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Cognitive capabilities among preschool children: Comparative study between Kindergarten, Anganwadi, Montessori and Special school for children with Hearing Impairment

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Abstract:

Preschool program for children with hearing impairment is very important for the cognitive development which intern helps the children to cope up in a regular classroom. Early intervention and pre schooling is important for strong cognitive function of both hearing and children with hearing impaired.

This study was under taken for understanding about the cognitive capability of hearing children versus children with hearing impairment across 4 types of preschool set up viz Kindergarten, Anganwadi, Montessori and Special school. Students from Preschool setups were selected for the study, Padmini Cognitive Capability Test (PCCT) was used to find cognitive capabilities in task in like Length seriation, shape completion, action through signs and classification of pictures.

The data was hence analyzed and the results revealed that there was no significant difference between the cognitive capabilities of CWHI and hearing children in all the four setups. In both Montessori and special schools principle of individual attention with a series of structural activity are provided. In kindergarten group activity with rote learning is encouraged, In anganvadi it is vary pathetic to observe teacher busy with organizing distribution of food in an large group children and parents. The performance of Montessori children and CWHI studying in special school found to perform significantly better and shown highest degree of readiness to enter into primary school compare to other two school settings. Thus it is concluded that preschool centers do not have uniform pattern of teaching to make the children for ready to enter primary school.

Key words.: *Cognition, Cognitive Capabilities, Hearing Impairment, PCCT, Preschool*

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I. INTRODUCTION

Early child education has assumed great significance in educational development. It has been demonstrated that preschool education helps in smooth transition of the child from the informal atmosphere of the home to the formal atmosphere of the school (Austin,1976). It also strengths motivation for schooling and promotes, what is generally termed as 'School readiness'. "Bloom (1964) emphasized that50% of total intellectual development of the child is completed by the time a child is four years old. Early environmental stimulation helps in cognitive development of the children and prepares the children for primary schooling. Preschool program for children with hearing impairment is very important for the cognitive development which intern helps the children to cope up in a regular classroom. Early intervention and pre schooling is important for strong cognitive function of both Hearing and children with hearing impaired. The cognitive capabilities and readiness to school among the children are found in these preschool, broadly speaking preschool helps in development of cognitive process by which the sensory inputs is transformed, reduced, elaborated, stored, recovered and used (Muralidharan,1971).

II. PURPOSE OF THE STUDY

The present study was conducted with the purpose of investigating significance of preschool education, this study was under taken for understanding about the cognitive capability of hearing children versus children with hearing impairment across 4 types of preschool set up viz Kindergarten, Anganwadi, Montessori and Special school. Students from Preschool setups were selected for the study, Padmini Cognitive Capability Test (PCCT) was used to find cognitive capabilities in task in like Length seriation, shape completion, action through signs and classification of pictures.

III. OBJECTIVES OF THE STUDY

- To study the overall capabilities, among preschool children of age group 4 to 5 studying in different preschool settings i.e. Kindergarten, Anganwadi, Montessori and Special school
- To study the cognitive capabilities such as
  - ✓ Length seriation,
  - ✓ Shape completion,
  - ✓ Action through signs
  - ✓ Classification of pictures.

Of preschool children of age 4 to 5 years studying three settings of preschool education and compare their cognitive capabilities.

- To study the curriculum of preschools in three different settings

  Kindergarten offered by private schools

  Anganwadi centres run by CDPO

  Montessori offered by private organizations

  Special school offered by Government organizations

IV. METHOD

Research Design:

Sample:

Seventy eight children studying in four different settings Kindergarten, Anganwadi, Montessori and Special school their age ranging from age 4 to 5 years were selected. The students were selected giving due importance to aims of the schools and curriculum of four different settings, finding cognitive (social and language) profile of the children

Description of the Tool: Padmini Cognitive Capability Test (PCCT)

In order to pursuit of the study mentioned. It was necessary to collect data on different setting to find out their cognitive capabilities level on their own. Padmini cognitive capability Test has been developed and standardized by Dr. T. Padmini Department of studies in education Mysuru university. This readiness test is used to test or measure the cognitive capabilities of pre school children as described by Jean Piaget. Padmini cognitive capability Test –Pre school version consists of four tests as follows.

Collection of data and analysis:

Task	Subtasks	Marks
Length seriation	4	20
Shape completion	2	20
Action through signs	2	12
Classification of pictures.	4	18

A ten point scale was developed with both open and closed questions. A ten point scale was also developed giving a weightage to different aspects of curriculum like cognitive, language, social and motor skills.

PCCT being an individual performance readiness scale, which did not had any time restriction, each child had to be given all the tasks of the PCCT in more than settings. Each child was given instructions in his/her own mother tongue-Kannada, Hindi and Malayalam. As the sub tasks were graded, investigators could stop at a particular level, where the subject failed to complete the task. Administration of all tasks was carried out in a play-way method.

The comprehensive data was collected from all the four afore mentioned setups by the investigators uniformly without much time gap. The investigators also attended each pre-school detailed information the curriculum used and the activities carried out.

V. RESULTS AND DISCUSSION

After collection of the data by the researchers, it was analyzed statistically to find out the cognitive capabilities of pre-school children across four different school setups to check their readiness for primary school at grade 1 level.

The data was first analyzed for normality using the Shapiro-wilk test. And it was found that all the scores fell in the normal range and hence the scores were analyzed further using parametric tests like One-Way ANOVA to compare the results between groups and then paired t-test was carried out to ascertain which type of school setup was best suited for better development of children.

The data analyzed is discussed under the following heads:

1. Analysis of cognitive capabilities of pre-school children- PCCT Score

This analysis was carried out for the whole group (N= 78) for the total test score. The scores were later compared across four different pre-school setups. After the analysis it was found that the mean score on PCCT for the whole group was 43.6, which constitutes 62.28% of the total sample.

The PCCT being a readiness test for pre-schoolers, it was surprising to find that the overall mean percentage is just 62.28%, which shows that most of the pre-school children were not completely ready, with respect to their cognitive capabilities to enter into 1st standard.

The obtained results also revealed high degree of heterogeneity among the group. It was also observed that most of the children fall under the score of 50-60 whereas only one child was able to score full on the PCCT.

2. Distribution of children into High, Moderate and Low group based on PCCT

In continuation of the above scores, the scores were divided into High, Moderate and Low and the children were again divided into the group. The scores for deciding the level of child was decided using the following formula.

Table 3: Classification of children into high, moderate and low groups

Nominal Group Levels	Criteria	Range of Scores
High	Mean + 1σ	55.8+
Moderate	Mean - 1 s to Mean+1s	21.6-55.8
Low	Mean- 1 s	21.6

Table 4: Distribution of Sample into three nominal groups

Level of Cognitive capabilities	N	Mean %
High	27	34.6
Moderate	38	48.7
Low	13	16.6

It can be inferred from the above table that:

a. Nearly 50% of the total samples fall under the moderate category with 34.6 % falling in the high category.

b. It can also be seen that 16.6% of the children fall under the low level of cognitive capabilities, which is quite disheartening.

c. Hence the findings reveal that around 83.3 % of the children fall under the moderate to high level of cognitive functioning and the remaining under the lower level. These results can be attributed to the fact that each school provides different exposures to the child and some of which can be detrimental to a child's growth.

3. Analysis of Cognitive capabilities- Type of School wise

In order to find out the difference in the cognitive capabilities of children studying across four different pre-school settings and also to classify these children in the high, moderate and low levels of cognitive capabilities, the same method was used as in the previous section.

Table 5: Analysis of cognitive capabilities on PCCT across schools

Type of School	Montessori	Kindergarten	Anganwadi	Special School	Total
N	10	28	20	20	78
Mean	60.4	42.96	21.05	58.5	43.6
SD	6.204	10.22	10.71	6.17	9.34
Mean %	86	61.3	30	83.5	62.28
F:70.801; df:3; p<0.05					

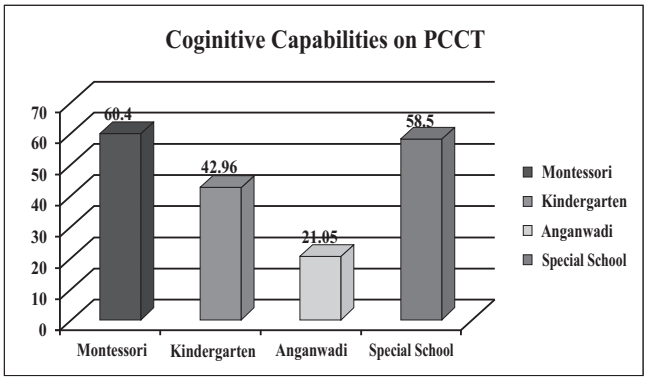
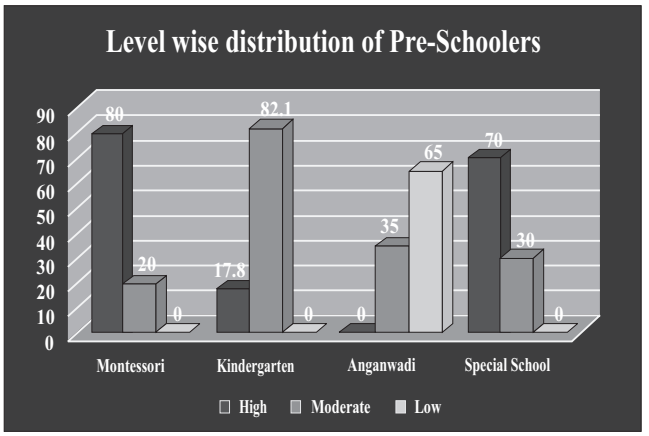


Table 6: Level wise distribution of Pre-Schoolers across schools

Type of School	Montessori		Kindergarten		Anganwadi		Special School		Total	
N	10		28		20		20		78	
Mean %	N	%	N	%	N	%	N	%	N	%
High	8	80	5	17.8	0	0	14	70	27	34.6
Moderate	2	20	23	82.1	7	35	6	30	38	48.7
Low	0	0	0	0	13	65	0	0	13	16.6



From the above tables and figures it can be inferred that:

a. There is a significant difference between the cognitive capabilities of children across the four pre-school setups ($f=70.801$; $df=3$; $p<0.05$).

b. Children from the Montessori setup scored the highest on the PCCT with a mean score of 60.4 (86%) followed by children from special pre-school for Children with Hearing Impairment with a mean score of 58.5 (83.5%).

c. It can also be deduced from the results that children from the anganwadi schools have scored the lowest among the four setups with a mean score of 21.05 (30%), while the children from the kindergarten have fared fairly on the PCCT.

d. With regard to the SD values it can be seen that both the special pre-school for Children with Hearing Impairment and Montessori schools have the lowest deviation meaning that the group is homogeneous, while the anganwadi and kindergarten schools have more of heterogeneity.

e. Looking at table 6 it can be seen that most of the children from the Montessori (80%) and Special pre-school for Children with Hearing Impairment (70%) have higher cognitive capabilities; with just the remaining 20% and 30% of the children respectively have moderate level of cognitive capability.

f. It is astonishing to see that most of the children from the anganwadi setup (65%) fall under the low level of cognitive functioning with the remaining 35% falling under the moderate levels.

g. The children from the kindergarten are found to be functioning at moderate levels of cognitive skills, with a very few from this setup coming under the higher levels of functioning.

h. Thus from the results it can be inferred that children from Montessori setups followed by children from special pre-schools for Children with Hearing Impairment have acquired most of the readiness to enter into mainstream school education of grade one level. This result is in congruence with a study by Lopata et al., (2005) and Pickering (1992) which revealed that Montessori education produces superior academic achievement and helps in developing attention, organization and written language skills.

VI. CONCLUSION

Thus it is concluded that pre-school centres do not have uniform pattern of teaching to make the children ready to enter primary schools.

Also it can be found that although anganwadi centres are aware of the various techniques like play way method and similar ones to teach the children, but due to lack of resources they are unable to do so. Also, focus of anganwadi seems to have been reduced to just health care of the children in the rural areas.

Steps hence need to be taken to bring an overall change in the teaching process at the pre-school level. Moving to more uniform curriculum, use of play-way techniques and thereby reducing pressure on the child academically.

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