

# Cognitive Skills of Hearing Impaired Children in Special Schools of Odisha

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**Abstract:** *The cognitive skill is the vital skill in one's academic career. The cognition is to be used in higher education to a greater extent. Cognition is the most important skills for one's educational career. Hence an attention was made to identity the difficulties found by hearing impaired children on cognitive skill in everyday life.*

**Keywords:** Cognitive skills of hearing impaired children in Special schools of Odisha

## 1. Introduction

Teaching – Learning is such a complex phenomenon that nobody can answer why students differ in their achievement. Although the same teacher teaches a group of learners, a particular student may not understand the specific difficulties either with spoken or written language or with coordination or attention span. It may be interpreted in terms of his ability to learn and not in terms of his “inability”.

Special education is an emerging concept now-a-days. There is a rapid research work done in this field. It is said that special education means specially designed instruction which meets the special educational and related needs of an exceptional child. Until the 1970's, the policy encouraged segregation. Most educators believed that children with physical, sensory or intellectual disabilities were so different that they could not participate in the activities of a common school (Advani, 2002). The first school for the blind was established in 1887 and an institution for the deaf and mute was set up in 1888.

In India, a learner with Special Educational Needs (SEN) is defined variously in different documents. For example, a child with SEN in a District Primary Education Programme (DPEP) document is defined as a child with disability, namely, visual, hearing, locomotors and intellectual (DPEP, 2001).

Deafness or impairment in hearing capacity is defined in terms of degree of hearing loss. Total inability to hear is deafness but those whose sense of hearing is defective but who manage with or without hearing aids are called hard of

hearing. Deafness might occur before the child acquires language or afterwards due to certain environmental problems.

The World Health Organization (WHO) estimates that 10% of any population are disabled. In addition approximately 85% of the World's children with disabilities under 15 years age live in developing countries.

Census 2011 has revealed that over 21 million populations in India are suffering from one or the other disability. This is 2.1% of the total population. Among the total disabled in the country 9.3 million are female and 12.6 million are male.

Among five types of disabilities – disability in Vision is 48.5%, Orthopedic is 27.9%, Mental 10.3%, in Speech 7.5% and in hearing 5.8%.

Across the country, the highest disabled persons are from Uttar Pradesh (3.6 Million). In Odisha, there are 85,115 persons of Hearing impaired found according to 2011 census.

## 1.1 Subject

According to the conference of executives of American schools for the Deaf, a deaf person is one whose hearing is disabled to an extent (usually 70dB) that precludes the understanding of speech through the ear alone, with or without the use of hearing aid, a hard-of-hearing person is one whose hearing is disabled to an extent (35 to 69dB) makes difficult, but does not preclude the understanding of speech through the ear alone, with or without a hearing aid.

S. No	Category	Type of Impairment	dB Level	Speech Discrimination	% of Impairment
1	I	Mild Hearing Impairment	26 dB to 40dB	30 to 100%	Less than 40%
2	II	Moderate Hearing Impairment	40 dB to 55dB	50 to 80%	40% - 50%
3	III	Severe Hearing Impairment	56 dB to 70dB	40 to 50%	50% - 75%
4	IV	(a) Total Deafness (b) Near Total deafness (c) Profound Hearing Impairment	No Hearing 91dB and above 71dB to 90dB	No Discrimination No Discrimination Less than 40%	100% 100% 75% - 100%

Cognitive skills are the core skills your brain uses to think, read, learn, remember, reason and pay attention. Each of the cognitive skill plays an important part in processing new information. That means if even one of those skill is weak, no matter what kind of information is coming your way,

grasping, retaining or using that information is impacted. In fact most learning struggles are caused by one or more weak cognitive skills. Among them sustained attention, selective attention, divided attention, long-term memory, working memory, logic and reasoning, Auditory processing, visual

processing, processing speed, concentration, perception, conservation etc. plays a great role in case of hearing impaired children.

## 2. Significance of the Study

Today parents and teachers are increasingly concerned about the difficulty of many children to read at very effective level. These student's progress in academic part as well as non-academic part is not satisfactory. The advantage of good hearing enables a person to be more creative.

Today, the hearing impaired children are facing many problems in the learning process, especially cognitive skills. Therefore, Identification of those children at an earlier stage in learning is necessary and this will help to frame new guidelines in the conventional area with reference to memorization, logical thinking and concentration. These children who are unable to progress satisfactorily in school and later because of severe retardation in hearing are unlikely to find suitable employment. The investigations attempted to study the cognitive skills of hearing impaired children of Class – IX of special school of Odisha.

## 3. Objectives

The objectives of the study are as follows:

- To find the degree of concentration of hearing impaired boys and girls class IX in special schools.
- To find the degree of memory of hearing impaired boys and girls class IX in special schools.
- To find the degree of logical thinking of hearing impaired boys and girls of class IX in special schools.
- To study and compare the degree of composite cognitive skills of hearing impaired boys and girls of higher classes in special schools.

### 3.1 Hypothesis

- There is no significant difference between boys & girls of class-IX student in concentration factor.
- There is no significant difference between boys & girls of class-IX students in memory factor.
- There is no significant difference between boys & girls of class-IX students in logical thinking factor
- There is no significant difference found in composite cognitive skills of hearing impaired children of class-IX

## 4. Design of the Study

The investigation used survey method for the study. The correlation design is aimed at finding out the difficulties in cognition & its various skills among the 9th class students of 4 schools situated in Odisha.

### 4.1 Construction of the tools

The construction of the tools consisted of 3 important stages. The first one taken by the investigator is cognitive assessment system of naglieri & Das (1997) about concentration. This is a selective attention test consisting of two conditions namely physical match and type match. In

condition 1 (type match) subjects task is to select pairs of same alphabet category like (bB, rR, aA) and physical match condition like (aa, ss, EE, HH) that whether two of it are capital or small. The test of memory may be tested by long-term or short-term. Here, the researcher tests the short-term memory. It is a standardized test developed by Agra Psychological Research cell. The third one is the test of logical thinking developed by Differential Aptitude Test developed by George K. Bennet, Herd G. Seashore, Alexander G. Wesman. The inventory controls 8 items with 4 options. Each correct answer is marked by 1 and for wrong answer it is assigned to 0. It is compulsory to attend all the items.

### 4.2 Sample

The investigator for this study selected 200 samples that comprise 107 boys and 93 girls of class IX of 9 schools of Odisha. For this research study, the investigators adopted the simple random sampling method.

### 4.3 Method of Data Collection:

The investigators obtained permission from the headmasters/headmistress of the schools for the study after briefly explaining about the study. The investigator met the randomly selected students and briefed them about the procedures. Then the prepared questionnaire was given to the selected students.

All the students were requested to read all the contents present in the tool once. Then the testing of each student was recorded carefully by using devices and time taken for the completion of the test noted by using stop watch. Some tests are done with a stipulated time period. After they had completed their responses, the investigator collected them from the students. The analysis of response was done by the investigator and obtained scores were tabulated & interpreted in detail.

## 5. Analysis & Interpretation

### 5.1 Hypothesis - 1

**Table 1**

Concentration Test	Subject	Number	Mean	SD	T Value	Results
	Boys	103	30.5		3.65	Significance at 0.05 level
	Girls	97	24.2			

In Table 1, the test of concentration reveals that calculated t-value 3.65 is greater than the table value 1.98 at 0.05 level of significance. Hence the null hypothesis "There is no significant difference between boys and girls of class – IX students in concentration factor" is rejected.

### 5.2 Hypothesis – 2

**Table 2**

Memory	Subject	Number	Mean	SD	T Value	Results
	Boys	103	8.34		2.26	Significance at 0.05 level
	Girls	97	7.57			

In Table 2, the test of memory reveals that calculated t-value 2.26 is greater than the table value 1.98 at 0.05 level of significance. Hence the null hypothesis "There is no significant difference between boys and girls of class – IX students in memory factor" is rejected.

### 5.3 Hypothesis – 3

**Table 3**

Logical Thinking	Subject	Number	Mean	SD	T Value	Results
	Boys	103	11.10		1.98	No Significance at 0.05 level
	Girls	97	4.68			

In Table 3, the test of Logical Thinking reveals that calculated t-value 1.61 is less than the table value 1.98 at 0.05 level of significance. Hence the null hypothesis "There is no significant difference between boys and girls of class – IX students in Logical Thinking factor" is accepted.

### 5.4 Hypothesis – 4

**Table 4**

Composite Cognitive Skills	Subject	Number	Mean	SD	T Value	Results
	Boys	103	127.7	26.54	2.17	No Significance at 0.05 level
	Girls	97	119.7	25.37		

In Table 4, the test of composite cognitive skills reveals that calculated t-value 2.17 is less than the table value 2.61 at 0.05 level of significance. Hence the null hypothesis "There is no significant difference found in composite cognitive skills of learning impaired children of class – IX students" is accepted.

## 5.5 Findings

From the analysis and interpretation of the results out of 200 students:

- 68.29% students possessed greater problem in cognitive skills.
- 31.71% students possessed less problem in cognitive skills.
- 45.58% of boys possessed problem on cognitive skills.
- 54.42% of girls possessed problem on cognitive skills.

## 6. Implications of the Study

Today education gives more important to learning difficulties especially skills on cognition. More intensive research and study in this field could help to develop a remedial process among teachers, parents, administrators, and curriculum planners and educationalists.

From this study, it is evident that the students don't differ significantly in their cognitive skills which are not up to the expected level because of so many factors. The following are some of the suggestions:

- Class containing at least 1:8 teacher: Student ratio helps the teacher in giving special attention to students.
- All teachers must concentrate on the difficulties faced by every learner.
- The class teacher should access the test of cognitive skills sometimes for the development of the ability of students frequently.
- Parents must cooperate and motivate their children to develop cognitive skills.

## 7. Development of Composite Cognitive Skills

Even though most people do not outgrow their brain dysfunction, people do learn to adapt and live fulfilling lives. This can be done more by developing personal strengths rather than being cured. Alternative ways of learning have to be found so that the individual talents may be enjoyed.

The Brain's flexibility to learn new skills are probably the greatest in young children and may diminish somewhat after poverty. This is why early intervention is so important. Nevertheless, we retain the ability to learn though out our life. For children with an expressive language disorder, most children do learn to speak and hear eventually. However, an appropriate Remedial Programmed Instruction can greatly help.

A learning impaired child requires constant remedial education, certain concessions and modification in the classrooms and during evaluations. The important thing is not to be harsh with the child or give the child that he or she is inferior. The caregiver needs to sit with a special educator and discuss how best to help the child. Based on the assessment an interdisciplinary approach is taken involving classroom management, educational therapy and other supportive therapy. After schooling, the child may take up any of the available stream of education. However, it is best at this stage that the child takes up an educational program suited to his ability, past achievements and interests. This is the best guide to sustain interest and progress in the chosen program.

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