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Research Paper

A study of cognitive development and school difference in Lucknow city

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■ **ABSTRACT :** The purpose of this study was to differentiate between school performances on the basis of their cognitive capability in transition period. On developmental point of view cognitive development is intangible but theories and scale and well standards to find out the status, so, Cognitive development is much more than the addition of new facts and ideas to an existing store of information. School as an important factor in determining the level of performance on cognitive tasks. Objective of the study was to assess the cognitive development of private and government schools for the difference. This study was conducted on 120 adolescence (10-13 years) government and private school in Lucknow city.The duration of the study was 11 months (July2012 – May 2013). The approaches adopted for the study was multi-stage random sampling. The tools in the present study were predesigned and pretested questionnaire for family level to assess of cognitive development. In study area there are found the highly significant difference in combinatory thinking class inclusion time and motion conservation of area, conservation of weight and conservation of volume formulating hypothesis and testing hypothesis. Private school students have more cognitive capabilities compared to Government schools students.

■ **KEY WORDS :** Cognitive development, Private Schools, Government Schools, Cognitive capabilities, Transition period

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The acquisition of new knowledge and it innovative applications result in a continuous transformation of our cultural, social, and political environment. Exiting Knowledge is being rapidly revised and in some causes becoming obsolete. It is clear that the methods and processes by which new Knowledge is acquired are of major importance in successfully facing the abundance of Knowledge and its consequent technological applications. Cognitive refers to the inner processes and products of the mind that lead to "knowing ". It includes all mental activity - attending remembering, symbolizing, categorizing, planning, reasoning problem solving creating and fantasizing.

According to Piaget children progress through a series of cognitive stages as they mature at each stage the content of their knowledge and the nature of their reasoning become more sophisticated. According to Piaget around age 11 young people enter the formal operational stage, in which they develop the capacity for abstract scientific thinking. Whereas concrete operational children can operate onreality. Formal operational adolescents can "operate on operations "(innelder Piaget 1955/1958). Most of the studies use a testing format that comes close to school activities, which may explain the higher performance of schooled children. However, the effects of schooling are quite systematic (except on Piagetian concept development) and are found even on culturally appropriate tasks, suggesting that the effect is just not an artifact. In some cases, schooling acts as a cultural amplifier (Berland, 1982), strengthening the impact of other factors such as urbanization, or allowing the children to take better advantage of learning opportunities. In other cases, schooling produces a leveling effect, *i.e.*, it serves to erase the differences that otherwise exist in terms of more

or less stimulating environments. It was concluded that information-processing modes were more sensitive to cognitive consequences of schooling than concrete operational skills.

Objective:

To assess the cognitive development of private and government school students.

■ RESEARCH METHODS

The study was conducted in the year 2012-13. The sample size was 120 adolescents of government and private school between the age range of 10-13 years of Lucknow city, U.P. The study was carried out in the area of Banglabazar, Ruchikhand and Ambedkar Nagar from 5th Zone. Multi-stage random sampling method was used for selection of the sample size. Predesigned and pretested questionnaire was used as a tools for family level and individual information and cognitive capabilities Test for transition period: CCT-T) developed by Vasundhara (2005) was used for assessing the cognitive capabilities. Techniques: family level variable such as religion, caste type of family, family size, household, structure, income per-capita income household amenities and socio-economic status. Individual information covers the variable age, literacy status, type of school, extra curriculum, exposure of media. Cognitive capability test consists of 3 parts. Each part divided into 10 questions, 12 questions and 03 questions. The maximum score is 125 and every part had repeat scoring of marks *i.e.* 63, 44 and 18, correspondly. The scoring was calculated on the following criteria.

Discriminatory index range	0.10 to 0.66					
Difficulty value range	14% to 65 %					
	6th std.			7th std.		
	Total	Male	Female	Total	Male	Female
Mean	51.34	49.68	53.05	55	56	55
Std.	19.09	19.35	18.54	19	18	19
Qualitative score	2B late concrete period), 2B/3A (transition period), 3A (early formal operational stage)					
Quantitative score	63+44+18=125					

■ RESEARCH FINDINGS AND DISCUSSION

The combinatorial thinking should that cognitive capabilities in transition period according to type of school. The Mean value of Government school student 13.00±2.693 and private school student 24.47±5.756 in combinatorial thinking, 3.85±1.635 of government school student 8.53±3.591 of private school student in class inclusion. A highly significant difference (P<.000) was found between private and government school student with corresponding

Table 1 : Assessment of cognitive development according to type of school (Part I) Combinatorial thinking- class inclusion

Sr.No.	Schemes of thought	Type of school: Government (n=60) Mean	Government (n=60) S.D.	Private (n= 60) Mean	Private (n= 60) S.D.	t value	P value
1.	Combinatorial thinking	13.00	2.693	24.47	5.756	24.438**	.000
2.	Class inclusion	3.85	1.635	8.53	3.591	30.304**	.000

** indicate significance of value at P=0.01

Table 2 : Proportionality- co-ordinate system

Sr. No.	Schemes of thought	Type of school: Government (n=60) Mean	Government (n=60) S.D.	Private (n=60) Mean	Private (n=60) S.D.	t value	P- value
1.	Proportionality	9.08	4.319	14.45	5.160	5.185	.025
2.	Time and motion	1.30	.962	2.60	1.392	10.513**	.002
3.	Conservation of area	3.10	3.024	4.93	2.284	44.137**	.000
4.	Geometrical section	1.23	.981	2.17	1.291	0.58	.810
5.	Co-ordinate system	2.98	2.397	5.67	2.784	4.725	.032

** indicate significance of value at P=0.01

Table 3 : Conservation of weight –testing hypotheses

Sr. No.	Schemes of though	Type of school: Government (n=60) Mean	Government (n=60) S.D.	Private (n=60) Mean	Private (n=60) S.D.	t-value	P- value
1.	Conservation of weight	1.50	1.513	2.57	1.047	64.113**	.000
2.	Conservation of volume	1.87	2.012	2.50	1.864	9.224**	.003
3.	Formulating hypotheses	1.50	.792	2.32	1.384	13.054**	.000
4.	Testing hypotheses	1.45	1.512	1.90	1.458	4.304	.040

** indicate significance of value at P=0.01

value of in combinatorial thinking and class inclusion.

Mean value of Government school student *i.e* 1.30±.962 and Private school student *i.e* 2.60±1.392 in respect to time and motion. The conservation of area mean value 3.10±3.024 in Government school and 4.93±2.284 of private school student correspondly.

As per co-ordinate system there are five division for their assessment and out of which only two have a significant (highly) relationship time and motion (P<0.00) and conservation of area (P<0.00).

Nicolaos (1997) also given that student performance is higher on proportional reasoning and control of variables items. In terms of Piagetian theory and the proposals of the authors of TOLT, 4.4 per cent (scores on TOLT 0-1), 22.8 per cent (scores on TOLT 2-3) and 72.8 per cent (scores on TOLT 4-10) of the student were at the concrete, transitional and formal stage of cognitive development, respectively.

A cognitive capability was assessed on the testing hypotheses based with reference to conservation of weight. The school differences were founded among govt. and private school on mean and Sd. basis. The minimum mean value was 1.45±1.512 and 1.90±1.458 and maximum mean value was 1.87±2.012 and 2.50±1.864 of conservation of volume and conservation of weight, respectively. As per significance level there was two schemes of though found high value *i.e*.1) Conservation of weight 2) Formulating Hypotheses (P<.000) and less significant are Conservation of volume (P<.003).

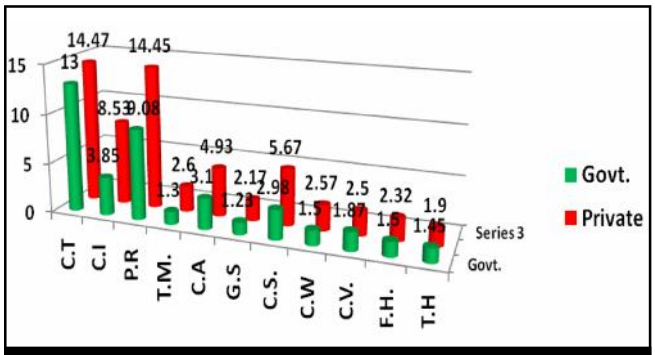

Fig. 1: Cognitive development according to type of school

Adey and Shayer (1994) introduced a useful distinction between instruction aimed at content objectives and intervention in the Cognitive development process aimed at raising levels of thinking. They provided also evidence that "It is not what pupils learn, but how they learn it that matters" because appropriate instructional intervention facilitate the development of students, repertoire of information processing schemata, as reflected by Piagetian development level. Thus the time devoted to intervention activities pays off in term of improvement of children's potential to gain from instruction.

Conclusion:

In the current study, we used a cognitive capabilities scale to measure cognitive development that was founded differences in schools. Result demonstrated that highly significant difference in combinatory thinking class inclusion time and motion, conservation of area, conservation of weight and conservation of volume, formulating hypothesis and testing hypothesis. Private school students have more cognitive capabilities compared to Government schools students. Teaching techniques of government school could be re-assessed and structure as a trial and error method to see the effect on their learning and ability in learning situation.

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