant language of the area they reside (Assamese)? Explain.
b. Should a student only be taught in the native language of the community they came from? Explain.
c. Should a student be taught in both languages simultaneously? Explain.
d. Should a student be taught in the dominant language first followed at a later time with their native language? Explain.
e. Should a student be taught in their native language first followed at a later time with the dominant language? Explain.

2. Where do you feel gaps exist between therapies and academic learning when assisting an ELL student that has a disability?
3. If there is an area that you feel is not covered in the school environment, how do you address this?
4. What would be your advice for school personnel regarding speech/language assisting an ELL with a SPED disability?

5. Which linguistic strategies do you think work best in teaching English as a second Language at the pre language, emerging language and advanced language phases of development?
6. What would you recommend to the policy makers for better and efficient learning avenues for Autistic children?
7. What would you recommend to parents with Autistic children when their children transfer to normal schools? What are the challenges involved in such cases?
8. Any other professional concern/challenge you would like to share:

Appendix-3

Questionnaire for Special Needs Educator

SPECIAL NEEDS EDUCATOR'S QUESTIONNAIRE

SECTION-A

1. How long have you been an educator?
2. What is your specialty within Special Needs Education?
3. Were you exposed to English language learners (ELL's) during your studies or on the job?
4. How have you (could you) collaborated with the general education and English as a second language (ESL) teachers to benefit special education students?
5. Do you think Socio-economic and cultural background affect learning outcomes? How
6. What types of professional development have you participated in that help you with best practices in the classroom in dealing with ELL/SPED students? Mention a few with the name of organizing body.

7. What do you know about second language acquisition? Explain.

8. Are you aware of Child development theories?

SECTION-B

1. Which educational/treatment approaches you use for children with Autism Spectrum Disorder (ASD)? Explain why?
2. How do you (can you) engage an English Language Learner student with disabilities in teaching/learning?

3. What materials (curriculum, techniques) have you found most effective when teaching ELL students with disabilities?
4. How do you ensure that each student receives the right type of support?
5. How have you (can you) encouraged parental involvement in student learning?
6. How much do you know about your student's cultural background and their views of disability?
7. How often do you communicate with the parents of your ELL/SPED students? How?
8. How do you ensure parental/family support in child's development?

SECTION-C

1. How do you (can you) assess whether it is a student's disability or lack of language skills in the student's ability to learn? Name the tools mostly used by you.
2. Should a student be referred by ESL teachers to Special Needs Educators for evaluation?
3. Should ESL teachers be involved in SPED diagnosis? If so, how?
4. Are there non-verbal tests which can be used to see if a student has ESL problems or SPED issues? Please list.
5. How do you know when a SPED student should be referred to ESL, or does this situation ever arise?

SECTION-D

4. What should schools do for English Language Learner students with disabilities (Autism in particular) to ensure a comprehensive learning experience?

5. What according to you is lacking from the district administration/education department?
6. How does the education department support your professional development?

7. What would you change up in the classroom, given that you had no restrictions, to be more productive with ELL students with disabilities?

SECTION-E

5. What experience can you give for the feasibility for Special Needs Education, ESL, General Education, and Speech Pathologists to collaborate to best accommodate this special population of student?
6. How involved have you been in designing curriculum for ESL students with Autism?
7. Name some ways you can work with ESL teachers to better teach students who have a disability and are English Language Learner (ELL)?
8. What are your major challenges while teaching children with ASD in the given areas:

    d) *Behavioral/Emotional:*
    e) *Communicative/Linguistic:*
    f) *Interactional/Transactional:*

SECTION-F

1. Please give your professional opinion on the language being used to teach an ELL student with Autism. What is your professional opinion as to what language parents should speak to their ELL student with disabilities?
2. What the challenges you face when teaching an English Language Learner with ASD, in developing verbal or written language?
3. How do you think one can overcome these challenges and make for a better learning environment for these students and, hopefully, give them a more successful learning outcome?
4. Is there any other concern/challenge you would like to share?

Appendix-4:

Parents of Learners with ASD: Semi-structured interview

[Length: 30-40 minutes]

Mother / Father: _____

Profession: _____

1. Qualitative interview introduction

Primary goal: To see things the way you see them… more like a conversation with a focus on your experience, your opinions and what you think or feel about the topics covered

2. Informed consent

Would you like to participate in this interview?

- Informed Consent was obtained from the study participant **[ ]**
- Informed Consent was NOT obtained from the study participant **[ ]**

3. Background Information

Overview:

Invite interviewee to briefly tell me about him/herself*:* General information about background… mostly about experiences and perspectives on issues surrounding their child with ASD.

4. ASD Diagnosis/Assessment experience

- Can you tell me about your diagnosis/assessment experience?

- Where tested?
- Were you aware of ‘Autism’ before this?
- What was your initial suspicion?

➢ Was the diagnosis early or delayed?

5. Information

➢ Where did you look for information initially to know about Autism?

- Was the information adequate/satisfactory for you?
- Did you get any information from other parents?
- Information on internet.
- Information about development of child in ASD
- Info about rights/entitlements of the child
- Info about how to communicate with others about Autism

6. Parent education/training

What kinds of educational/training programs for parents of children with autism exist in your locality?

- Would you suggest any training programs for parents?
- If yes, of what kind?

7. Education and health services

Explore thoughts about support available from health and education departments.

➢ What are the services available from government health department?

- Are there any gaps/Lapses in the services?
- Have you ever contacted the concerned departments?
- What was your experience with it?

- What kind of government educational services/support available for your child?
    - Where?
    - Quality of services?
    - Accessibility, cost?
    - Acceptability of service?

8. Parents psychological wellbeing

Explain that these questions are crucial in understanding the parents' position in supporting development of the child and will focus on the challenges faced by parents.

- Explore feelings

    - Feeling of isolation after diagnosis
    - Current feelings
    - Availability of support for Parents' psychological needs

- Involvement in child's intervention: has this affected your regimen?
    - How often you go for follow ups
    - Doctor/therapists
    - Educational needs of the child at school/after school

9. Language and communication

Explore the language and ways of communication with the child in family settings.

- How does your child communicate his needs with family members?
    - With parents
    - Challenges
    - Other family members/caregivers

- What is the language used at home?
    - Mother tongue
    - English

10. English Language and Mainstreaming

- How important do you think learning English Language is for your child?
    - What would you suggest to English teachers
    - In special schools before mainstreaming
    - In inclusive schools after mainstreaming

Appendix-5:

School Inspector: Semi-structured interview

[Length: 30-40 minutes]

1. Qualitative interview introduction

Primary goal: To talk about and explore more like a conversation with a focus on your experience, your opinions and what you think or feel about the topics covered.

2. Informed consent

Would you like to participate in this interview?

- Informed Consent was obtained from the study participant **[ ]**
- Informed Consent was NOT obtained from the study participant **[ ]**

3. Background Information

Overview:

Invite interviewee to briefly tell me about him/herself*:* General information about responsibility, mostly about experiences and perspectives on issues surrounding their role in Education of children with ASD.

4. District Support

- Is there a special department for Autism in the district?
    - Where?
    - What are the roles?

- Is there any collaboration with the health department for improving diagnosis and assessment in autism and promote early intervention?

    - At what level?
    - Schemes
    - Frequency

5. Education and awareness

- Are government / private schools autism friendly?

    - Initiatives taken
    - Future plans

- How is the district sensitizing the students and parents about autism?

    - Events
    - Program

- How does the state government monitor efficiency in special education?

    - Offices
    - Departments
    - Agencies

6. Professional development/Training

- What initiatives are in place for training and professional development of special educators?

    - Intellectual disability
    - In job training

- Are there government approved training centers in the district for educators on autism?
    - Where?
    - Faculty and efficacy
- What are the major challenges in providing special education for autistic children?
    - What is the department doing about it?
    - What remedies you suggest?

7. Mainstreaming

- What is the present status of mainstreaming in children with autism?
    - Are schools equipped?
    - Trained teachers
    - Dropout rate
- How are General teachers being trained to deal with autistic children?
    - In inclusive classrooms
    - To accommodate the autistic child

3. Support

- Where to go for redressing grievances concerning autistic children?
- Is there a regulatory authority for taking policy decisions?
    - Who are involved?
    - Are there guidelines?