

# International Journal of Innovative Research in Science, Engineering and Technology

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## Cognitive Development of Preschool Children in India

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**ABSTRACT :** It has been well established through many researches that ninety percent of brain develops by the age of six years. The foundation for further learning is formed in early years of life. This makes the provision of safe and stimulating learning environment, a highly significant input in cognitive development of early childhood. The increasing awareness of importance of learning in early childhood years among parents has led to increase demand of preschools. To fulfill this demand, many private players have been entering into the preschool education market. To find out the quality of these preschools and its impact on cognitive development of children, present study was taken. The data was collected from 80 preschool children from 4 preschools with the help of Hema Pandey's tool for cognitive development. The quality of preschool was assessed with a tool developed by CECED department of Ambedkar University. A positive correlation was found between quality of preschool and cognitive development of preschool children.

**KEYWORDS:** Cognitive, Development, Preschool, Children, Education and Correlation.

### I.INTRODUCTION

Cognitive development is "the psychology of learning which emphasizes human cognition or intelligence as a special endowment enabling man to form hypotheses and develop intellectually". The underlying concepts of cognitive development involve how we think and gain knowledge. It involves examining learning, memory, problem solving skills, and intelligence. Cognitive theorists may want to understand how problem solving changes throughout childhood, how cultural differences affect the way we view our own academic achievements, language development, and much more. The first is a sensory-motor stage. This stage typically lasts until a child is about two years old. During the sensory-motor stage, a child explores the world through his senses: taste, touch, sight, sound, and smell. A child develops an awareness that things and people exist even when the child is not there. For example, at the completion of this stage, a child is aware that his toys are still in the living room, even when he is in his room and cannot see them. A child also develops some motor skills during this time. However, children typically have no understanding of symbolic representation.

Cognitive developmental process includes remembering, problem-solving, and decision-making from childhood through adolescence to adulthood. Researchers have identified a broad range of cognitive competencies and described the remarkable progress of cognitive development during the early childhood years. Cognitive development implies the progressive changes in the mental processes which go on from birth to death. Mental process deals with activities involved in the mind, it refers to how a person perceives, thinks and gains and understand his or her own world. However, cognitive development deals with information processing, intelligence, reasoning, language development, and memory. Historically, the concept of cognitive development starts from Piaget's sensory motor, Preoperational stage, concrete operational stage, and formal operational stage. In these stages, Piaget viewed cognitive development as a biological perspective and based on two major principles, operates the intellectual growth and development through adaptation and organization (Solso, 1995). Here, adaptation means tendency to respond to the demands of the environment to meet one's goal, and organization is the tendency to integrate particular observations into coherent knowledge. It is a tendency of mind to organize information into related and structured. After Piaget, Vygotsky argued that children acquire new knowledge from his external worlds through language and social interaction. As a whole, Vygotsky believed that the role of language in cognitive development has two ways (i.e,

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communication, and regulation). Similarly, Bruner's thought of cognitive development was a new challenge in that time, viewed that Piaget's belief regarding a child's thinking to organize the world, but increases complex way. Bruner disagreed with Piaget, but liked Vygotsky. Bruner argued in this time that cognitive development needs three different forms (i.e. inactive, iconic, and symbolic modes). After them, Erikson argued that individuals' development (from infancy to the adulthood) needs eight stages (e.g., Hope, Will, Purpose, Competencies, Fidelity, Love, Care & Wisdom). L. Kohlberg's stages of moral development came to light with three basic phases, such as, pre-conventional, conventional, and postconventional. In this time, Kohlberg followed the principle of Piaget. Contrary to existing views, Kohlberg assumed that cognitive development is a path of physiological states as it is based on cognitive structures describes the features of prototypical or even actual.

## **Cognitive Development in Relations to Socioeconomic Status:**

Family income is a part of socio-economic status which was associated with greater brain surface area, and the relationship was even more substantial for lower-income children. Parental education was "significantly associated" with brain surface area independent of age, scanner, sex, and genetic ancestry. Similarly, parental education was associated with a similar increase in surface area over the course of childhood and adolescence.

## **Cognitive Development in Relations to Anthropometric Status:**

Anthropometry means height, weight, and wrist, skull circumference, and BMI of the individual. Literature found that the relationship between the cognitive development scores and anthropometric measures of the child has no significant correlation. Multiple regression analysis revealed that the manner in which the mother responded and the child's weight-for-height were important in predicting the child's cognitive development. The child's weight-for-height and certain aspects of the home Libiger environment played an important role in the cognitive development of this refugee population (Laude, 1999).

## **Cognitive Development in Relations to Home Environmental Status:**

Child's home environment, such as parental response and availability of stimulating play materials, were more strongly related to child developmental status than global measures of environmental quality such as SES (Socio Economic Status). Social status did not show a consistent relationship to either quality of home environment or children's developmental status across various groups. Literature found there was a fairly consistent relationship between home scores and children's developmental status. When the child's early developmental status and early home environment were both very low, the likelihood of poor developmental outcomes was markedly increased compared with cases when only one was low. The final three stages are operational stages. The preoperational stage occurs when a child begins and continues to develop language and thinking skills, and typically lasts from age two until age seven. The child also becomes focused on himself and how the world relates to him.

The concrete operational stage usually occurs between the ages of seven and twelve. During the concrete operational stage, a child begins to see the world in relation to others, not just himself. Children also begin to develop logical thinking; they begin to understand that the way objects are set up has nothing to do with the amount of an object. The formal operational stage begins around age twelve and lasts throughout our adult lives. During this stage both logical and abstract thinking develops. During each stage the child gain life experiences and increase their knowledge through them. Piaget also believed that a child who hadn't completed certain developmental stages could not learn things from higher developmental stages. For example, a child who has not learned language could not think logically.

## **II. REVIEW OF LITERATURE**

Review of related literature makes the investigator fully aware with the previous work that has been done. It also provides an opportunity of gaining insight into the method, measures, subject and approaches employed by the other researchers. A careful review of research, journals, books, dissertations, thesis and other sources of information about the problem to be investigated is one of the important steps in the planning of any research studied.

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**Create (2010)** Conducted a study on “PRE-PRIMARY EDUCATION IN INDIA”. This Research suggests that preprimary education is very important for the development of children before they enter formal school. It helps in cognitive development of children at the early grades of primary education and it has strong bearing on attendance and participation of children once they enter primary school. The main purpose of pre-primary education is to prepare children physically, emotionally, socially and mentally for formal schooling and to prevent poor performance.

**Sood (2014)** It is important to note that the last two decades have seen an increasing number of private preschools entering the education arena in both urban and rural India. These range from schools in one-room tenements to impressive preschools equipped with the latest equipment and staffed by qualified professionals. Recent research indicates a proliferation of low-fee private schools and preschools penetrating at a phenomenal pace even into the remotest rural and tribal areas as providers of preschool and primary education.

**Singh (2013)** It varies from a minimal provision of songs and rhymes in most anganwadis, to a downward extension of the primary curriculum, delivered in a didactic and teacher-centred fashion, in private preschools; both of these are detrimental to children’s early learning and development. Ensuring that children have access to appropriate and high-quality ECCE is therefore necessary, and will in turn contribute to reducing exclusion in society.

**Kaul (1998)** The developing world in general, and India in particular, has very few examples of research, in particular longitudinal research, that has captured the impact of preschool education on later developmental outcomes. A study undertaken by NCERT on about 38,000 children across eight Indian states demonstrated 15 to 20 per cent better retention rates in comparison of the effects of government and private preschool education on the developmental outcomes of children: evidence from young lives India 10 primary school for children who had gone through ECCE as compared to those who had not. Using empirical evidence from Young Lives.

**Loeb et al. (2007)** Found that exposure to a centre programme of at least half a day (per day) yielded cognitive benefits for most children and that greater benefits could accrue from interventions that started earlier than the age of 4.

**A World Bank study (2005)** Also found that by the time children in many countries reached school, they were at a significant disadvantage in cognitive and social ability as compared to peers who attended preschool.

## Objectives:

- To find out the cognitive development of children of Private and Govt. preschool of Samastipur District, Bihar.
- To find out the correlation in quality of preschool and cognitive development of children of Private and Govt. preschool

## Hypothesis:

- There is no significance difference the cognitive development of children of Private and Govt. preschool
- There is no significance difference in cognitive developments of children of Private and Govt. preschool with respect to gender.

## III. MATERIALS AND METHODS

**Sample & sampling technique:** The sampling technique for the present study was stratified random sampling. A total of 80 children of 3-5 years was selected from 4 preschool. Out of these 4 preschool two preschools branches were of some private brand such as D.A.V. and Rose, where as another two preschools were of Govt. brand such as Anganbari Kendra, Jitwarpur and Anganbari Kendra, Jandaha. From each school 30 children was included in the sample. Out of those 20 children 10 were boys and 10 were girls from each preschools.

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**Tools:**

For assessing the cognitive development of children the tool of Prof. Hema Pandey was used. To know the quality of preschool a standardized tool developed by CECED department of Ambedkar University, New Delhi was used.

**Methods of data collection:**

The researcher visited the preschools and administered the tool to children one by one for assessing the cognitive development. First the questions were explained in simple words to children and then they were asked to do it. All the answers given by the child was noted down by the researcher.

**Statistical Analysis:**

The data was tabulated analyzed with the help of SPSS version. Mean, standard deviation and t test was calculated.

## IV. RESULTS AND DISCUSSION

**Table: 1**  
Mean SD & t value of cognitive development in Private & Govt. preschool

Types of Preschool	N	Mean	Std. Deviation	t value
Private Preschool	40	113.72	14.05	2019*
Govt. Preschool	40	106.60	14.94	

The above Table No:1 shows the significant difference (t value is significant at 0.05 level of significance) in quality of private preschools and Govt. preschools. So the Ho.1 which states that “There is no significance difference the cognitive development of children of Private and Govt. preschool” is rejected. The mean value shows that quality of private preschools (Mean=113.72) are on higher side than quality of Govt. preschools (Mean=106.60).

**Table: 2**  
Mean SD & t value of cognitive development in Private & Govt. preschool with respect to gender

Types of Preschool	Sex	N	Mean	Std. Deviation	t value
Private	Boys	20	113.20	12.86	0.233
	Girl	20	114.25	15.47	
Govt.	Boys	20	106.35	7.707	0.951
	Girl	20	109.10	10.387	

The table no. 2 shows that there is no significant difference in cognitive development in private school and Govt. school with respect to gender. That means the cognitive development of boys and girls in both types of preschools are more or less equal. Therefore the Ho.2 which states that “There is no significance difference in cognitive developments of children of Private and Govt. preschool with respect to gender” is accepted.

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**Table: 3**

Mean SD & r value of cognitive development and quality of preschool

	N	R	P
Quality of preschool Cognitive development	80	0.79	0.021

The above table indicates that the correlation between quality of preschool and cognitive development are highly significant ( $r= 0.79$ ). That means, if the quality of preschool is enhanced, it has positive impact on cognitive development of children. Therefore, the  $H_0$  1 which states that that “There is no significance relationship between quality of preschool and cognitive development of children of Private and Govt. preschool” is rejected. There are many research evidence suggesting the same result but the best current evidence suggests that the impact of quality preschool per unit of money spent on cognitive and achievement outcomes is larger than the average impact of other well-known educational interventions per unit of money spent, such as class-size reductions in elementary schools (Bartik, T., Gormley, W.T., & Adelstein, S, 2012).

**Table : 4**

Mean SD & t value of different domains of cognitive development in Private & Govt. preschool

Domains of Cognitive development	Types of Preschool	Mean	Std. Deviation	t value
Conceptual skills	Private preschool	20.93	3.198	2.5*
	Govt. Preschool	19.08	2.795	
Information	Private preschool	4.90	1.194	0.273
	Govt. Preschool	4.98	1.441	
Comprehension	Private preschool	3.83	0.813	0.264
	Govt. Preschool	3.88	0.883	
Visual perception	Private preschool	3.95	1.413	0.435
	Govt. Preschool	4.08	1.141	
Memory	Private preschool	5.05	1.395	0.212
	Govt. Preschool	4.98	1.747	
Object vocabulary	Private preschool	4.85	0.770	1.96*
	Govt. Preschool	4.43	1.130	

The consistent finding of benefits that substantially exceed preschool program costs indicates that high-quality early childhood education programs are among the most costeffective educational interventions and are likely to be profitable investments for society as a whole. The table no. 4 shows the difference in domains of cognitive development of children in Govt. and private preschool. It can be seen from the table that t value for conceptual skills ( $t=2.5$ ) and object vocabulary ( $t=1.96$ ) was found significant. In other domains like information, comprehension, visual perception, memory ( $t= 0.273, 0.264, 0.435, 0.212$ ) respectively, no significant difference was found in the children of Govt. and private preschools.

### V. CONCLUSION

The aim of the present study is to examine the cognitive development of children in private pre-school. The result reveals that there is a positive correlation between quality of preschool and cognitive development of pre-school children. Based on the criteria undertaken to measure quality of preschools in (Teaching learning material, Teaching learning method, Physical facility) the present study reveals that the private pre-school have better quality and facilities

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provided to the children but on the other hand we see that the Govt. school having poor infrastructure facility and teaching learning methods as compared to private preschools. The output of the quality of preschools is reflected in cognitive development of their children. The cognitive development of children of private preschool was found to be better than the children of Govt. preschools. In the absence of regulatory body, and high demand of preschool education, a large number of private franchise preschools are opening up without having the minimum facilities such as proper infrastructure, teaching learning equipments and materials and qualified and experienced teachers. A person from any educational and professional background take the of a well established brand of preschool but can-not put the personal effort in improving the quality of education in the absence of skills and knowledge of early childhood education. There is a strong requirement of a regulatory body to fix up the minimum criteria for opening up a preschool.

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