

# **Piaget's Pre-operational Stage in Children: A Comparative Study**

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**A Thesis**

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**by**

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## Declaration

I hereby declare that, this thesis paper is a presentation of my original work. This paper has not been submitted in any other university for any degree or reward. Wherever contributions of others are involved it is clearly mentioned with due references and proper acknowledgement.

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## **Dedication**

This paper is dedicated to my parents who have given me a life full of blessings. I am always thankful to them for their unconditional love and support throughout my life.

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### **Abstract**

Each stage of Piaget's Cognitive development process has its own distinctive origin and its own form of final resolution. All the stages are thus related to one another, the structure of each being a more complex version of the structure developed in a prior stage. Since cognition is an evolutionary, dialectical process, the final form of the first stage is the source for the origin and the initial form of the second stage. The second stage of Piaget's cognitive development process is named as the pre-operational stage. In this stage, the children of 2-7 years old goes through significant cognitive development process such as imaginative thinking, make-believe play, egocentrism, logical thought, memory, spatial reasoning, conservation and so on. Though Piaget's theory asserts that, every children goes through each of the stages according to their age but in reality a normal growing children and an autistic children have several differences in case of their cognitive development. The aim of the paper is to explore in what extent normal children's cognitive development differs from autistics children's cognitive development during Piaget's pre-operational stage.

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## CHAPTER 1: INTRODUCTION

### 1.1 Introduction:

In the field of developmental psychology Jean Piaget (1996-1980) is a legendary name. Developmental Psychology is the study of age-related changes in behavior, examines the psychological processes of development, which means it describes the sequence of biological, cognitive, and socio emotional changes that humans undergo as they grow older. It describes the growth of humans, which consists of physical, emotional, intellectual, social, perceptual, and personality development, from birth to death. Also, it investigates the processes that lead to age-related changes and transitions between successive developmental states. Developmental psychology was initially concerned with the children, gradually expanding to adolescents and the aging individual (Blake and Pope, 2008, p. 59). As Piaget was mostly concerned with child psychology so, he developed his own theory on child's cognitive developmental processes and described four stages which every child undergoes after birth. Piaget's "Theory of Cognitive development" and the four stages are universally recognized and admired. According to Piaget, the four major developmental stages which every child passes are: sensorimotor (ages: birth - 2); the pre-operational (ages 2 - 7); concrete operational (ages 7 - 11), and the stage of formal operations (age 12 - adult). The stages are sufficiently open ended to allow for the fact that children show different levels of ability, knowledge, and skill as a function of the rate, quality, and continuity of the experiences they encounter (Heatherly, 1974, p.3).

Though Piaget said that every child will undergo these same stages according to his proposed age division but there is not concrete evidence of the transaction from one stage to the later one. Smith (1991) said that, Piaget's stages are fixed with age limitation but in reality the

development in children is not always occurs in smooth manner (p.71-73). The pre-operational stage is the most important stage as it is the longer stage where children develop several cognitive abilities and also grow up as social beings. Some critics of Piaget mentioned that, all children do not go through these developmental processes accordingly. In this paper, the researcher will try to find out in what extent the pre-operational stage fits in normal children and autistic children of Bangladesh.

### **1.2 Objective of the Study:**

The objective of the study is to find out the differences between normal children and autistic children's cognitive abilities according to Piaget's pre-operational stage in Bangladeshi context.

### **1.3 Significance of the Study:**

If the teachers and parents understand the cognitive development processes of their children then it will be helpful for them to handle these children more easily. As in the pre-operational stage children show some major characteristics like imaginative thinking, egoistic behavior, animism, logical thinking, intellectual development, conservation etc. so, if the parents and teachers become aware of these distinct characteristics they will be able to support the children throughout their cognitive development process.

In addition, by knowing the cognitive abilities of the autistic children teachers can facilitate their students in cognition process. Parents and teachers of autistic children can make an environment where those special children will be able to develop their cognitive skills effortlessly.

#### **1.4 Research Question:**

How do the cognitive abilities differ between normal and autistic children in Piaget's pre-operational stage?

#### **1.5 Limitations of the Study:**

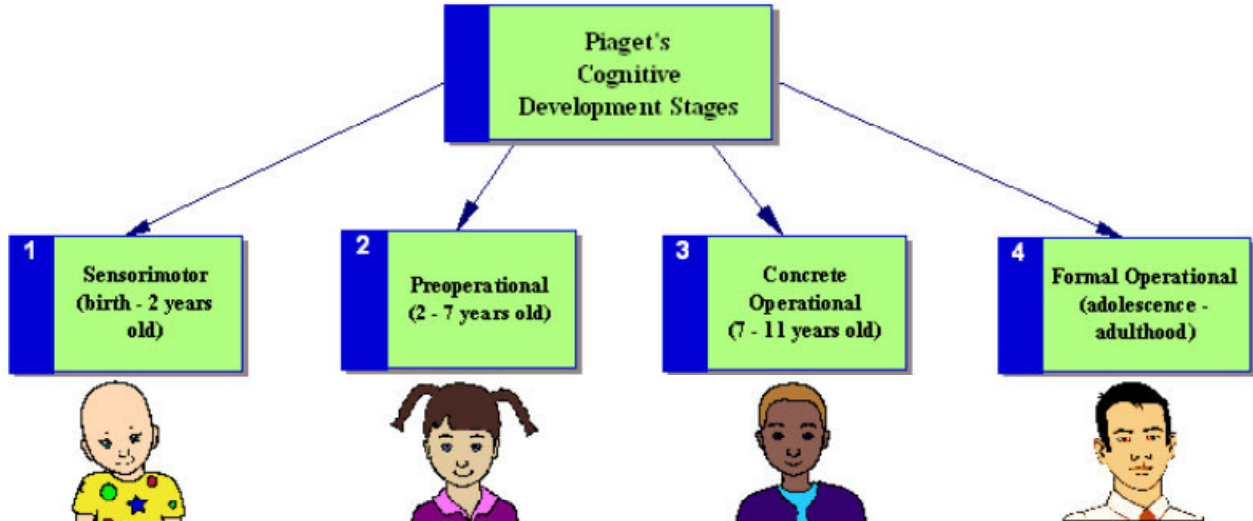
- In Bangladesh there are few special schools for autistic children so, it is difficult to get permission to do surveys and observe classrooms.
- The parents of autistic children do not want to disclose their identities. They do not want to talk about their children's development.
- That is why the researcher took interviews of teachers of autistic children. The questionnaires on autistic children were also filled by the teachers.
- Normal children's parents do not want to share their children's problems and lacking. Most the parents only talked about the positive points of their children. So, it was difficult for the researcher to find out the inabilities in normal children's cognition process.

**CHAPTER 2: LITERATURE REVIEW**

**2.1 Piaget's Stages of Cognitive Development:**

Piaget believed that, children think differently than adults and he stated that, they go through 4 universal stages of cognitive development. Development is therefore biologically based and changes as the child matures. Cognition therefore develops in all children in the same sequence of stages (McLeod, 2009, p.2).

According to Piaget, the major stages in the development of reasoning ability are: the sensorimotor (ages 0 to 2 years); the pre-operational (2 years to 7 years); the concrete-operational (7 to 11 years); and the formal operational (12 years to adult) (Wadsworth, 1996, p.32).



**Figure 1.** The Inspiration web above illustrates Piaget's four cognitive development stages; sensorimotor (birth-2 years), pre-operational (2 - 7 years), concrete operational (7 -11 years), and formal operational (adolescence - adulthood). (Tiffany Davis, Meghann Hummel, and Kay Sauers (2006))

Each of these stages are based on cognitive abilities and thought processes of children. According to Wadsworth (1977), "The periods of development are continuous in each stage builds upon the previous stage but discontinuous in that each stage is characterized by the development of cognitive structures that are qualitatively different than the preceding stage." (p.59). Movement between stages occurs in an invariant sequence and, although Piaget did not assert that children progress through stages at fixed time, he did hypothesize an age guideline which can be utilized when classifying children (Dugan, 2003, p.15).

Haroutunian (1978) stated that, each child goes through the stages in the same order, and no stage can be missed out - although some individuals may never attain the later stages. There are individual differences in the rate at which children progress through stages. A child is said to have reached a new stage when the solutions he gives to problems can be organized by particular formal structures and when his strategies for solving the problems are consistent with the same formal structures (p.2).

## **2.2 The Pre-operational Stage:**

The second stage of cognitive development is the pre-operational stage. According to Piaget (1952), the pre-operational stage usually occurs during the period between toddlerhood (18-24months) and early childhood (7 years). Crain (2005) says that, "Children in this stage begin to understand more complex issues but are still dependent on their senses and can only focus on one dimension at a time." (p.40). During this stage children begin to use language; their memory and imagination also develop. In the preoperational stage, children engage themselves in make believe and can understand and express relationships between the past and the future.

More complex concepts, such as cause and effect relationships, have not been learned. Intelligence is egocentric and intuitive, not logical (Wood, Smith & Grossniklaus, 2001, p.4)

The pre-operational stage is divided into two sub stages. According to Wadsworth (1977), the first sub stage is labeled egocentric (2-4 years) and the second sub stage is called intuitive (5-7 years) (p.68). Crain (2005) stated that, children in egocentric sub stage cannot understand another person's point of view (p. 26) and the intuitive sub stage is based on children's thinking and their perception (Cowan,1978, p.55). The central task of the preoperational child is to develop rational solutions to concrete problems (Wadsworth, 1977, p.102).

In pre-operational stage, children are able to form stable concepts as well as mental reasoning and magical beliefs. In spite of that, children are still not able to perform operations; tasks that the children can do mentally rather than physically. In this stage their thinking process is egocentric. Children have difficulty to understand the viewpoint of others (Piaget, 1967, p.391).

There are some specific characteristics of Piaget's Pre-operational stages. They are discussed below:

### **2.2.1 Memory and Intellectual Development:**

“Jean Piaget's theory of intellectual development is considered a leading theory on cognitive development. Piaget's theory asserts that intellectual development is a direct continuation of inborn biological development.” (Flavell, 1963, p.234). That is the child is born biologically equipped to make a variety of motor responses, which provide them with the



framework for the thought processes that follow. That is, the ability to think springs from the physiological base (Simatwa, 2010, p.365).

During pre-operational stage memory and thinking process progresses systematically and logically. At the earlier phase of pre-operational stage (3-4.5 years) children only understand the two concepts 'presence' or 'absence' of any objects; gradually they understand not only presence or absence but also the quantity of objects. So, their memory and thinking process progresses to comparative from absolute (Siegler, 1978, p.36-37).

According to Chi (1976), it is discovered that children have deficiencies in memory abilities, particularly those pertaining to short-term memory. For example: children of age 2.5-4 years have relatively short term memory, children of age 5 can usually recall only 4 digits in a digit-span task and children of age 7 can recall about 5 digits (p.569).

### **2.2.2 Egocentrism:**

Smith (1981) noted that, an important characteristic of pre-operational thought is egocentrism. Children view the world from their own perspective. This egocentrism can lead to misinterpretations of natural phenomena (p.5). Chittenden (1970) cites an example used by Piaget of the young child who claims that the sun moves when he moves, "When one walks, it follows. When one turns 'round it turns round' too (p. 11)." So, a pre-operational child looks at any object from his/her own point of view rather than the others. Egocentrism occurs when a child is unable to distinguish between their own perspective and that of another person's. At this point they tend to pick their own view of what they see rather than the actual view shown to others (Piaget, 1967, p.13).

Egocentrism makes it difficult for children to imagine how an object or scene might look when viewed from positions other than their own. Pre-operational children's inability to think logically does not mean they are deficit thinkers. On the contrary, these children are exploring, manipulating, questioning, comparing, contrasting, labeling, and forming mental images. These activities lay the foundation for the development of children's ability to think logically (Cruttenden, 1970, p.4).

### **2.2.3 Animism:**

Animism is a belief that every individual thing in universe has its own feelings and conscious. When any person thinks that every individual element (both living and non-living) has feelings like pain, happiness, sadness, hunger etc. this is animism. Children in pre-operational stage have animistic thinking like they think toys, cars, furniture have feelings. So, children in this stage talks with their toys, cars, feed their toys, scold toys or any other things which had hurt them. The main reason for this kind of belief is that the pre-operational child often assumes, everyone and everything is like them. So, since the child can feel pain, and has emotions, so he/she thinks everything has same kind of feelings. Moreover, children cannot focus or understand the concept of height while concentrating on the width and are not intellectually capable. During this age children also learn to imitate or repeat. They are able to form stable concepts as well as mental reasoning and magical beliefs. Their verbal and written language gets matured (Piaget, 1967, p.13).

Piaget believed that, there were many limitations to the way children think during this stage. Apart from these, Piaget thinks that there are so many things they cannot do, one of them is that children cannot focus or understand the concept of height while concentrating on the width (Heatherly & Ann, 1974, p.5). Piaget described animism through his classical "Three

Mountain Problem” experiment. He designed this experiment to support his theory that children possess egocentrism characteristics of thought during the pre-operational period of cognitive development. Piaget wanted to show that children have a self-centered perception of the world at this age. And he was also successful to prove that children of this stage do not have the understanding from other person's point of view (Svoboda, 1973, p.29).

#### **2.2.4 Spatial Reasoning and Make-believe Play:**

According to Norman (1980), spatial reasoning is the capacity to understand and remember the spatial relations among objects. This ability can be viewed as a unique type of intelligence distinguishable from other forms of intelligence, such as verbal ability, reasoning ability, and memory skills. Spatial ability is made up of numerous sub skills, which are interrelated among each other and develop throughout a person's life (p. 289).

Both Piaget and Vygotsky noted the characterization of make-believe as a means through which children practice representational schemes. Vygotsky emphasized that young children have difficulty severing thinking or the meaning of words from objects; they do so only gradually. Indeed, such research reveals that object substitutions become more flexible as children get older. In early pretense, toddlers use only realistic objects for example, a toy telephone to talk into or a cup to drink from. Around age 2.5, children use less realistic toys, such as a block for a telephone receiver. By this time, a play symbol no longer has to resemble the object or behavior for which it stands (Bretherton et al. 1984, p. 272). According to Vygotsky (1990), helping children separate meaning from objects, the pretending of early childhood serves as vital preparation for the much later development of abstract thought, in which symbols are manipulated and propositions evaluated without referring to the real world. And in detaching

meaning from behavior, make-believe also helps teach children to choose deliberately from among alternative courses of action. This capacity to think in a playful, self-regulatory fashion is also strengthened by the rule-based nature of play (Berk, 1994, p.32-33).

### **2.2.5 Conservation:**

Piaget (1952) points out that until the child has developed a one to one correspondence, he does not have the foundation for learning the concept of number. The child must grasp the principle of conservation before he can comprehend the concept of number. The understanding of number is based on the awareness that cardinal numbers are invariant regardless of the other factors (Simatwa, 2010, p. 368).

A child develops an awareness of the conservation of mass, weight and volume gradually in pre-operational stage. This is illustrated by the experiments in which children watch someone pouring colored water back and forth between a 200 ml beaker and a 500 ml beaker. A four year old may be totally unconcerned about the fact that the water level differs in the two containers. He/she will simply maintain that the beaker with a higher level has more colored water. (Simatwa, 2010, p.367). By age five, most children are able to comprehend that even though the shape is different; the mass is the same (O'Bryan and Boersma, 1971, p.163).

### **2.2.6 Logical Thought:**

According to Stendler (2008), in pre-operational stage children gradually become more internalized. It is in the stage we found most kindergarten and first grade children, some second grade ones; these children do not use logical operations in thinking (p.332). Piaget (1950) characterizes mental process at the pre-operational stage as:

1. The child perceptually oriented; he makes judgments in terms of how things look to him. Piaget has shown that perceptual judgment enters into the child's thinking about space, time, number and causality. It is only as the child goes beyond his perceptions to perform displacements upon the data in his mind that conservation appears.
2. The child enters on one variable only and usually the variable that stands out visually, he lacks the ability to coordinate variables.
3. The child has difficulty in realizing that an object can possess more than one property, and multiple classifications are possible. The operations of combining elements to form a whole and then seeing a part in relation to the whole has not yet developed, and so hierarchal relationships cannot be mastered by a child (p.331-334).

Though the development of this logical thought is not standstill in this stage but there are some positive accomplishments. Piaget (1967) thinks that, at this stage child's thinking is influenced by fantasy. They imagine things which do not exist in practical world. Children think that magical things happen in real world. They believe that fairies, witches, superpower exist in this world (p.46).

### **2.3 Language Acquisition:**

Language acquisition is the most important feature in the development of human being. First language acquisition among children has similarity all over the world. Researchers have described developmental sequences for many aspects of first language acquisition (Lightbown & Spada, 2006, p.1). The five major stages of first language acquisition process suggested by Brown (1973) are: i. **'Cooing'** (babies only cry in this stage) ii. **'Babbling'** (a large variety of sounds is produced by children in this stage), iii. **'One word stage'**, iv. **'Two words or**

**Telegraphic stage'** (children speak only content words like a telegraphic message) and v. **'Complete Sentence stage/advanced stage'**. These stages are almost universal for any language speaking child around the world. Crystal (2003) stated that, acquisition is not just a matter of producing sounds; it also implies to be able to perceive sounds, to understand the meaning of utterances and to be able to interact with others (p.234).

### **2.3.1 Cooing, Babbling and the One-word Stage:**

The pre-linguistic sounds of the very early stages of child language acquisition are simply called 'cooing' and 'babbling'. Cooing starts from 3 months where a child just made normal sounds. Velar consonants such as /k/ and /g/ along with high vowels such as /i/ and /u/ announce the beginning of cooing. And then child starts make more clusters of sounds from 6-16 months, child stays in babbling stage. As the children grow up, the presence of intonation and stress in their sounds manifest emotion and emphasis. In babbling stage child produces longer vowels like /a/, /e/, /o/ etc. Some psychologists have suggested that this pre-language vocalization gives children some experience of the social role of speech because parents tend to react to the babbling (Cruttenden, 1979, p.3-5). Nelson (1973) presented a model of the single-word that children produce-

- Specific nominals: *daddy, mommy*
- General nominals: *baby, cookie, hat, bottle*
- Action words: *up, sit, go*
- Modifiers: *hot, allgone, more, here*
- Personal-social words: *hi, bye, no, yes (yeah)*

According to Cruttenden (1979), all the one-word stage words child produces have combination of action, gesture, facial expression, and other non-linguistic cues (p.14). Greenfield and Smith (1976) discusses examples and meanings of one-word stage as,

- Recurrence : *more* (pointing to meat)
- Negation : *no* (struggling to escape being held)
- Possession : *John* (pointing to John's hat)
- Action : *eat* (wanting to eat some berries) (as cited in Cruttenden, 1979,p.14).

At the end of one word stage children begin to use and recognize rising and falling tone and pitch of pattern systematically.

### **2.3.2 The Two-word Stage/ The Telegraphic Stage:**

According to Cruttenden (1979) between 3 and 4 years, children begin to produce a large number of utterances which could be classified as telegraphic stage. The salient feature of these utterances ceases to be the number of words, but the variation in word-forms which begins to appear. Of particular interest is the sequence of inflectional morphemes which occurs. These utterances can be classified as different subtypes:

- I. Possession: Two nouns used to utter a whole sentence. E.g. *Mummy Shoe*. (It is mummy's shoe/Mummy, give me my shoe).
- II. Attribution: Children use two words (noun+adjective) to describe or attribute any objects. E.g. *blue car, little boy* etc.
- III. Recurrence: Children use two words to express about quantity of anything. E.g. *more apple, less water* etc.

- IV. Location: Location has two subtypes. One consisting of 'noun+noun' like: *Daddy car* (Daddy is in the car) and the second one 'noun+prolocative' like: *in here, over there*.
- V. Nomination: Here children use this or that in first position to describe anything particular thing. E.g. *that doll, this car* etc.
- VI. Negation: Children use two types of negation. 'Non-existence' like *no cheese*, (there is not any cheese), *blue cow* (there is no blue cow) and 'disappearance' like *all gone biscuits* (all biscuits are finished).
- VII. Exclamation and greeting: Here two words are used for greeting and expressing exclamation. E.g. *bye-bye daddy, peepo daddy* etc.
- VIII. Action: Action has three subtypes: 'Agent+action': *daddy go, daddy eat*; 'Agent+goal': *mummy lunch, give doll*; 'Action+goal': *go there, make pudding* etc (p. 37-38).

Brown (1970) points out that, a close look at the two word sentences of any child will certainly show regular formal patterns. Items and classes of words defined semantically will regularly co-occur to produce certain meanings. Animate noun plus inanimate noun produces three possible meanings: possession, location and agent-goal (p.52).

Pivot class and open class are discussed under two-word stage. Pivot words are very small class compared to open words, and their numbers grows very slowly. And pivot words are unlike open class. The majority of early two word utterances seemed to have following structure: 'Pivot+Open': *see her/ allgone shoe/ more taxi* and 'Open+Pivot'" *do it/see it/eat it* etc (Brown and Bellugi, 1964, p.149).



### 2.3.3 The Advanced Stage:

After three years most children enters into the advanced stage. Brown (1973) traced the development of fourteen grammatical morphemes in the speech of the three children he was studying. These were: present progressive (*I walking, I playing*), prepositions (*in and on*), plural inflections (*-s, -es*), past inflections on irregular verbs, possessive inflections, uncontractible copula (*e.g. in, am, are*), articles, past inflections on regular verbs, regular third person forms (*e.g. does, has*), uncontractible auxiliary forms, contractible copula and contractible auxiliary. In the advanced stage students not only use noun phrase but they also use verb phrase and noun phrases to articulate their expressions. Children also can use imperative, exclamatory and optative sentences (p.68). Speaking, as Krashen (1985) mentioned in his book *The Input Hypothesis*, is a result of acquisition and not its cause. Speech cannot be taught directly but 'emerges' on its own as a result of developing competence by means of 'comprehensible input' (as cited in Nasrin, 2008, p.1).

### 2.4 Defining Autism:

The word autism (pronounced as **aw - thi - zum**) and autistic (pronounced as **aw-tistic**) originated from the Greek word 'autos' meaning 'self'. To describe this syndrome the word 'autism' is used because people who suffer from autism faces difficulty in understanding and appreciating other people's ideas, beliefs and perspectives. Rather they always think one's own perspective is the only true and correct view (Giorando, 2009, p.10). Autism is still an unknown word for many and it has lots of misconceptions among the general people. Sometimes children and adults with autism are termed 'mad' or 'mentally retarded'. Most of the parents, who have children with autism, came to know about this disease, only when their children were diagnosed with the same. And some parents do not want to disclose their child's illness to others. Some

parents believe that their children will be alienated from the society if people come to know about their children's autism. Moreover, awareness about the disease is still negligible in contrast to other diseases, whereas recent research has shown that autism all over the world is more prevalent than diseases like mental retardation, schizophrenia, Down's syndrome and diabetes (Quinn, 2006, 23).

Autism is a neurobiological based developmental disability which is manifested during the first three years of life. Autism Spectrum Disorder or ASD is a collection of developmental disorders that affect the brain. Autism comes under one of the spectrum of Autism Spectrum Disorder (ASD) (Quinn, 2006, 24-25). Children with ASD displays marked impairment in communication and social relationship, demonstrates restricted range of interests and behaviors, including significant deficits in language and socialization skills. Severe behavior problems such as temper tantrums, aggression and self injury are common (Baron-Cohen, 2008, p.18).

## **2.5 Autism Spectrum Disorders (ASD):**

Autism comes under the spectrum of ASD, better known as Autism Spectrum Disorder (Quinn, 2006). Autism Spectrum Disorders (ASD) is cognitive and neurobehavioral disorders, having three core features: deficits in socialization, deficits in verbal & nonverbal communication and restricted and repetitive patterns of behaviors. These disorders manifest in early childhood and are likely to last the life time of the person. In 1943, Dr. Leo Kanner of the Jhon Hopkins Hospital was the first to describe the syndrome of autistic disturbances. However, over the period it is recognized as a spectrum of disorder that includes: Childhood autism, Asperger's syndrome, childhood disintegrative disorder, Rett's syndrome and pervasive developmental disorders – not otherwise specified (Hirtz et.al., 2006, p. 915).

Autism is known as a collection of these developmental disorders that affect the brain. It affects a person's ability to communicate, form close bonding and relationships due to which they fail to respond and connect to the external world as well as with peers. Nair (2004) discussed, that a disorder may be associated with structural and functional abnormalities in several areas of the brain, suggesting that a disruption in fetal brain development contributes to the disorder (p.541). Due to this disorder, some of them can function at a high level, might possess speech and intelligence, whereas others might have various cognitive impairment as well as language delay and some people never speaks (Pavlidis, 2008, p. 55).

### **2.5.1 Types of Autism Spectrum Disorders:**

According to Rahman (2010), it is felt that there may be a definite increase in the incidence of Autism spectrum disorders all over the world. It has no racial, ethnic or social boundaries. Better diagnostic facilities and greater awareness increase the yield of diagnosis of ASD. Researchers divide ASD as several categories (p.144). Environmental and perinatal factors along with genetic predispositions are the main etiologic determinants (Glasson et.al, 2004, p. 619).

Autism Spectrum Disorder (ASD) consists of five similar neurological and developmental disorders. It's also known as Pervasive Developmental Disorders (PDD). It includes:-

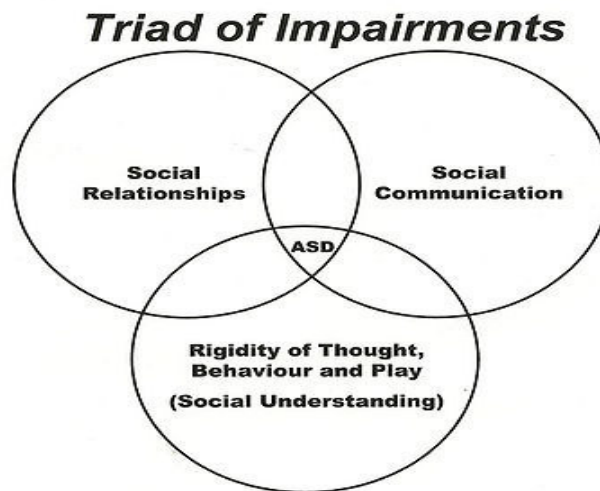
- a) Autism, which is a severe form of ASD.
- b) Asperger's Syndrome, which is a high functioning type and a milder form of ASD.
- c) Rett Syndrome, very uncommon and acute neurological disorder, more prevalent in girls.

d) Pervasive developmental disorder-not otherwise specified (PDD-NOS), the symptoms are either of Autism or Aspergers's syndromes, but does not meet the specifics of either of them.

e) Childhood disintegrative disorder (CDD), this is a severe and rarest disorder (Quinn, 2006, p.30).

### 2.5.2 Symptoms of Children with Autism:

In 1996 Wing, shows that children with autism suffer from three impairments, known as Triad of impairment, where the main deficit is in social communication, social interaction and imagination. The Basic symptoms found in almost all autistic children are impairment in social communication, social interaction and imagination. This is called Triad of Impairment (Hanbury, 2005, p.22). This is also known by Wing's Model of Autism.



**Figure 2.** Triad of Impairment (Hanbury, 2005).

Most of the children with autism have multiple symptoms. Mostly autistic children behave different from a normal child. Some children do not do eye contact, some are deaf, some

children use language very rarely. Some children have 'Echolalia', that is repetitive language or repeating phrases are also found in some children with autism (Giordano and Lombardi, 2009).

Some autistic children are unaware of the surrounding. They even look aloof of their own self and the surroundings. Most of the autistic children lack concept of time so they have problems to understanding concepts. Some of them also have over sensitivity to smell, loud noise, smell, taste, touch, movement, color and texture. And they react very quickly when something goes opposite to their will (Pavlidis, 2008, p. 44-46). "The autistic individuals frequently appear isolated, and are unable to make sense of the world around them. They often are unable to predict and understand the behavior of others, and perceptions of the world remain fragmented." (Giordano & Lombardi, 2009, p. 101).

## **2.6 Theory of Mind and Social Cognition:**

One of the most important visible developments of any child in childhood is the social cognition. The theory of mind has close relation with the development of social cognition. It is also essential for communication and linguistic competence. The lack of the theory of mind is mostly responsible for the communication impairments of the autistic children (Islam, 2013, p.15).

The history of the theory of mind actually begins with Jean Piaget's theories of cognitive development. Flavell (2004) mentioned in his article, "A central Piagetian claim was that children begin development by being cognitively egocentric. Piaget and his colleagues used egocentrism and other concepts to interpret their developmental studies of a wide variety of social-cognitive topics" (p. 275). Islam (2013) said that, Jean Piaget observed infants and children during their plays and their interaction with both object and people. He found the

development of their cognitive understanding of such as objects permanence (knowing that things hidden from the sight are still there) or the stability of quantities regardless of changes in their appearances (knowing that ten coins spread out to form a long line are not more numerous than ten coins in a tightly squeezed line) (p.16) .This development in social cognition is built on the interaction between the child and the things that can be manipulated or observed (Lightbown & Spada, 2006, p.20).

## **2.7 Autism in Bangladesh:**

Like many developing countries, in Bangladesh we have no detailed data for how many children or adults suffer from this lifelong debilitating developmental neurological condition. Needless to say this and many other scientific and medical questions need to be addressed urgently. As one of the most populated countries in the world, it is of the utmost urgency that the needs of those with autism be immediately addressed in Bangladesh through proper epidemiological survey programs. A recent 2013 pilot study in Bangladesh, utilizing community health workers, has found prevalence of all kinds of neurodevelopmental disability is 7.1%. Whereas, for Autism Spectrum Disorder (ASD), the study indicates a prevalence of 0.15% (3% in Dhaka city and 0.07% in rural area) (Hossain, 2011, p. 3).

Centre for Neurodevelopment and Autism Children (CNAC) is the first government initiative to establish a nationwide Pediatric Neurodevelopment and Autism related management, training and research centre situated in Bangabandhu Sheikh Mujib Medical University (BSMMU) in Dhaka, Bangladesh. Established in 1999, now they have a multi disciplinary, and multi-agency team providing comprehensive and tertiary level services to children with disability and their families under one roof. In addition to that, continuous high quality training, both from

doctors and the therapists, is an integral part of this centre. It helps autistic children to achieve their fullest potential and to enjoy equal opportunities in all aspects of their lives (Centre for Neurodevelopment & Autism in Children, BSMMU, 2012, p.9).

The good news is that, people are becoming conscious in our country about this disorder and Bangladesh is becoming a leading country championing the cause of autism at national, regional and global levels. Some organizations like Jatiyo Protibondhi Unnayan Foundation (JPUF), Shishu Bikash Kendra (Child Development Centers), Protibondhi Sheba O Sahajya Kendro (Organization for the assistance and services of the disabled) etc. are spreading consciousness and also helping and supporting autistic children to develop their special skills (Centre for Research & Information, 2014, p.7).

In 1999, Jatiyo Protibondhi Unnayan Foundation (JPUF) was founded to ensure that the persons with disabilities have adequate support to participate in the mainstream society, 73 Disability Service Centre is functioning in district & upazila level having a special Autism Corner. Another 60 is under process. In addition, Protibondhi Sheba O Sahajya Kendro (organization for the assistance and services of the disabled) established in 2009 which provides physiotherapy, occupational therapy, counseling, assistive devices and other related services to nearly 30,000 individuals many of whom are diagnosed with autism. The JPUF has been running a special school for the autistic children since 2011. Where 30 children with disabilities from 30 poor families are studying in this special school without any tuition fee JPUF (Jatiyo Protibondhi Unnayan Foundation) has developed the capacity to conduct following training programs:

- Training for the mothers of mentally challenged children;
- Behavior modification and picture exchange communication system; and

- Autism and development disorder management training of parents' role in managing children with ASD (Bangladesh Protibondhi Foundation, 2014, p.2-4).

The National Parliament of the Government of Bangladesh has promulgated two important acts to protect the rights and ensure safety of the differently able persons. One act is (i) The Disability Rights Law, 2013 and the other is (ii) Neuro-developmental Disability Protection Trust Act, 2013.

### **The Disability Rights Law, 2013**

- ✓ Ensures rights & dignity of the persons with disabilities by stipulating 21 rights.
- ✓ Ensures rights to educational, physical and psychological improvement.
- ✓ Ensures rights to participation in social and state activities.
- ✓ Ensure rights to get the national identity cards and be listed in the voters roll.
- ✓ This act mandates enrolment in regular schools, reservation of seats on all forms of public transportation, accessibility provisions in all public places (including retrofitting), equal opportunities in employment, and protection of inherited property rights.

### **Neuro-developmental Disability Protection Trust Act, 2013**

- ✓ Highlights the issues related to providing physical, psychological, and economic assistance to all persons with disabilities.
- ✓ Ensures their nurture, security and rehabilitation.
- ✓ Ensures their social empowerment.

Focuses to develop pertinent education system and knowledge paradigm (Centre for Research & Information, 2014, p.5).



## **2.8 Intelligence:**

Intelligence is the intellectual capacity of humans, which enables human to experience and think. Through intelligence, humans own the cognitive abilities to understand concepts, to learn different things, to plan, to apply logic, to use reasoning, making decisions etc.

Intelligence is a very general mental capability that involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings (Gottfredson, 1997, p. 20-21).

According to Gardner (1983) the uniqueness of individuals can be measured based on some different types of intelligence. He named these as 'Multiple Intelligence'. Every adult and child has his/her unique intelligence. So, when it comes to understand child psychology and child's cognitive development one should consider child's intelligence to recognize his/her ability (p.267). Gardner (1993) proposed several types of abilities that lie under intelligence. These different kinds of intelligence are linguistic (involved in reading, writing, listening and talking), musical (involved in playing, composing, singing and conducting), logical-mathematical (involved in solving logical puzzles, deriving proofs, performing calculations), spatial (involved in moving from one location to another or determining one's orientation in space), bodily-kinesthetic (involved in using one's body to perform skillful and purposeful movement), interpersonal (involved in understanding of others' and one's relations to other), intrapersonal (involved in understanding oneself and having insight into one's own thoughts, actions and emotions) (as cited in Richards & Rodgers, 2001, p.115-116).

**2.9 Behaviorism:**

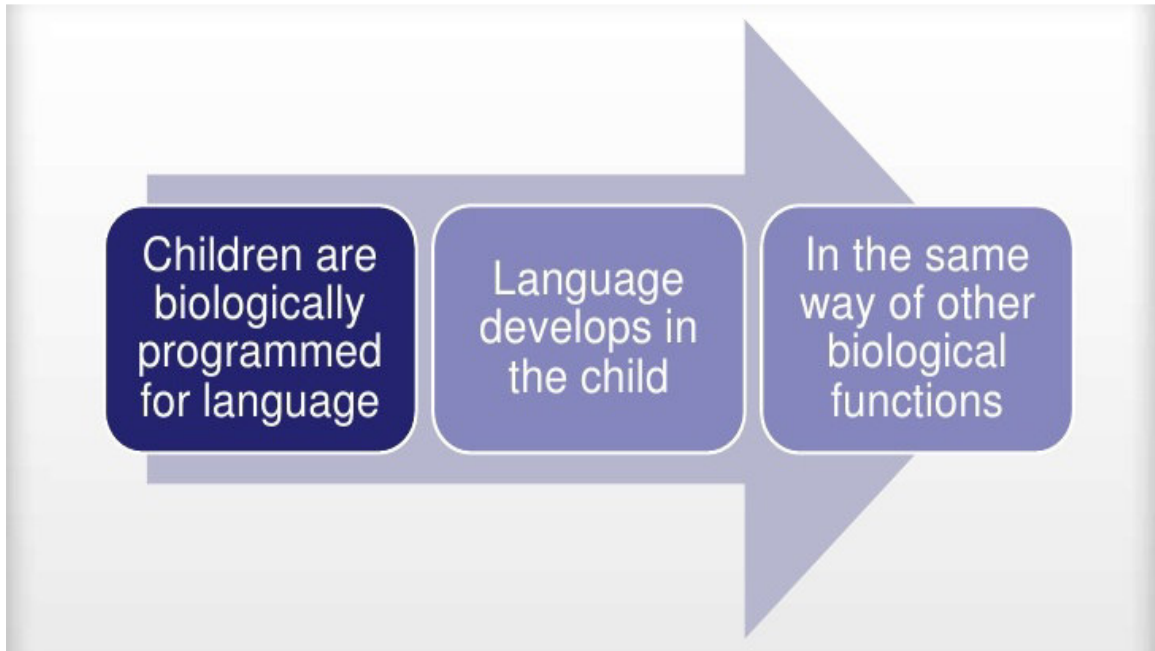
Behaviorism theory explains child language acquisition. According to Behaviorism theory human minds are like 'blank slates' and everything comes from outside. Children learn from repetition, imitation, and practicing things again and again (Cruttenden, 1979, p.98). Skinner (1938) developed a new concept which is called 'operant conditioning'. In this type of situation, "The original behavior, instead of being an automatic reflex, is behavior which at first occurs by chance but, because of the effect it has when it does occur, is likely to be repeated" (as cited in Cruttenden, 1979, p.98).

Learning depends on consequences and reinforces. If students continue to do the same thing then it is considered as positive reinforcement. For example, if teachers give rewards each time the students complete their work, they will more likely to repeat the same thing in the future, It will be positive reinforcement. Sometimes, teachers rebuke students for doing wrong. In this situation they will be negatively reinforced. So, students will stop doing the action and it will be considered as negative reinforcement.

**2.10 Innatism:**

Innatism derives from the word 'innate' which means inborn or inherent qualities which are part of the structure of the mind. Innatism describes language learning as a natural process which every child goes through. According to Noam Chomsky (1976), children learn language as the similar way they learn walking. Children's minds are not blank slates to be filled by imitating languages which are exposed in the environment rather children are born with a specific innate ability which helps them to identify the underlying rules of a language. So, children use their universal grammar and they learn the rules of a language by themselves. By

this they discover and learn the structures and mechanisms of the language they are exposed to (as cited in Lightbown & Spada, 2006, p. 15).

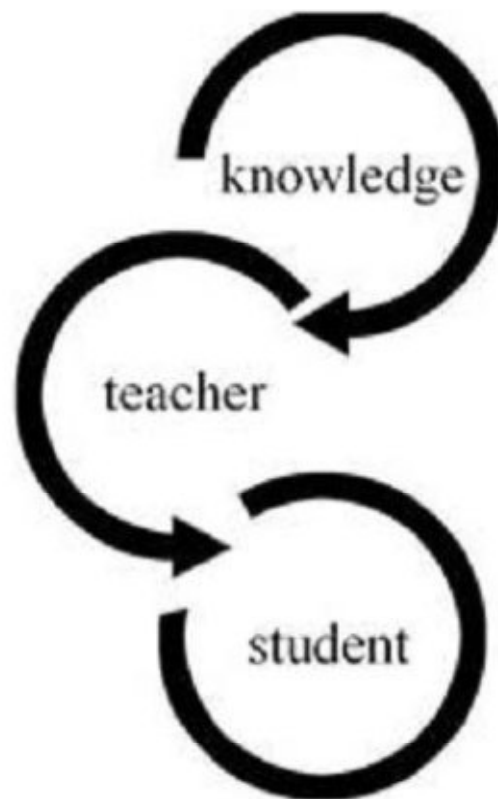


**Figure 3:** Noam Chomsky's representation of children's first language acquisition

The innatist perspective emphasizes the fact that all children successfully learn their native language, even children with very limited cognitive ability develop quite complex language systems if they are brought up in environments in which people interact with them. This happens because children master the basic syntax and morphology of the languages spoken to them. They use their creativity and innate abilities to accept the right and dismiss the wrong structures and gradually they develop their language learning process (Lightbown & Spada, 2006, p. 17).

### 2.11 Role of Teachers in Cognitive Development:

In pre-operational stage a child first goes to school and in school he/she spends most of the time with his/her teachers. So, teachers' role in child's cognitive development is very vital. Children's social intelligence is developed in school where they learn practically how to behave with students, teachers and others. Mostly an active teacher can enhance children's cognitive ability and knowledge to make his/her students more confident to develop and increase individual intelligence (Valencia & Suzuky, 2001, p.5-6).



**Figure 4:** Vertical diagram of knowledge-teacher-student relationship

According to Edger Stones (1983), early education should provide the foundation for later learning, this is an optimal period in the child's life for certain kinds of learning and failure

to capitalize on this period may lead to difficulties at the later stages. He stated, "Younger children are much likely to be dependent upon direct contact with phenomenon in their attempt at reasoning than are adults and the visual aspects of things as likely to exert much greater influence on their learning." (p. 200). Teachers' role is to develop students as individual beings.

- Teachers should involve students in activities requiring social interaction.
- Teachers should create activities where students need to know which is, which is taller, bigger, wider, heavier, or longer etc. in order to teach them these concepts.
- Teachers can give students opportunity to play with brush and paints, along with pencils to draw lines or pictures, which will develop aesthetic sense in the pupils.
- Teachers can use concrete objects and visual aids to illustrate the lesson; it will help the students to understand the topic. These concrete objects and visual aids may be physical demonstration and drawing and illustrations.
- Teachers should use the actions as well as words for explaining.
- Teachers should make instructions relatively short.
- As the students at this level are egocentric, so teachers should let them experience themselves instead, to see world from other's eyes. These physical experiences will seem as building blocks for later development.
- Teacher can give students' materials like clay, plastering, water or sand (which can change shape) to play and make different shapes, things for or the same amount to understand the concept of conservation (Joubish and Khurram, 2011, p.1264).

**2.12 Role of Parents in Cognitive Development:**

Parent-children relationship is very important in children's cognitive development process. As a mother spends most of the time with her child so, the first language input is given to a child by mother. Vygotsky's discussion of grasping illustrates how mother-child interaction helps the child to understand the meaning of gesture well before the child is capable of language use. Vygotsky believed that learning begins at birth and continues throughout life. Vygotsky described that mother helps her child in actual cognitive and social development process as determined by independent problem solving capability (Gauvain and Rogoff, 1989, p. 65).

According to Wearner and Smith (2003), parents guide children to make their choices and learn from their mistakes. Parents' guidance is important to children with their words of encouragement and support. Children who have this support can achieve adversity and learn what is right or wrong. Parents also play a very significant role to teach their children about how to live in the society and how to adopt the customs and culture from a society (p.209). According to Andrade et.al (2005) parents still act as a mediator between children and the social community, promoting their socialization, which is essential to children's cognitive development. As an open system that evolves through the exchange of relationships with other systems, the parents help their children to go through changes reflecting widespread social changes. So, the family mostly parents have the basic relational link between children and the world (p. 2).

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Introduction:**

This chapter presents an overall overview of this research methodology to find the similarities and dissimilarities of the cognitive development process in Piaget's pre-operational stage of 2-7 years old normal and autistic/special children from Bangladesh.

### **3.2 Data Collection Procedure:**

It should be mentioned that, the children from 2-7 years old are not well capable to speak about their own cognitive abilities. They are also unable to understand the questionnaire and answer them properly. As this research is a comparative analysis between normal children and autistic children's cognitive development so, at first the researcher contacted the authority of a special children's school. After getting the permission, the researcher met the teachers to know about the cognitive development of autistic children whom they teach. It was highly restricted to interact with the parents of those autistic children so, the researcher collected quantitative data from the questionnaire filled by 20 teachers of that school (the questionnaire is attached in appendix 1).

The researcher also interviewed those teachers to know details about those autistic children's cognitive development (the interview questions are attached in appendix 2). For better understanding of autistic children's cognitive abilities the researcher observed their classes for one week. This observation of student's daily activities in classroom helps the researcher to collect qualitative data for this research (the classroom observation checklist is attached in appendix 3).

On the other hand, the researcher talked and conducted survey with the same questionnaire with the parents of normal growing children. Those parents were interviewed with the same set of questions as the autistic children's teachers were interviewed with. 20 normal children were observed by the researcher informally for 8-10 days. As all those 2-7 years old children do not go to school so, the researcher collected information about their cognitive development from their parents.

So, it can be said that, the data required for this research paper, have been collected using a two-fold methodology: a) classroom/home activities observation, teachers and parents interviews (qualitative research) and b) the survey with the questionnaire which were filled by the parents and teachers of 2-7 years old children (quantitative research).

### **3.3 The Participants:**

- I. **Children:** To do this research, 40 children were selected where 20 of them were normal growing children and 20 were autistic children. Researcher observed the autistic children during their classes to understand their cognitive development and normal children were observed by the researcher informally in home. The age range of those children was from 2 to 7 years old some of them were school going and some were not.
- II. **Teachers:** To understand the cognitive development of autistic children the researcher delivered 20 questionnaires to 20 teachers who are specialized on autistic children. As these teachers are well acquainted with the children as they mostly spend whole day with these autistic children so, they were able to answer the questions on these children's cognitive abilities. The teachers filled up the questionnaires by giving tick marks “√” on ‘.....yes/.....no’ answers from 1-20 different questions. In addition, 12 teachers were



interviewed by the researcher to get detailed information about the development of those autistic children.

- III. **Parents:** The researcher collected information of normal children's cognitive abilities from their parents. 20 parents were also delivered same questionnaire consisting 20 different questions on their children's cognitive development. They also filled the questionnaires same as the teachers by providing tick marks “√”. Also 12 parents were interviewed by the researcher with the same interview questions as the teachers were interviewed.

### **3.4 Instrumentation:**

The researcher used triangulation method to understand the cognitive development in the children (2-7 years old) of Piaget's pre-operational stage. Questionnaire, interview and observation were done as research instrument for this study. Questionnaire is the easiest way of collecting quantitative data from a large number of subjects easily and quickly. Teachers and parents participated in the questionnaire and interview session and children were observed during their class and home. From the questionnaire the researcher collected quantitative data and teachers-parents interview and classroom observation provided qualitative data for the study.

### **3.5 Data Analysis Procedure:**

The collected data was analyzed using both qualitative and quantitative method. The responses to the questionnaire was converted into percentage and arranged in tables created by MS Word of 2007. To show the specific percentages of each characteristics of pre-operational stage more accurately, the researcher used charts made by MS Word of 2007. After that, the researcher has observed normal children in their home and special children during their class

time. Researcher used a checklist (attached in appendix 3) during the observation to understand the cognitive and linguistic development of children. In addition, the researcher also interviewed few teachers and parents (the interview questions are added in appendix 2) to know detailed characteristics of pre-operational children of Bangladesh.

### **3.6 Obstacles Encountered:**

The researcher faced few obstacles during interviewing parents and teachers. The parents of autistic children do not want to disclose their identities and they also do not want to talk about their children. For that reason, the researcher interviewed the teachers of autistic children. In addition to get permission to observe classrooms in special school is also not easy. The researcher formally approached one special children's school to get permission to observe classes and to talk with the teachers of autistic children. After submitting formal application that school gave permission to the researcher to observe classes and to interview the teachers of that school.

**CHAPTER 4: RESEARCH FINDINGS AND DISCUSSION**

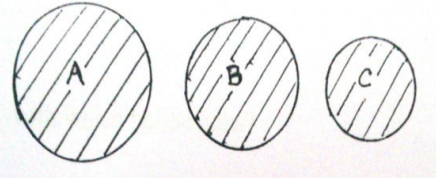
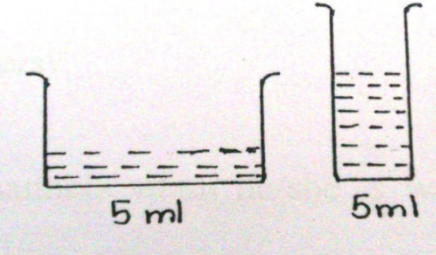
In this section, the researcher has discussed the responses from questionnaire, replies of interview questions and findings from classroom observation. In the later part of this chapter the central research question is discussed and answered by analyzing the overall findings.

**4.1 Findings from Questionnaire:**

The table-1 is designed to show the responses of parents and teachers about the cognitive abilities of normal and autistic children. In total 20 questions were included in the questionnaire to reveal different characteristics of children in pre-operational stage. In table-1 below, the cognitive abilities and differences of normal children and autistic children are shown in separate columns.

Questionnaire for Parents and Teachers (Quantitative)	Responses from Normal Children’s Parents		Responses from Autistic Children’s Teachers	
	Yes %	No %	Yes %	No %
1. Does the child like to watch cartoons?	<b>100</b>	<b>0</b>	<b>30</b>	<b>70</b>
2. Does the child try to imitate talking/ jumping/walking style of any cartoon character?	<b>75</b>	<b>25</b>	<b>30</b>	<b>70</b>
3. Does the child believe in ghosts?	<b>75</b>	<b>25</b>	<b>0</b>	<b>100</b>
4. Does the child like listening to fairytales, ghost stories or other type of supernatural stories?	<b>95</b>	<b>5</b>	<b>10</b>	<b>90</b>

5. Does the child think Cinderella/MennaRaju/Tom&Jerry/Doraemon/Oggy etc. characters really exist?	<b>80</b>	<b>20</b>	<b>10</b>	<b>90</b>
6. Does the child like toys?	<b>95</b>	<b>5</b>	<b>95</b>	<b>5</b>
7. Does the child has any favorite toy/ any toy with which he/she talks?	<b>55</b>	<b>45</b>	<b>45</b>	<b>55</b>
8. "When a toy falls/breaks down it gets hurt"- does the child believe this?	<b>50</b>	<b>50</b>	<b>60</b>	<b>40</b>
9. Does the child share his/her toys/foods with others?	<b>50</b>	<b>50</b>	<b>10</b>	<b>90</b>
10. Does the child let you or others to change TV channels when he/she is watching his/her favorite program?	<b>15</b>	<b>85</b>	<b>15</b>	<b>85</b>
11. Does the child get angry when anyone forbids him/her of doing any wrong thing?	<b>85</b>	<b>15</b>	<b>90</b>	<b>10</b>
12. When a child falls down we usually say, 'Ok, we will hurt/hit the floor for hurting you'- do you think the child believe the floor will get hurt?	<b>55</b>	<b>45</b>	<b>100</b>	<b>0</b>
13. Does the child think that like human beings animals, birds also talk among themselves?	<b>75</b>	<b>25</b>	<b>60</b>	<b>40</b>
14. Does the child believe that fish can live out of water?	<b>40</b>	<b>60</b>	<b>85</b>	<b>15</b>
15. 'We will go to school today'- do the child understand the meaning of 'today'?	<b>75</b>	<b>25</b>	<b>10</b>	<b>90</b>
16. Does the child understand the concepts of time like tomorrow/ yesterday, next week etc.?	<b>65</b>	<b>55</b>	<b>15</b>	<b>85</b>

<p>17. Does the child remember how he/she has celebrated his/her last birthday?</p>	<b>75</b>	<b>25</b>	<b>5</b>	<b>95</b>
<p>18. Does the child recall and describe any place (eg. Cox-bazar, slyhet/ native village/ abroad, shishu park/ fantasy kingdom etc.) he/she has visited recently?</p>	<b>80</b>	<b>20</b>	<b>0</b>	<b>100</b>
<p>19. Does the child identify that ball 'A' is biggest among these three balls?</p> 	<b>80</b>	<b>20</b>	<b>25</b>	<b>85</b>
<p>20. Does the child understand that both the beakers have same amount of water?</p> 	<b>25</b>	<b>75</b>	<b>0</b>	<b>100</b>

**Table 1: Response to the questionnaire**

As the main characteristics in Piaget's pre-operational stage are imaginative thinking, make-believe play, animism, egocentrism, logical thinking, memory development, spatial reasoning, and conservation so, this questionnaire is made in a way to understand these characteristics in children of pre-operational stage.

Question 1 and 2 are made to know how much imaginative these children are, question 3, 4 and 5 are designed to understand how much the children make-believe by themselves, question 6, 7, 8 to reveal animism in them, question 9,10,11 to understand children are egocentric or not, question 12,13,14 to identify their logical thinking process, question 15 & 16 to classify their spatial reasoning, question 17 & 18 to recognize their memory and question 19 & 20 to categorize conservation characteristics of the pre-operational children.

#### **4.1.1 Imaginative:**

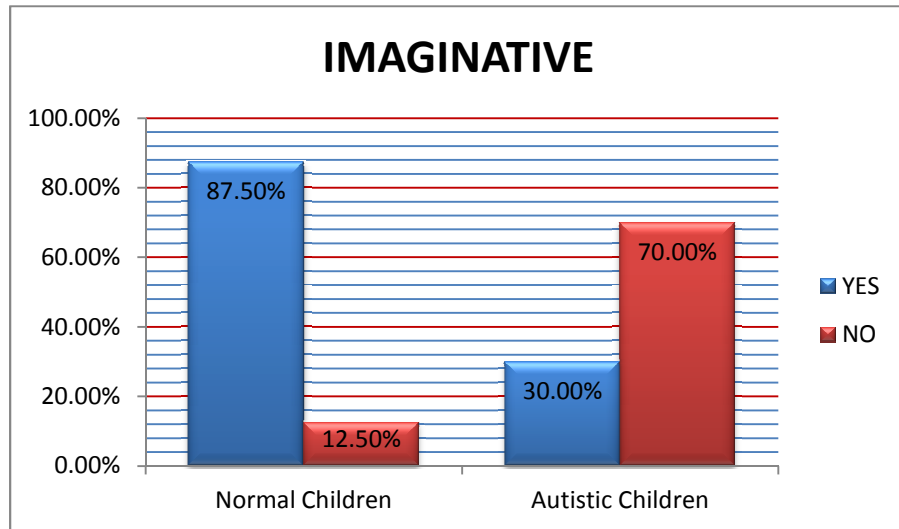
##### **Question 1: Does the child like to watch cartoon?**

In response to this question, parents of normal children said that their children like cartoon more than anything, so 100% of normal children are cartoon lovers. In contrary, only 30% of autistic children understand cartoon and they like to watch cartoon but mostly 70% children do not understand the concept of cartoon so they do not like to watch cartoon.

##### **Question 2: Does the child try to imitate talking/ jumping/ walking style of any cartoon character?**

In response from normal children's parents about this question, the researcher found that 75% of normal children sometimes try to imitate talking/ jumping/ walking style of their favorite cartoon characters and 25% children do not like imitate. In response from teachers' of autistic children it is the found that, only 30% autistic children who understand cartoon, sometimes they attempt to imitate their favorite cartoon characters and the rest 70% do not understand cartoon so, they do not imitate.

So, from the responses of these three questions it is found that, normal children and autistic children’s imaginative power is different. This difference is shown in the chart 1 below:



**Chart 1:** Comparison of imaginative thinking in normal and autistic children

From this chart it is cleared that, 87.5% of normal children are imaginative and only 12.5% children are not. And in case of autistic children only 30% of them are imaginative and 70% of them have not developed the capacity to think imaginatively. So, the differences of normal and autistic children’s imagination power are massive nearly 3:1.

**4.1.2 Make-believe Play:**

**Question 3: Does the child believe in ghosts?**

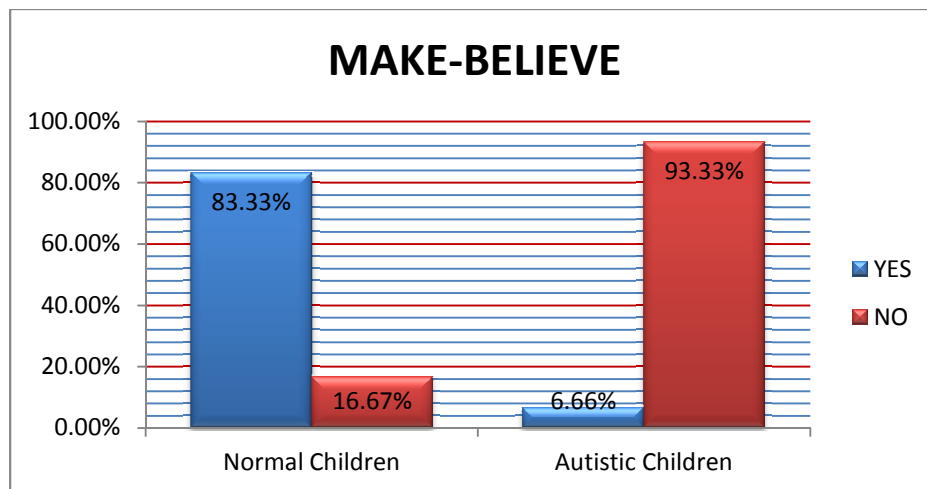
Ghosts are not real so, believing in ghosts comes under make-believe play of children. From the answer of this question it is found that, 75% of normal children believe in ghosts and 25% do not believe in ghosts. On the other hand, most autistic children do not understand the concept of ghosts. For that reason, they do not have slightest idea of ghosts. This result shows that, autistic children do not have the make-believe characteristic.

**Question 4: Does the child like listening to fairytales, ghost stories or other type of supernatural stories?**

In response to question no 4, parents of normal children said that most of their children like to listen fairy tales, Walt Disney stories, super hero stories etc. So, the percentage is very high. In total, 95% normal children are fond of these types of stories; only 5% are not. In contrary, only 10% of autistic children like listening to stories and 90% of them do not understand and have no interest in listening to different types of stories.

**Question 5: Does the child think Cinderella/ Menna-Raju/ Tom&Jerry/ Doraemon/ Oggy etc. characters really exist?**

As this question no 5 is linked with question no 3 and 4 so, the results are also same. 80% of normal children believe that these stories/cartoon characters are real and only 20% of children understand that, these characters have no existence in real life. In case of autistic children, only 10% of them believe these characters are real. As, nearly 90% autistic children do not understand cartoon so, they do not believe these characters either. So, by analyzing these three questions chart 2 is made to show the comparison.



**Chart 2:** Comparison of make-believe play in normal and autistic children



From this chart it can be said that, 83.33% of normal children have make-believe characteristic in them and 16.67% do not have. On the other hand, only 6.66% of autistic children have make-believe characteristic and 93.33% of them have not developed this characteristic. So, the ratio of make-believe play among normal and autistic children is very high nearly 14:1.

#### **4.1.3 Animism:**

##### **Question 6: Does the child like toys?**

In response to this question, both normal children's parents and autistic children's teachers said that these children like to play with toys. So, the percentages of normal and autistic children are same. Nearly, 95% of children like toys only 5% do not like toys.

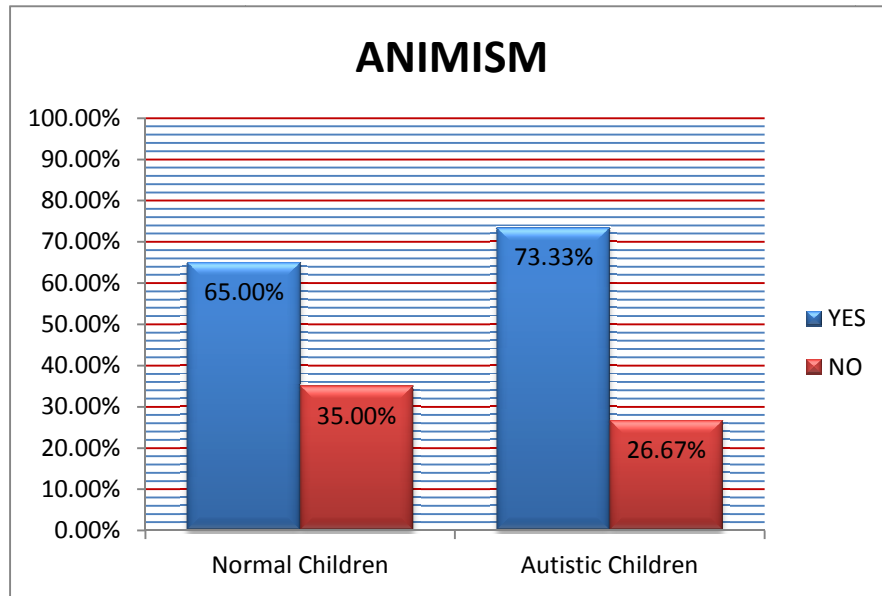
##### **Question 7: Does the child has any favorite toy/ any toy with which he/she talks?**

The answer of this question is also more or less same. 55% of normal children have their favorite toys with which they talk and 45% of them do not have this talking habit. They understand toys cannot talk to humans. In autistic children, the ratio is 45% and 55%. The teachers' of autistic children said that 45% of children try to talk or express their feelings with their favorite toys.

##### **Question 8: "When a toy falls/breaks down it gets hurt"- does the child believe this?**

This question is very effective to understand animism in children. From this question it is noticeable that 50% of normal children believe that, when a toy fell down it got hurt and 50% of them do not believe, rather they throw their toys on floor intentionally to express their anger. On contrary, 60% of autistic children believe above statement and 40% of them do not.

This comparison between normal children and autistic children’s animism has shown in the chart-3 below:



**Chart 3** Comparison of animistic character in normal and autistic children

From this chart it can be said that, 65% of normal children has animistic characteristic in them and 35% have no animism. Whereas 73.33% of autistic children has animism and 26.67% lacks animistic characteristic in them. So the ratio between normal children and autistic children is similar 1:1.13.

**4.1.4 Egocentrism:**

**Question 9: Does the child share his/her toys/foods with others?**

In response to this question, 50% normal children’s parents said that their child shares his/her toys with other kids and sometimes shares foods with siblings and parents. On the other hand 50% normal children do not share anything with anyone. In case of autism, only 10% autistic children share their foods and toys and 90% of them do not have the tendency to share thing with others.

**Question 10: Does the child let you or others to change TV channels when he/she is watching his/her favorite program?**

The answer of this question is mostly similar in both cases. Only 15% of normal and autistic children do not react when someone changes TV channels when they watch their favorite programs in television. Almost 85% of children (autistic and normal) react and cry when someone does not let them watch their favorite program in television.

**Question 11: Does the child get angry when anyone forbids him/her of doing any wrong thing?**

As the children in this stage are very sensitive so, 85% parents of normal children said their children react and get angry very easily if they are forbidden and scolded by their parents/elders of doing anything wrong. On the other hand, autistic children's teachers also responded that 90% of their students get angry and cry if the teachers forbid them to do any wrong thing.

So, the calculations and comparisons of the answers of children's egoistic characteristic have shown in a chart:

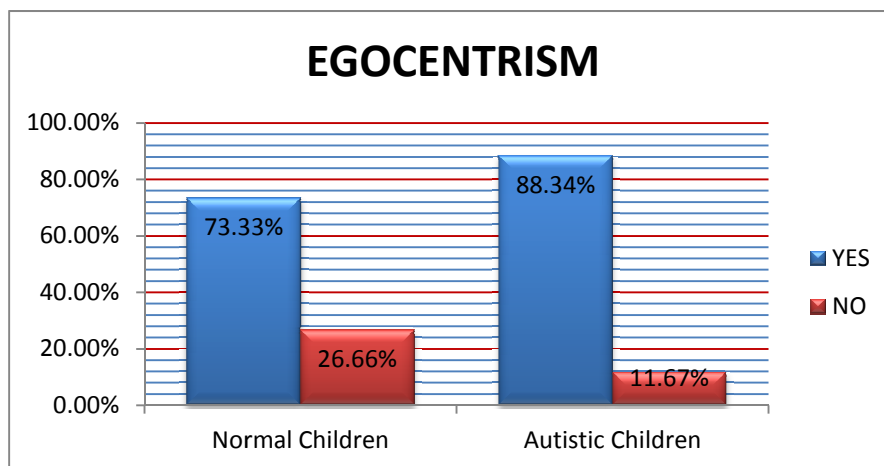


Chart 4: Comparison of egocentrism in normal and autistic children

From this chart it can be said that, 73.33% of normal children have shown egoistic characteristics and 26.66% of them are not egocentric. In case of autistic children nearly 88.34% are egocentric and only 11.67% of them has no remarkable sign of egoism. So, the egoistic characteristics in all children in pre-operational stage are high.

#### **4.1.5 Logical Thinking:**

**Question 12: When a child falls down we usually say, 'Ok, we will hurt/hit the floor for hurting you'- do you think the child believe the floor will get hurt?**

In response to this question, nearly 55% of normal children believe that, a floor will get hurt if somebody hits it and 45% of them understand that non-living objects have no feelings. On the other hand mostly 100% autistic children believe the given statement. These autistic children do not have the understanding that, non-living objects have no feelings.

**Question 13: Does the child think that like human beings animals, birds also talk among themselves?**

Nearly 75% of normal children believe that animals talk and express their feeling among themselves as we human do and 25% children think animals do not talk with other animals. On the contrary, 60% of autistic children believe animals talk among themselves but 40% of them think animals cannot talk.

**Question 14: Does the child believe that fish can live out of water?**

In response to this question, 40% of normal children believe that, fish can live out of water and 60% of them believe fish cannot live out of water. In case of autistic children, 85% of them think fish can live out of water and only 15% of them think fish cannot live out of water.

The logical thinking process of both types of children is demonstrated in the chart below:

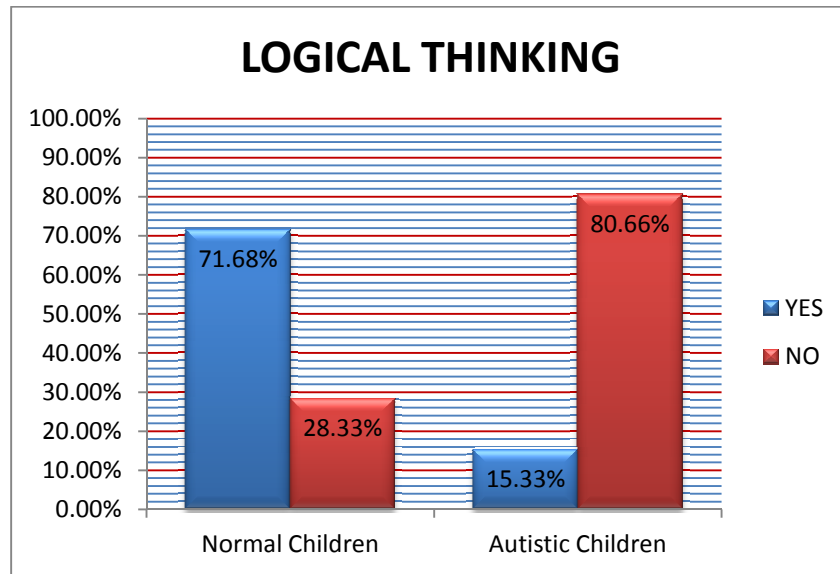


Chart 5: Comparison of logical thinking process in normal and autistic children

It is cleared that 71.68% of normal children have the ability to think logically; 28.33% cannot think logically whereas, only 15.33% autistic have the capacity to think logically and around 80.66% of them do not have not developed the logical thinking process. So, it can be said that the ratio of logical thinking process between normal children and autistic children is 5:1

**4.1.6 Spatial Reasoning:**

**Question 15: ‘We will go to school today’- do the child understand the meaning of ‘today’?**

To identify whether children understand spatial reasoning or not it was asked to parents of normal children, ‘We will go to school today’ whether this statement is understandable to their kids or not? Around 88% of parents said that, their children understand the concept of ‘today’; only 12% children cannot comprehend the statement. On contrast, only 19% of autistic children understand the statement and they have the concept of spatial reasoning where 81% of autistic children do not have the concept of time and spatial reasoning.

**Question 16: Does the child understand the concepts of time like tomorrow/ yesterday, next week etc.?**

This question also revealed the spatial reasoning of children. As this question is related with past and future timing so, nearly 65% of normal children understand these concepts and 35% of them cannot understand. And in case of autistic children, only 15% of them are capable to understand the concepts of past, present and future but almost 85% of them do not have the understanding.

The comparison of normal and autistic children's understanding of spatial reasoning is illustrated by the chart below:

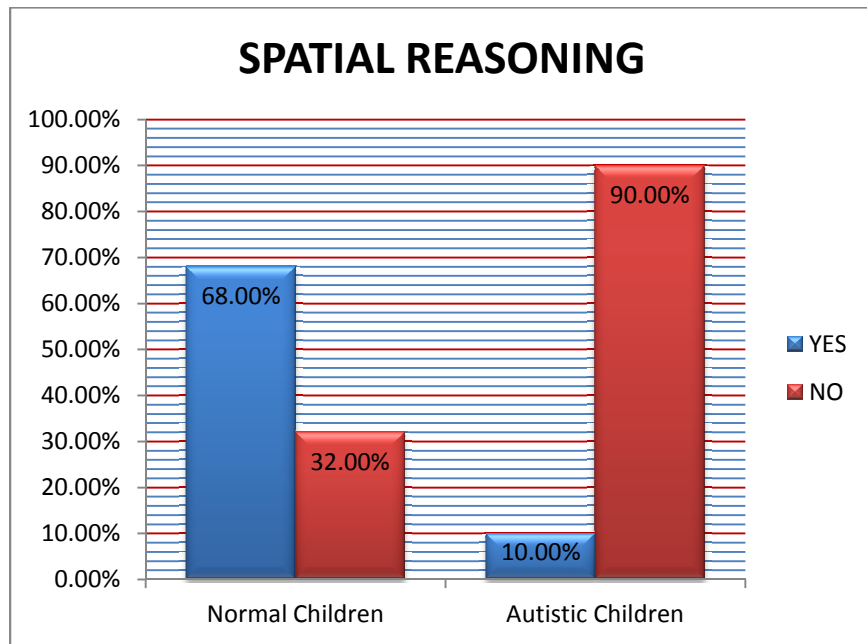


Chart 6: Comparison of spatial reasoning in normal and autistic children

From this chart it is cleared the differentiation between normal and autistic children's spatial reasoning is huge. 68% of normal children have developed the spatial reasoning in them but only 10% of autistic children have this concept. 32% of normal children and 90% of autistic children do not understand the different concepts of time: past, present and future.

#### **4.1.7 Memory:**

##### **Question 17: Does the child remember how he/she has celebrated his/her last birthday?**

This question was asked to get idea about children's memory; 75% of normal children have good memory and they can recall their last birthday celebration. Only 25% of children cannot remember their birthday celebration. On the other hand, autistic children's memory is not much developed so, only 5% them can remember their last birthday celebration and 95% of them do not have memory of past incidents like birthday.

##### **Question 18: Does the child recall and describe any place (eg. Cox-bazar, slyhet/ native village/ abroad, shishu park/ fantasy kingdom etc.) he/she has visited recently?**

In response to this question, parents of normal children told that 80% of children can recall the memory and slightly describe places where they have visited earlier and 20% of them cannot do so. On contrary no autistic children can recall and describe of a place they have visited recently.

In the next chart, the comparison of memory between two groups of children are shown:

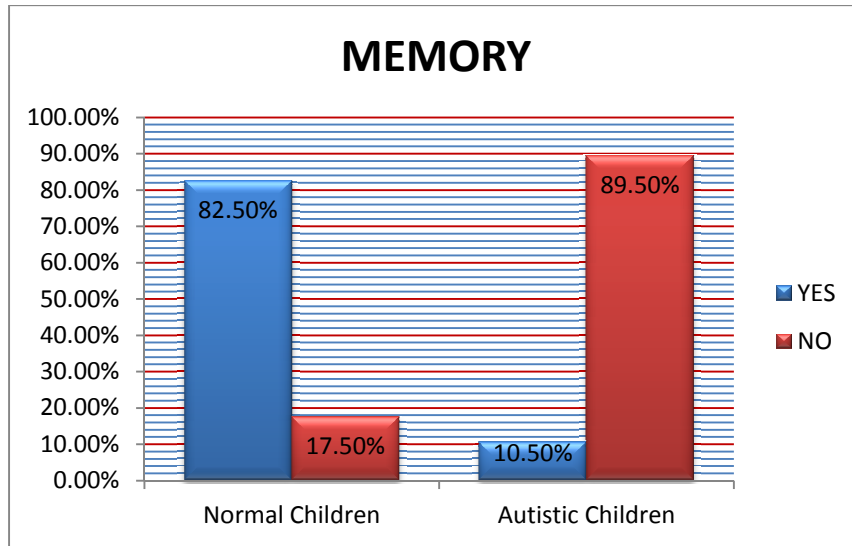


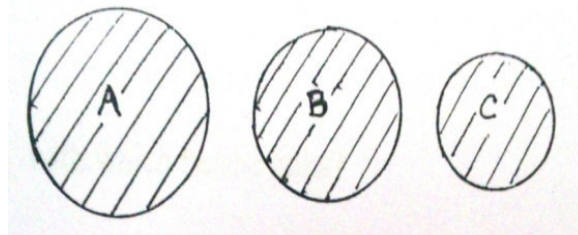
Chart 7: Comparison of memory between normal and autistic children

From the chart it is cleared that, normal children have good memory. These children have more developed memory system in comparison to autistic children. 82.50% of normal children can remember about past incidents where only 10.50% of autistic children have the ability. So the ratio of normal and autistic children is 8:1.

**4.1.8 Conservation:**

**Question 19: Does the child identify that ball ‘A’ is biggest among these three balls?**

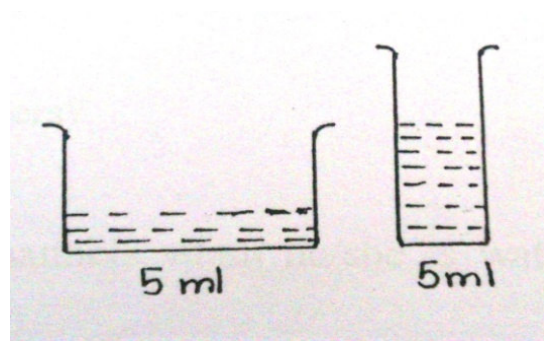
Conservation is an ongoing process in the children of pre-operational stage. In answer of this question 80% of normal children were able to identify that ‘A’ is the biggest ball among these three. In contrary only 5% autistic children were able to answer correctly.





**Question 20: Does the child understand that both the beakers have same amount of water?**

As it was a bit tricky question to test conservation skill among children so, while answering this question only 25 % of normal children were able to understand that both the beakers have same amount of water but in contrast autistic children were unable to identify about the ratio of water in these two beakers.



The conservation skill among normal and autistic children is illustrated in the chart below:

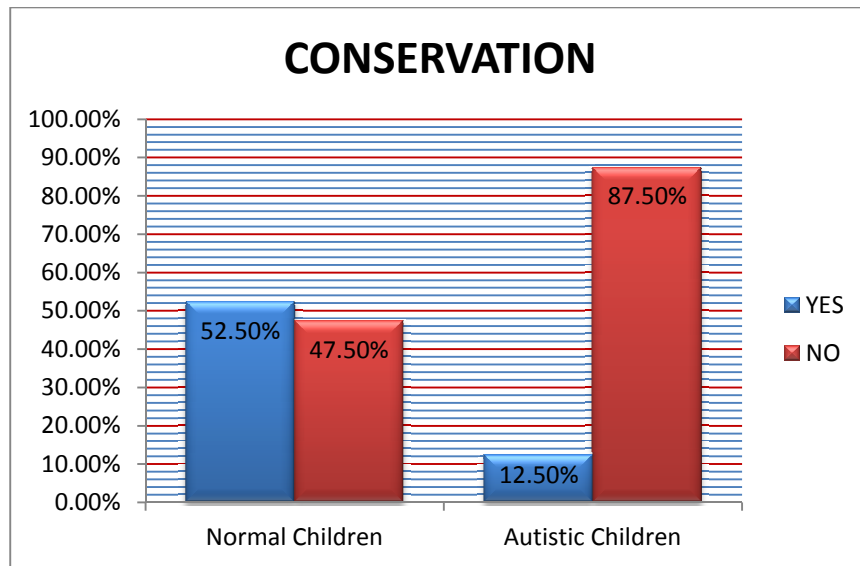


Chart 8: Comparison of conservation in normal and autistic children

In the chart, it is visible that both normal and autistic children have less conservation ability than other characteristics. 52.50% of normal children had the capacity to answer questions

on conservation skill and 47.50% children were unable. Whereas, only 12.50% of autistic children have conservation and 87.50% of them do not have this ability.

So, by analyzing this questionnaire, the researcher found the differences in cognitive abilities in normal and autistic children of pre-operational stage. The questionnaire was designed in a way to find out different criteria of pre-operational stage like imaginative thinking, make-believe play, animism, egocentrism, logical thinking, spatial reasoning, memory and conservation. The different percentages between normal and autistic children's responses showed that there are significant dissimilarities in Jean Piaget's pre-operational stage in our context. In addition it is also proved that, all the children of pre-operational stage do not have the characteristics which were specified by Piaget in his theory of cognitive development.

#### **4.2 Findings from Parents and Teachers Interviews:**

For teachers' and parents' interview, there were 5 questions which were asked to 12 teachers of autistic children and 12 parents of normal children. Both the teachers and parents had briefly explained the answers about the children's cognitive and overall development.

##### **Question 1**

**How often the child shows anger/irritation? Does he/she shouts/cries frequently? How you control these types of situation?**

Most of the parents of normal children of 2-5 years old said that, this is a situation they face throughout the day. They said that, most of the time if their children do not get a thing which they want then they start shouting, crying and sometimes they hit others. Different parents control their children's anger in different ways. Some parents try to change their attention into

other things to make them forget their anger, some parents just fulfill their child's need and some parents scold and some parents just ignore their child's anger. Parents of 6-7 years old children said that, as their children are capable to understand situations so, when they explain their children that anger is a bad practice, people do not like children who are angry etc. then some children listen to their parents and behave properly.

In case of autistic children, their teachers said that, almost all the students of that special school show anger and aggression frequently. Some shout and cry to show anger and some children who do not cry and shout they weep and hurt own selves. So, teachers need to be very careful towards every child and mostly they handle these types of situation with love and care. To control children's anger teachers' talk/ advice, give those children toys, engage them in classroom tasks to shift their attention in other things. Teachers also said that, engaging the children in different fun and educational activities and giving all children same attention help to demolish special children's anger.

## **Question 2**

### **What types of toys the child is fond of? In which manners he/she play with toys?**

In answer to this question, most of the parents of boys said that, their children are fond of toy cars, transformers, bay-blades, toy guns, footballs, tennis balls, computer games etc. Children play by themselves, some kids shares their toys with their friends, siblings etc. Mostly boys do not only depend on toys for playing rather they run, jump and shout during play times. On the other hand, girls are calmer; they usually sit on a corner of a room with their toys e.g. dolls, kitchen sets, tea-sets, doctor sets etc. and play silently.

In case of autistic children during school time children play with toys but not whole day long. They lose their concentration on one toy and take another toy for instead. Teachers said that, all the children are not fond of toys; some do not understand what to do with toys. So, teachers use common toys like balls, cars, dolls and show children how to play with those toys. Gradually by teaching children's about toys, teachers help children to engage themselves in playing with toys.

### **Question 3**

**Does the child understand the concept of 'sharing'? Does he/she voluntarily share foods/toys etc.? Do you advice the child to share things with others? Does the child listen to you?**

In answer to this question normal children's parents said that, children who are more than 3 years old they share their things with others. Some parents said that, they teach and advice their children to share toys with other kids so, their children share toys with others. And other group of parents said, when they tell their children to share toys with others only at that time children share but later children forget/intentionally do not share anything with others until their parents tell them to do so. Most of the parents said that, their children do not share their food with anybody. And the parents whose children are 2-2.9 years old said that, their children do not understand the concept of sharing; they only share when they want to.

On the other hand teachers of autistic children said that, these children do not understand the concept of sharing by themselves. Only when the teachers said children to share foods/ books/ toys then these children share things with peers. Sometimes, despite of advising children to share; these children do not understand the concept of sharing and do not give things to others.

**Question 4**

**How the child communicates with you and others? Are you satisfied with his/her language development?**

Normal children who aged more than 2 years old communicate with parents and others by using language. They usually use simpler sentences because most of them are in telegraphic stage. And children who are less than 2 years old, they mostly use words and gestures to express their feelings to parents and others. In 1979, Cruttenden said that, all the one-word stage words produced by child have combination of action, gesture, facial expression, and other non-linguistic cues (p.14). Parents also agreed with this statement because these pre-operational children whose language is not well developed; use a mixture of language and gestures to communicate. Most of the parents are satisfied with their children's communicative abilities. They are satisfied with children's language development according to the age.

On the other hand, teachers of autistic children said that as most of the autistic children have problems with language production so, they speak less and use gestures more to communicate with teachers and peers because most of them are in one-word stage and telegraphic stage. Teachers of autistic children showed their satisfaction towards the students' language development because in school all the children learn language from special speech therapist. By the speech therapist's training autistic students can gradually develop their language learning abilities and utter simpler sentences to communicate.

**Question 5**

**Are you satisfied with the child's overall development according to his/her age? How will you describe his/her cognitive development?**

In answer to this question most of the parents expressed their satisfaction about their children's overall development. Normal children's parents are very concerned about their children's physical and intellectual development. They try to involve their children in various types of extracurricular activities like swimming, music, dancing, painting etc. to make their children more social and to develop their cognition abilities.

On the other hand, teacher of autistic children try harder to develop their students cognitive and language abilities. In answer to this question teachers said that, most of the autistic children were less active before they started to attend school. After schooling, these children showed lots of progress in every field. According to teachers, the children of their school express their feelings, smiles, anger, affection towards teacher and peers, they get involved in group activities, mix up with other kids and by doing all these things autistic children develop themselves steadily by the help of teachers and parents. So, teachers are also satisfied with their children's overall development.

### **4.3 Findings from Home and Classroom Observation:**

Observing children in person is very helpful to understand their attitudes, activities, actions, reactions etc. To conduct the observation part, the researcher went to homes of normal children to observe them personally. And the autistic children were observed in their school during their class time. The researcher did not inform teachers and parents during the observation period. So, both these observation were done in naturalistic ways to acquire more authentic data.

#### **4.3.1 Home Observation:**

Normal children were observed by the researcher in a very informal manner. The setting was casual and children were doing their normal activities in home. The researcher followed a

checklist (appendix 3) to get some specific information about children's development. In total, 20 children were observed by the researcher in children's home. All the children at this age are fond of playing. Most of the children were playing with their toys. Boys were fond of toy cars, building blocks, toy guns and girls were playing with dolls, jewelry games, bags, teddy bears, plastic tea-sets etc. It is observed that those who have siblings are more friendly and talkative during play time and they have sharing tendency more than a single child.

Imaginative characteristics were found in few children. There were two cousin sisters of 4.2 and 5.8 years old. In school, as they see their mothers go and talk with parents of other children so, these two little girls also imitate and play role of their mothers. Both of them take handbags; wear 'dupatta' (a long cloth); call each other 'bhabi' (brother's wife) and pretend to go for shopping and buy different things. On the other hand, boys mostly imitate cartoon characters and pretend to fight with enemies; they shout, jump, run and catch bad people. Some boys pretend them as police and catch thieves using their toy guns.

Children who are fond of cartoons, super heroes, and fairy tales like to get dressed same as his/her favorite character. The researcher found that, 90% of these children have costumes of Superman/ Spiderman/ Batman/ Fairy/ Tinker bell/ Barbie/ Cinderella etc. and they make-believe themselves as that particular character of the dress s/he wore. In addition, children like to watch television all day long. Some children watch cartoons during lunch time. They like to watch cartoons, magic shows and children shows.

Some children have egoistic attitudes and do not listen to anyone. There are few parents who try to tell their children what is right and wrong. There are also some parents who pamper their child so much and never teach them to do right things. If a child makes a mistake like: slap

someone, throw things, screams, breaks things etc. some parents do not pay any attention so, that child does not understand the differentiation between right and wrong. The researcher observed that, those children who are told by their parents or elders not to do wrong things are calmer and well behaved than other group of children.

Many parents use reference from past while talking to their children. Some children aged between 3-7 years old can understand the concept but younger children can not relate the reference of past in a conversation. In addition, the researcher found that, some children understand logical explanations. When children get angry and throw tantrum, if the mother/father give logical explanations and try to make them understand a situation, many children realize and verbally repeat those situations logically by him/her selves. For example: one boy of 5.2 years wanted to go to roof to ride cycle at noon. When his mother forbade him he started to scream and throw toys. At that time, his mother told him that, in evening she will take him to the roof because in noon the sun is very hot and he will sweat and became sick if he ride cycle in that heat. After that, the child stopped crying and also repeated the same thing to mother, "Akhon chad e gele osustho hoa jabo... Bikal e jabo" (I will became sick if I go to roof now. I will go to roof in evening). So, it can be said that, not only these children are fond of playing, watching televisions, imagining things, but also they have some understand about the surroundings and in some extent they are able to think logically.

#### **4.3.2 Classroom Observation:**

In total, 5 classes were observed by the researcher in a special school to understand autistic children's daily activities, cognitive abilities, communicative abilities, thinking process etc. During the classroom observation students and teachers were not told about the presence of



the researcher. So, classroom observations were done in natural setting. The researcher used a checklist (appendix 3) and found that, in classrooms teacher-student ratio is 1:1, sometimes 1:2. Mostly one teacher is appointed to take care of one special child, so all children were given equal attention and good care by the teachers.

Classes of autistic children are mainly based on listening based activities. Repetition is another practice used by the teachers to communicate with students, give instructions, teaching classroom manners, teaching poems etc. and some total physical response activities also used in classroom (TPR). TPR is perfect for elementary school classes, as students are used to learning in a variety of ways and particularly enjoy movement (Shearon, n.d., p.5). As autistic children do not understand the concept of school, class, and teachers so, it is very important to make them comfortable in classes and to hold their concentration during school time. For that reason, teachers work so hard all the time to make them engage in various activities.

The researcher observed that, autistic children are less active than normal children. They react instantly if anything does not go according to their will. Some children have the tendency to snatch their peer's toys. In this case, all children react with anger, and some sensitive children start crying and sometimes all children wanted same toys as their peers. So, teachers tries to make them understand that everyone will get change to play with toys one by one but they do not pay attention to the teacher's advice. One child said, "nibo/dao" (I want it/ give me the toy); then teacher said, "Raihan khele tomak dibe" (Raihan will give you after he finishes playing with the toy), and then child replied, "Amar. Dao" (he wanted to said, no this is my toy, I want it right now) and after saying that he started to cry. Researcher observed that, these types of situations

are handled by teachers with care and teachers tried to make each and every child comfortable and happy in classrooms.

Teachers of autistic children are very patient. Teachers do not scold, shout, and forbid the children because these children do not understand these approaches. Children are very self-centered, introvert and egoistic. In spite of that, all teachers work hard to make the students talk, play games, and make them participate in various communicative activities. Some teachers' make children equip by understanding their multiple intelligences and give tasks according to their intelligence. For example: teachers gave visual learners to draw picture and color them, auditory learners to listen poems and recite poems etc. So, here the researcher observed that, despite of being autistic children some of the children have their 'multiple intelligence' (Richards and Rodgers, 2001, p.116). The researcher observed that, these children have some basic understanding about how to behave in classroom. These children take parts in assemblies, makes lines, recite national anthem, perform some physical exercises with the help of teachers and also they try to eat properly during their tiffin time.

After observing autistic children it can be stated that, though these children are in pre-operational stage according to their age but their overall development and cognitive abilities are not same as any normal growing children of pre-operational stage. These autistic children are not well capable to think imaginatively, logically, their memory is not well developed, they do not have proper spatial reasoning but in spite of that, some of them are well behaved and they have inbuilt motivation to discover new things by themselves and also they have the tendency to learn from their peers and teachers.

#### **4.4 Answer to the Central Research Question:**

In this section the findings of the central research question will be discussed.

#### **How do the cognitive abilities differ between normal and autistic children in Piaget's pre-operational stage?**

According to Piaget, in pre-operational stage children undergo some cognitive developmental processes and show some characteristics like imaginative thinking, animism, make-believe, egocentrism, spatial reasoning, conservation etc. Piaget said that, children in this stage are imaginative and in some extent they show magical thinking and they cannot think logically (Hearthery, 1974, p.2-3). From the data analysis it is found that, mostly 90% normal children are imaginative and have characteristics make-believe play but they can think logically. On contrast, only few autistic children are imaginative.

Logical thinking and spatial reasoning capacity in normal children of pre-operational stage are nearly 70% and in comparison to that the percentage is only 15% in autistic children. Piaget said that, in pre-operational stage children think in a non logical manner and they cannot think rationally. From the data analysis it is found that normal children in this stage are able to think logically. Here Piaget's theory is some extent proved wrong.

The overall comparison between normal children and autistic children in pre-operational stage can be shown in a chart:

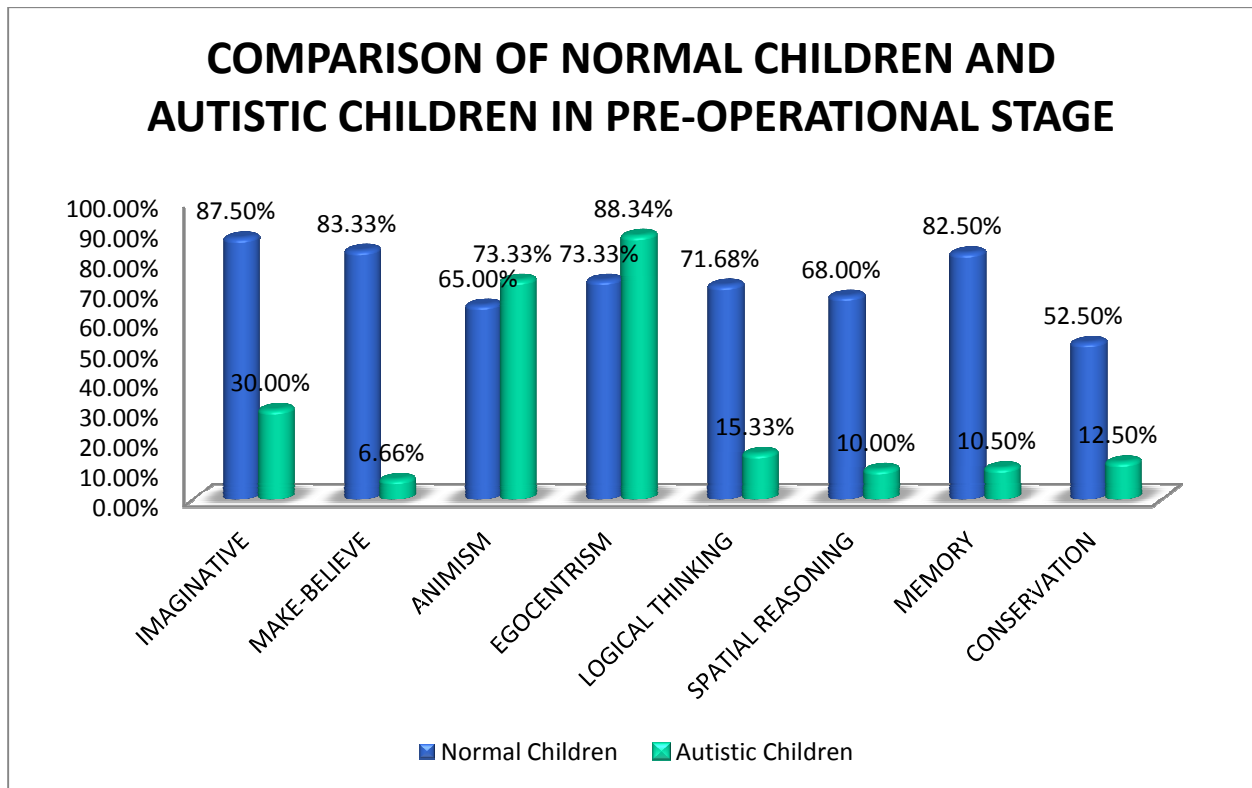


Chart 9 Major findings from data analysis & comparison

The above chart shows that, there are several dissimilarities between normal children and autistic children in pre-operational stage. The differences between normal children and autistic children’s cognitive abilities are very high. Among 8 major characteristics of pre-operational stage, massive differentiations are found in 6 characteristics like imaginative thinking, make-believe play, logical thinking, spatial reasoning, memory and conservation. Normal children and autistic children differ a lot in pre-operational stage of cognitive abilities. Mostly, autistic children are few steps behind in their physical, intellectual, language and cognitive development process than normal children. For that reason, despite of aging between 2-7 years old these children do not well fit in Piaget’s pre-operational stage.

In contrary, there are some similarities found in normal children and autistic children that, both of these children are egoistic and they have animism. Piaget stated that, in pre-operational stage children look at any object on their own point of view rather than the others (Piaget, 1967, p.12). Here, in this research it is also proved that both normal children and autistic children are egocentric. Only few children have the capacity to realize others point of view. In 1967 Piaget said that, pre-operational children have animism. He stated that, children assume that everyone and everything is like them, for that reason children think every object in world can feel pain, and has emotions etc (p.13). In this paper, it is found that, both normal and autistic children have animistic believes. Many normal children also think that floor, chairs, toys and non-living things have feelings like humans. And most of the autistic children nearly 73.33% of them cannot differentiate between non-living and living things so they think everything has feelings.

So, it is cleared from the above chart that though normal pre-operational children and autistic pre-operational children have few similarities but mostly their cognitive abilities differ. Characteristics like conservation skills, Memory, make-believe, spatial reasoning, logical thinking capacity, imaginative thinking power are very diverse in normal and autistic children in pre-operational stage.

## CHAPTER 5: CONCLUSION

### 5.1 Conclusion:

Piaget's theory has both positive and negative feedback. Many critics have challenged Piaget's stages and said the theory to be universally not applicable. Gelman and Baillargeon (1983) challenged Piaget's theory by saying "Is pre-operational thought really pre-operational?" (p.172). Critics' main argument was that, Piaget described some puzzling tasks to fix the stages of children with confusing and abstract terms. Some critics also stated that, Piaget underestimated children's abilities (Woods, 2008, p. 6). Some have noted that, the stages in his theory have inconsistencies. Blake and Pope (2008) said that, Piaget has ignored social and cultural groups in his research (p.61).

Despite of some flaws it is proved that Piaget's theory is influential in the field of child psychology. From this research it is found that, mostly all the characteristics of Piaget's theory are present in pre-operational children of Bangladesh in some extent. Normal 2-7 years old Bangladeshi children have most of the characteristics as Piaget described in his cognitive theory. In contrary, the autistic children of pre-operational stage have some lacking and they are not well capable to understand and comprehend those abstract contexts of Piaget's theory like: memory, make-believe, logical thinking, spatial reasoning, conservation etc. So, it can be said that, in there are differences in normal and autistic children's cognitive development.

From the research and the data analysis it is discovered that, Piaget's theory is very important to understand diverse abilities of children. According to Lefrancois (2006), Piaget's theory has been very influential, impacting psychology and a source of education over the years while also being controversial (p.33). Piaget's theory of cognitive development has a large

impact on teachers, parents and child care workers to become fascinated observers of children's development and to become sensible supporters to all children of pre-operational stage.

## **5.2 Recommendation:**

- To activate the pre-operational children's cognitive abilities school authorities can introduce extra-curricular tasks where all children will get opportunities to enhance their inbuilt capacities and talents.
- The school authorities of special children's school should be more co-operative to the researchers because, if more research will take place in the field of autism then they will be benefitted more to learn about their students.
- More campaigning should be done to introduce the abilities of autistic children in front of the world. By this, the old believes of public about autistic people will be broken. And gradually people will treat autistic children same as normal children and provide them equal opportunities.
- More government organization should work with autistic children. In our country there are many autistic children who do not get proper care and support from their families. So, governmental organizations can help those neglected children, save their lives and can provide a good future to them.

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## **Appendix1:**

### **Questionnaire for Parents and Teachers**

Participant no: \_\_\_\_\_

Gender: Male /Female

Age: \_\_\_\_\_ years \_\_\_\_\_ months

Normal child/ special child

❖ **Read the questions and put tick marks (✓) beside the right 'Yes / No' options:**

1. Does the child like to watch cartoons?  
- .....Yes / .....No
2. Does the child try to imitate talking/ jumping/walking style of any cartoon character?  
- .....Yes / .....No
3. Does the child believe in ghosts?  
- .....Yes /..... No
4. Does the child like listening to fairytales/ghosts stories or other type of supernatural stories?  
- .....Yes /..... No
5. Does the child think Cinderella/Tom and Jerry/Meena- Raju/Doraemon/Oggy etc. characters really exist?  
- .....Yes /..... No
6. Does the child like toys?  
- .....Yes /..... No
7. Does the child has any favorite toy/ any toy with which he/she talks?  
- .....Yes/..... No
8. 'When a toy falls/breaks down it gets hurt'- does the child believe this?  
- .....Yes/..... No
9. Does the child share his/her toys and foods with others?  
- .....Yes /..... No
10. Does the child let you or others to change TV channels when he/she is watching his/her favorite program on TV?  
- .....Yes / .....No
11. Does the child get angry when anyone forbids him/her of doing any wrong thing?  
- .....Yes / .....No
12. When a child falls down we usually say, "Ok, we will hurt/hit the floor for hurting you"- Do you think the child believes the floor will get hurt?  
- .....Yes /..... No

**Appendix1:**

**Questionnaire for Parents and Teachers**

13. Does the child think that like human beings animals, birds also talk among themselves?

-.....Yes /..... No

14. Does the child believe that fish can live out of water?

-.....Yes /..... No

15. 'We will go to school today'- do the child understand the meaning of 'today'?

-.....Yes /..... No

16. Does the child understand the concepts of time like tomorrow/ yesterday/ next week etc?

-.....Yes /..... No

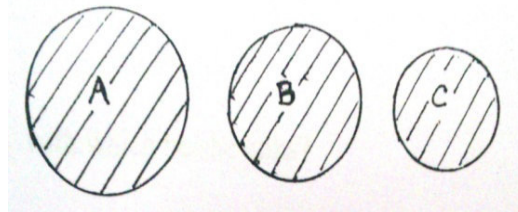
17. Does the child remember how he/she has celebrated his/her last birthday?

-.....Yes / .....No

18. Does the child recall and describe a place (Eg. Cox-bazar/ sylhet/ native village/ abroad/ park/ fantasy kingdom etc.) he/she visited recently?

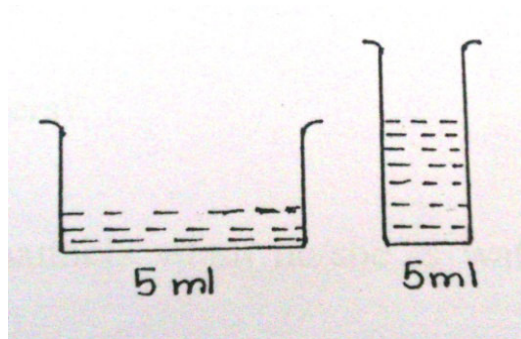
-.....Yes/.....No

19. Does the child identify that ball 'A' is the biggest among these three balls?



-.....Yes /..... No

20. Does the child understand that both the beakers have same amount of liquid?



-.....Yes /..... No

~~ ☺ Thank you ☺ ~~



## Appendix: 2

### Teacher-Parent interview questions

1. How often the child shows anger/irritation? Does he/she shouts/cries frequently? How you control these types of situation?
  2. What types of toys the child is fond of? In which manners he/she play with toys?
  3. Does the child understand the concept of 'sharing'? Does he/she voluntarily share foods/toys etc.? Do you advice the child to share things with others? Does the child listen to you?
  4. How the child communicates with you and others? Are you satisfied with his/her language development?
  5. Are you satisfied with the child's overall development according to his/her age? How will you describe his/her cognitive development?
-

### Appendix: 3

#### Home and Classroom observation checklist

1. Do the children show any animistic characteristics during playtime in home/school?
  2. Do the children have egoistic attitudes towards teachers/parents/siblings/other peers?
  3. Do the teachers/parents correct children's mistakes instantly?
  4. Do the children pretend or follow (e.g. talk/fight/jump/dress up) any imaginative characters?
  5. Do the teachers/parents use reference from past while talking with children?
  6. How much time these children watch TV programs?
-