Comparative study on cognitive development of children enrolled in public and private pre-schools of Karachi.

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ABSTRACT

Initial years of schooling experiences are an important influencer of cognitive development. In Pakistan children, parents and employers face many issues due to vast differences in standards of private and public schools. The purpose of this research is to study and compare the cognitive development of children age 4 to 5 years enrolled in public and private pre-schools (25 from each type) of Karachi.

Children were given various tasks to assess their cognitive performance and on the basis of this performance were categories as having high or low cognitive performance. Cognitive performance of private school children was significantly better than that of children form public schools overall and in all tasks. Among public school 64 % and among private school 100% had good cognitive performance ($P<0.05$). These observations indicate a need for exploring the reasons and taking actions to rectify the situation.

INTRODUCTION

Cognitive development is learned through mental processes and sensory perceptions. The theories of Jean Piaget (1939) have probably had the most influence on our ideas about how young children learn. He introduced preoperational stage (2-7 years) in which children need real objects to handle and explore. Children focus on one aspect of a material at a time and cannot mentally reverse changes in the appearance of that material. (Krause, 2006, Educational Psychology). Preschool age is the critical period in the life span of the child. It is during this period that the foundation for all later development is laid; the child is highly receptive to all that prevails in his environment and his learning potentials are at their peak ,whatever is assimilated in this foundation period, gradually stabilizes. Mckey, Ruth Hubbel, (1987) conducted a research on the impact of head start program on the cognitive and socio –emotional development of children, the results shows strong immediate treatment effects on cognitive and socio-emotional tests. Today the dream of every parent is too see their children are sent to a good school for their education. Questions about school quality, accountability, curriculum, and teacher training arise each day, and we explore them. What this means for you, as you try to decide on the best school for your child, is that you have to do your homework. That means researching, networking, and making sure that you understand all the choices available to you and your child. Sadly today most of the preschools in Pakistan, Karachi do not promote all the practical experiences, everyday activities and materials that play an important role in the development of cognitive skills, as they lack the knowledge of its higher importance. The need of conducting this research is to give awareness, importance of practical and real life experiences, cognitive skills that includes identification, memorization, problem solving and the distinction between the cognitive development of children enrolled in private and public schools.

The main objective of this research was to study and compare the cognitive developments of children age 4-5 years between public and private preschools.

METHODOLOGY

The conducted research was comparative in nature.

The population of the study were the children age 4-5 years. The sample size of 50 subjects (25 from each) was selected from two different preschools (1 public; 1 private) to gauge the difference between the cognitive developments of children. Checklist developed on Likert scale (with options yes, no, to some extent) was used as a tool for data collection.). Simple statistical tools such as mean, standard deviation, t-value and Pearson product moment coefficient of correlation were used to analyze data.

The following table shows the developmental scales, skills and planned activities prepared with the help of Piaget's preoperational stage developmental milestones that must be achieved by the children age 2-7 years.

Name of skill	Developmental scale	Activity planned
Symbolic thought	1)Color identification, 2)number concept, 3)drawing	1) Does the child can easily classify different shapes? , 2) Does the child have an ability to recognize the numbers? (11-30), 3) Does the child can make different types of shapes without any help?
egocentrism	1)Problem solving, 2)seriation, 3)temporal concept	1) Does the child can easily add and subtract the numbers? 2) Does the child have an ability to recognize different shapes? 3) Does the child have cause and effect concept? (through questioning)
centration	1)Comparative judgement, 2)measure volume & capacity, 3)sorting	1) Does the child can arrange the objects in ascending and descending disorder? 2) Does the child have volume and capacity concept of the objects? 3) Does the child have an ability to differentiate between different objects?
Animism	1)Immediate memory	Story telling then checking whether the child has an ability to recognize time through activity?

The researcher collected the information from two different preschools (1 public; 1 private) in Karachi. Permission was taken from the management of each preschools. They were explained the purpose of the research and the written consent was given to them before the start of data collection. The data was conveniently collected and it took 1 week to complete the process.

After the data was collected, researcher at first scores the checklist by calculating the responses from schools manually.

Ranking scale for the provision of cognitive skills

RESPONSES	RANGES
No (Below Average)	1-4
To some extent (Average)	5-7
Yes (Above Average)	8-12

The above table shows the responses and ranges criteria on which the result based on in context to the developmental scale developed.

Subjects who gave correct responses of at least 4 questions and most of their responses were wrong, are categorized as below average (No). Lack their cognitive skills they

cannot identify color, do not have number concept, can't draw proper shapes, they don't have ability to comparative two objects nor measure their volume and capacity and can't sort different types of object.

Subjects who gave correct responses of about 5 to 7 questions were categorized as good and average (to some extent). These children can perform cognitive skills to some extent. They have some capacity to identify color (only red, yellow, blue), to draw different shapes (square, circle, triangle), to memorize things (for 10- 15 minutes as engaged in other activity forget the first one), to solve their problems (can add and subtract numbers with the help of figures), to compare different objects (concept of big and small) , can measure capacity and volume (have concept of empty and full), and set the objects in series (according to the size of object).

Subjects who gave 8 to 12 correct responses were considered brilliant, intelligent and above average (yes). These children are excellent in solving problems, in identifying colors, in sorting and seriation, in comparative judgement, in measuring volume and capacity, in memorizing and in number concept

For this research project, the level of data was ordinal and analyzed using Likert scale; the responses were calculated manually and then the ranges were developed above average (yes) excellent in cognitive skills, average (to some extent) can only perform basic cognitive skills, and below average(no) cannot perform cognitive skills. The dependent variables of the study are the activities and skills that includes color identification, number concept, drawing of shapes, problem solving (addition and subtraction), seriation, temporal concept, comparative judgement, volume and capacity and immediate memory. The independent variables of the study are the age group (4-5) and the type of schools (public and private). The data was entered according to the developed ranges on the software of the statistics known as SPSS (Statistical Package of Social Science) version 17.0. Simple statistical tool such as mean, standard deviation, and inferential statistics was used for demographic variables that includes gender difference (boys and girls) and different family income types (low (10,000-19,000; middle(20,000-50,000); and high income(51,000-90,000)). Chi-square test was applied to check the association between different skills between both the sectors and then T- test was applied to find out the mean difference between public and private schools. Graphs and tables added in the study were made on Excel (2013). The p-value gained from chi-square test accepts or rejects the Ho and forms the result.

RESULTS

Subjects age ranged from 4-5 years. In public school majority (100%) respondents were girls while in private school majority (74%) of the respondents were girls and few (26%) respondents were boys.

Income level of families in private schools was slightly higher. In public school majority (100%) respondents belong to low income families while in private school majority (76%) belongs to middle income families and few (24%) belongs to high income families.

Color identification performance was better by children in private schools. In public school majority (80%) of the subjects can identify the color, some subjects (16%) can identify it 'to some extent' and very few subjects (4%) cannot identify the color while in private school majority of the subjects (100%) can identify the color. Similar trend was observed for identifying numbers. In public school majority of the subjects (52%) can trace the numbers, some subjects (44%) can trace the numbers 'to some extent' and very few subjects (4%) cannot trace them while in private school all the (100%) subjects can trace the numbers.

In comparative judgement through an activity

of ascending and descending order also children from private school did better. In public school a great number of subjects i.e. (40%) can compare the objects, most subjects (32%) can compare the object 'to some extent' and some subjects (28%) were not able to compare the objects while in private school majority of the subjects (80%) can compare the objects and very few (20%) were able to compare it 'to some extent'.

Drawing pattern was also done better by private school children. In public school a great number of subjects (52%) can draw the shapes of the pattern, some (32%) were able to draw it 'to some extent' and few subjects (16%) were not able to draw the shapes while in private school majority of the subjects (96%) can draw the shapes of the pattern and very few subjects (4%) were able to draw it 'to some extent'.

Addition and subtraction was also done with greater accuracy by private school children. In public school majority of subjects (68%) were able to add the numbers, while in private school majority (96%) of the subjects were able to add the numbers. In public school majority (80%) of the subjects were able to solve subtraction sums, while in private school majority of the subjects (80%) can solve the subtraction sums.

The result shows a similar difference between in immediate memory through an activity of measuring time. In public school slightly more than half of subjects (56%) remembered how to see the time after storytelling, while in private school majority (76%) remembered it.

Overall cognitive performance of children in private schools was significantly better than that of public schools

DISCUSSION

The major purpose of this research was to compare the cognitive development of children (4-5years) enrolled in public and private pre-schools. Result shows that there is a significant difference in the cognitive development of children (4-5 years) enrolled in public and private pre-schools of Karachi. The comparison of all areas of cognitive development between public and private school indicates the differences among different cognitive skills that includes that in private school majority of the subjects can accomplish the different tasks while in public school a lower number of subjects were able to accomplish the different cognitive task.

On the basis of the findings of the present study it can be said that effective program contribute in improving the cognitive ability and enhance school performance. The study of Belvi, U.K. (1978) emphasized the effect of home, school, and individual variables on the cognitive development of children coming from disadvantaged environment. It was concluded that school facilities and cognitive development are highly interrelated. The situation may not be just due to schools bit also due to other differences in mental development and home environment. These observations indicate a need for exploring the reasons and taking actions to rectify the situation.

Table1: Overall cognitive Performance

	Private school	Public school	p-value
Below average	0(0.0%)	4(16.0%)	.004
Average	0(0.0%)	5(20.0%)	
Above average	25(100.0%)	16(64.0%)	

Table 2: Cognitive development score by type of school

	N	MEAN	S.D	p-value]
Public school	25	10.32	4.13	.001
Private school	25	13.40	0.70	

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