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Influence of Some Preschool Factors on Academic Performance of Primary School Pupils in Port Harcourt City Local Government Area of Rivers State, Nigeria.

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Abstract: *This study investigated the influence of preschool factors on academic performance of primary school pupils in Port Harcourt, Rivers State, Nigeria. A descriptive correlational survey design was used. 427 primary school pupils were selected using multi-stage sampling procedure. A 'Preschool Factors Scale' (PFS) was used as the instrument for data collection. It was designed to obtain information on the variables under study. Mathematics and English Academic Performance Scale (MEAPS) was used to generate data on academic performance. The instrument is a validated, self-administered, questionnaire which contained 40 items, 20 items each on Mathematics and English language respectively. The reliability coefficient of 0.85 was gotten through cronbach alpha method. The data was analysed using Linear and multiple regression analysis and Pearson Product Moment Correlation at 0.05 significant level. The findings of the study revealed a significant influence of preschool experience and type of preschool attended on academic performance of primary school pupils. It is recommended that pre-school attendance should be made a prerequisite for admission into primary school.*

Keywords: *Preschool experiences, type of preschool and academic performance.*

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I. Introduction

The early childhood period is considered to be the most important developmental phase throughout one's lifespan. What happens to the child in the early years is critical for the child's development and life course (Siddiqi, Irwin and Hertzman, 2007; Tarumi and Ota, 2011). Early childhood development is the key to a full and productive life for a child and to the progress of a nation. Research paper by United Nations International Children's Emancipation Fund, (2001) on the state of the world's children states that half of a person's intelligence potentials is developed by age four and that early childhood interventions can have a lasting effect on intellectual capacity, personality and social behaviour. Failure to invest in early childhood can result in developmental delay and disability as well as inhibit the optimal development performance of children throughout their lives. Early childhood development refers to a comprehensive approach to policies and programmes for children from birth to eight years of age (UNICEF, 2001). However, with international policy standards, early childhood is defined as the period from prenatal development to eight years of age (Siddiqi, Irwin and Hertzman, 2007).

It has been observed that children are reflections of their environment. Children who grew up in urban centres are distinctly different in their dressing, language and self concept from children who grew up in rural areas. Behavioural and cognitive differences may also exist between children who attend private schools and those who attend public or government schools. Cognitive differences herein refer to academic performance which is the main thrust of this research work. Some other factors also account for the differences that exist in academic performance among children of the same age grade, learning in the same or different environment. Economists now assert on the basis of the available evidence that investment in early childhood is the most powerful investment a country can make with returns over the life course of the child, many times the size of the original investment (Siddiqi, Irwin and Hertzman, 2007). This statement is true of families that invested in the development of their children in their formative years (0-8).

In order to fully understand children's development, attention must be given to the specific aspects of the child's environment that can contribute to or threaten the successful mastery of early academic skills and other phase of development in early childhood (Sektan, McClelland, Acock & Morrison, 2010). Children's growth from autoeroticism to reproductive sexuality and the development of their adult personalities are summed up in Sigmund Freud's psycho-sexual stages of development (Engler, 2006). For Freud, events in the

past can influence the present. This assertion should make the environment of the growing child of utmost importance to the family and society at large. A research paper by UNICEF (2001) reveals that 3 and 4 year olds from low income families who were randomly assigned to a group that did not receive preschool education were five times more likely to have become chronic lawbreakers by age 27 than those who did receive it. This revelation emphasizes the influence of preschool education and how it affects the society.

The dependent variable of this study is academic performance while the independent variables of this study are: preschool experiences and type of preschool attended. Academic performance is defined as the outcome of education- the extent to which a student, teacher or institution has achieved their educational goals (Ward, Stoker and Murray-Ward, 1996). According to Sabitu, Babatunde and Oluwole (2012), academic performance is one of the parameters used to measure the effectiveness of a school (environment) system. Von Stumm, Hell and Chamorro-Premuzic (2011) opined that individual differences in academic performance have been linked to differences in intelligence and personality. The issue of poor academic performance of students in Nigeria has been of much concern to all and sundry. The problem is so much that it has led to widely acclaimed fallen standard of education in Nigeria (Akiri and Ugborugbo, 2009).

Preschool (also called nursery school, kindergarten outside the US) is an educational establishment offering early childhood education to children between the ages of three and five, prior to the commencement of compulsory education at primary school. They may be privately operated or government run and the costs may be subsidized (https://en.m,wikipedia.org/wiki/Preschool)

Osakwe (2009) investigated the effect of early childhood education experiences on academic performances of primary school children in Delta state. In a related study, Bibi and Ali (2012) studied the impact of pre-school education on the academic achievement of primary school students. It is against this background that the researchers deemed it fit to study influence of preschool factors on academic performance of primary school pupils in Port Harcourt. Hence, this study aimed to address this gap in the literature.

1.2 Research questions

The study provided answers to the following research questions;

1. To what extent does preschool experiences influence academic performance of primary school pupils?
2. To what extent does type of preschool attended influence academic performance of primary school pupils?

1.3 Hypotheses

The following hypotheses were tested at 0.05 level of significance

1. There is no significant influence of preschool experiences on academic performance of primary school pupils
2. There is no significant influence of type of preschool attended on academic performance of primary school pupils

II. Literature view

Historically cognitive theory is rooted in the 18th century writings of Rousseau. The modern version of the approach includes several related theories, for years it was mostly associated with the work of Jean Piaget (Vasta, Miller and Ellis, 2004).

Piaget's theory

Jean Piaget (1896-1980). His work had the greatest influence on the study of child development. His conception of human development revolutionalized thinking about children and their behaviour. According to Piaget's theory, human development can be described in terms of function and cognitive structures. The functions are inborn biological processes that are same for everyone and remain unchanged throughout our lives. Their purpose is to construct internal cognitive structures. The structures, in contrast change repeatedly as the child grows (Vasta et al 2004).

Cognitive structures

The most fundamental aspect of Piaget's theory is the belief that intelligence is a process, not something that a child has but something that a child does. Piaget's child does not posses knowledge passively but understands the world by acting and operating on it. For example, Piaget would describe an infant's knowledge of a ball in terms of the various actions the infant can perform with it such as pushing the ball, throwing it, mouthing it, etc. these actions are a reflection of the cognitive structures of infancy, which are called schemes. A scheme consists of a set of skilled, flexible action patterns through which the child understands the world (Vasta et al, 2004). The focus of this study is to determine how a child's academic performance in primary school can be influenced by the activities the child is exposed to in his/her environment such as preschool influences during the early years of the child as theoritized by Piaget.

According to Piaget, during infancy, only a few schemes exist, they are related to one another in very simple ways. As development proceeds, however, schemes increase in both number and complexity of organization. These two characteristics of children's cognitive structures- number and complexity define the child's intelligence at any point in development. Schemes and other cognitive structures also display certain flexibilities. An infant does not perform exactly the same behavior with every ball he/she encounters. Some may produce more squeezing, others more rolling nor are the infants reactions the same with every object. The way a ball is grasped is different from the way a rattle is grasped and also different from the way a nipple is sucked (Vasta et al, 2004). According to them, beyond these simple schemes of infancy, new and higher level cognitive structures gradually emerge. An 8-year-old confronted with a ball, for example, still has all the earlier schemes available, but the older child can also understand a ball by acting on it, using mental operations, such as assigning it to certain properties (colour, size), action(bouncing, hitting)

Piaget stages

Through his observations, Piaget also came to believe that cognitive development unfolds in a sequence of four stages. Each stage is age-related and consists of distinctive ways of thinking. It is the different way of thinking that makes one stage discontinuous from and more advanced than another. Piaget's stages are called sensorimotor, preoperational, concrete operational and formal operational (Santrock, 2007). For purpose of this study, the formal operational stage will not be reviewed because it is not within the scope of this study.

The Sensorimotor Stage- (0-2years)

In this stage, infants construct an understanding of the world by coordinating their sensory experiences (such as seeing and hearing) with their motor actions (reaching, touching) - hence the term sensorimotor. At the beginning of this stage, infants show little more than reflexive pattern to adapt to the world. Piaget believed that an especially important cognitive accomplishment in infancy is object permanence. This involves understanding that objects still exist even when they cannot be seen, heard or touched. The second accomplishment at this stage is the gradual realization that there is a difference or boundary between oneself the surrounding environment (Santrock, 2007).

The Preoperational Stage- (2-7years)

At this stage, the child begins to represent the world with words and images. It is egocentric and intuitive rather than logical. Pre operational thought can be subdivided into two sub stages: symbolic function and intuitive thought. The symbolic function sub-stage occurs roughly between two and four years of age. In this sub-stage the child is able to make mental presentations of an object that is not present. Expanded use of language and the emergence of pretend play are some examples of an increase in symbolic thought during this early childhood sub-stage. Young children begin to use scribbled designs to represent people, houses, cars, clouds, and many other aspects of the world/environment (Santrock, 2007).

In elementary school years, children's drawings become more realistic, neat, and precise. Suns are yellow, skies are blue, and cars travel on roads. Even though young children make distinctive progress in this sub-stage, their preoperational thought still has two important limitations: egocentrism and animism. Egocentrism is the inability to distinguish between one's own perspective and someone else's perspective. Animism also characterizes preoperational thought. It is the belief that inanimate objects have "lifelike" qualities and are capable of action. A young child might show animism by saying, the tree pushed the leaf off and it fell down (Santrock, 2007).

The second sub-stage is the intuitive thought sub-stage. It starts about at the age of four and lasts until about seven years of age. At this sub-stage, children begin to use primitive reasoning and to know the answers to all sorts of questions. Piaget called this stage intuitive because children know something without rational thinking (Santrock, 2007). Preoperational thought show a characteristic called centration. Centration refers to the young child's tendency to focus on only one aspect of a problem at a time (Santrock, 2007; Vasts et al, 2004). As an example, the most famous Piagetian task- the conservation problem will be reviewed herein. Conversation is the realization that the quantitative properties of objects are not changed by a change in appearance (Vasta, et al, 2004).

To adults, a certain amount of liquid stays the same regardless of a container's shape, but this is not so with children. Rather, they are struck by the height of the liquid in the container. In this type of conservation task, a child is presented with two identical beakers, each filled to the same level with liquid. The child is asked if the beakers have the same amount of liquid, the child usually says yes. Then the liquid from one of the beakers was poured into a third beaker that is taller and thinner. The child was now asked, if the liquid in the taller and thinner beaker is same quantity with the liquid in the first beaker (Santrock, 2007).

Children younger than seven or eight years usually say no. they justify their answer by the differing height or width of the beakers. Older children usually answer yes. They justify their answer appropriately: if you

pour the liquid back, the amount would still be the same. In Piaget's view failing the conservation of liquid task indicates that the child is at the preoperational stage of thinking. Passing the test means that the child is the concrete operational stage of thinking (Santrock, 2007).

The preoperational stage is the preschooler's stage. Proper guidance and good exposure at this stage will greatly influence the academic performance a child in primary school. If the child is parented by literates, and attends kindergarten and preschool with quality educative toys in a good home environment, the child may perform excellently in primary school. On the contrary, if the child is parented by illiterates, and lives in a low income environment such as waterfront and does not attend any form preschool, the child is likely to perform badly academically in primary school. More so, the bulk of early childhood years are embedded in the preoperational stage.

The Concrete Operational Stage

This is the third stage of Piaget's theory, lasts from about seven to about eleven years. Concrete operational thoughts involve using operations. Logical reasoning replaces intuitive reasoning, but only in concrete situations (Santrock, 2007). According to (Vasta, Miller & Ellis, 2004), concrete operational period is the period of middle childhood which extends from about age 6 to about age 11 or 12. A concrete operation is a reversible mental action pertaining to real, concrete objects. Concrete operations allow the child to coordinate several characteristics rather than focus on a single property of an object. At the concrete operational level, children can do mentally what they previously could do only physically, and they reverse concrete operations (Santrock, 2007). An important concrete operation is classifying or dividing things into different sets or subsets and considering their interrelationships. Reasoning about a family tree of four generations reveals a child's concrete operational skills (Furth &Wachs cited in Santrock, 2007).

III. Materials And Methods

The research design for the study is descriptive correlational survey, that investigated the influence of preschool factors on academic performance of primary school pupils in Port Harcourt City Local Government, of Rivers State, Nigeria. Multi-stage sampling procedure was used for the study. At the first stage; primary schools were stratified into two groups; private and public schools. At the second stage; simple random sampling technique (balloting without replacement) was used to randomly select 10% of the schools that are operational in Port Harcourt. At the third and final stage; total sampling for all primary five pupils was done. A sample size of 427 pupils from 10 schools was used for the study. All primary five pupils from the 10 schools constituted the respondents for the study. Two instruments for the study are non-cognitive and non-standardized questionnaire titled 'Preschool Factors Scale' (PFS) and Academic Performance Scale (APS). The PFS was designed to obtain information on the preschool experience and type of preschool attended while the APS was used to generate data on pupils' academic performance. The Cronbach alpha reliability was computed to determine the measures of internal consistency of the scales. The reliability coefficient of 0.83 and 0.72 were obtained for the PFS and APS respectively. Pearson Product Moment Correlation method and the obtained coefficient, r, stated the magnitude and direction of the relationship between the variables in question. Regression analysis was used to answer the research question while analysis of variance associated with regression analysis was used to test the hypothesis at .05 level of significance.

IV. Result

Research Question one: To what extent does preschool experiences influence academic performance of primary school pupils?

Research question two: To what extent does type of preschool attended influence academic performance of primary school pupils?

Table 1: Demographic data of respondents

Variables		Frequency	Percentages
Pre-school experience	Attended	294	81.7
	Never attended	66	18.3
Type of Pre-school attended	Private	267	74.3
	Public	93	25.7

Table 1 shows the demographic data of respondents. About 81.7% attended pre-school while 18.3% never attended. 74.3% attended private school as against 25.7% who attended public school. Majority of the respondents attended a private school during their pre-school days

Table 2: Pearson Product Moment Correlation and Factors that predict academic performance

	1	2	3	4	5	6	7	8	9
1.Type of school	-	.298**	.224**	.409**	.045	.154	-.330**	-.583	-.633
2.Preschool experience		-	.002	.331**	.038	.021	-.025	-.144	-.278**

Table 2 shows the correlation matrix of school type and pre-school experience and academic performance. Using Pearson Product-Moment Correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a strong, negative correlation between type of school and academic performance, r = -.633, n = 360, $p < .05$. A weak negative correlation between pre-school experience and academic performance, r=-.278**, n=360 p<0.05.

Research Question one: To what extent does preschool experiences influence academic performance of primary school pupils?

Hypothesis one: There is no significant influence of preschool experience on academic performance of primary school pupils.

Regression analysis was used to answer the research question while analysis of variance associated with regression analysis was used to test the hypothesis.

Table 3: Linear regression showing the relation between pre-school experience and academic performance

R	**R Square**	**Adjusted R Square**	**Std. Error of the estimate**		
0.278	0.077	0.072	20.348		
		ANOVA			
	Sum of squares	**Df**	**Mean square**	**F**	**Sig**
Regression	5995.592	1	5995.592	14.481	0.000
Residual	71625.702	359	414.021		
Total	77621.294	360			

In Table 3 Linear regression was used to explore the relationship between pre-school experiences and academic performance. The findings revealed that significantly 7.7% of pre-school experience predicts academic performance (R=0.278, R^2=0.077, F=14.481, p<0.05). The computed F(1,359)= 14.481, $p < .05$. The null hypothesis which states that there is no significant influence of pre-school experience on academic performance of primary school pupils is therefore rejected. The conclusion is reached that preschool experience has significant influence on academic performance of primary school pupils.

Research question two: To what extent does type of preschool attended influence academic performance of primary school pupils?

Hypothesis two: There is no significant influence of type of preschool attended on academic performance of primary school pupils.

Regression analysis was used to answer the research question while analysis of variance associated with regression analysis was used to test the hypothesis.

Table 4: Linear regression showing the relationship between type of pre-school attended and academic performance

R	**R Square**	**Adjusted R Square**	**Std. Error of the estimate**		
0.310	0.096	0.091	20.138		
		ANOVA			
	Sum of squares	**Df**	**Mean square**	**F**	**Sig**
Regression	7465.305	1	7465.305	18.409	0.000
Residual	70155.989	359	435.845		
Total	77621.294	360			

Table 4 shows the relationship between type of pre-school attended and academic performance (R=0.310, R^2=0.096). The findings revealed that significantly 9.6% amount of variance in academic performance was explained by type of preschool. The computed F(1,359)=18.409, p<0.05). The null hypothesis which states that there is no significant influence of type of pre-school attended on academic performance of primary school pupils is therefore rejected. The conclusion is reached that type of preschool attended has significant influence on academic performance of primary school pupils.

V. Discussion Of Findings

5.1 Relationship between pre-school experiences and academic performance

Pre-school education is the first step in the child's educational journey. Early childhood experts have the opinion that attending high quality preschool program helps to promote children's social and emotional development and prepare them for kindergarten and beyond. Studies have shown that children who attended quality early education programs are more likely to have better test scores and grades. The findings of this study revealed that significantly 7.7% of pre-school experience predicts academic performance ($R=0.278$, $R^2=0.077$, $F=14.481$, $p<0.05$) which implies that those who had pre-school experience had better academic performance. The null hypothesis which says there is no significant influence of preschool experience on academic performance of primary school pupils is therefore rejected. The findings of this study agrees with the findings of Osakwe (2009) there was a significant effect of early childhood education experience on the academic performances of primary school children. The findings of this study agrees with that of Doumen, Buyse, & Verschueren (2011) which posits that early academic achievement enhances later academic achievement. Also the researchers' findings support the findings of Bibi and Ali (2012) where there was a significant difference between pre-school attendance and academic performance as more pupils who attended pre-school had better academic performance compared to those who did not. There was a weak, negative correlation between pre-school experience and academic performance ($r= -.278$, $p< 0.05$) with high level no pre-school experience associated with low level of academic performance.

5.2 Relationship between type of preschool attended and academic performance

There is relationship between type of preschool attended and academic performance. The findings revealed that significantly 9.6% of type of preschool attended predicts academic performance ($R=0.310$, $R^2=0.096$, 18.409, $p<0.05$). The null hypothesis which says there is no significant influence of type of pre-school attended on academic performance of primary school pupils is therefore rejected. This could be attributed to the fact that preschools are in two categories; private and public and are located in distinct environments which bring about different experiences. There was a weak, negative correlation between type of preschool attended and academic performance ($r= -.310$, $p< 0.05$), with high level of public pre-school attendance associated with low academic performance. This result agrees with the findings of Rashid, Sanaullah and Iqbal (2013) who found out that the achievement scores of private school pupils were better in Science, Mathematics and English Language as compared to the public school pupils.

5.3 Recommendations

Nigeria's Educational system has transited from 6-3-3-4 to 9-3-4 system excluding preschool. Since the study reveals a significant influence of preschool experiences on academic performance of primary school pupils in Port Harcourt, Rivers State of Nigeria. It is therefore recommended that;

1. The educational policy of Nigeria be reviewed to include preschool (early childhood education).
2. Preschool attendance be made a prerequisite for admission into primary school.
3. The government should endeavour to equip the pre-nursery section with adequate facilities like that of the private schools so that better results would be achieved.

VI. Conclusion

Most parents are becoming aware of the gains of early childhood education (preschool experiences) thereby sending their children to organized environments where they experience preschool. The quality of learning environment that a child experiences will influence the child's learning attitudes in primary, secondary and tertiary institutions. This would influence academic performance either negatively or positively.

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