

# African Research Review

*An International Multi-disciplinary Journal, Ethiopia*

*Vol. 10(2), Serial No.41, April, 2016: 225-235*

ISSN 1994-9057 (Print)

ISSN 2070-0083 (Online)

Doi: <http://dx.doi.org/10.4314/afrrrev.v10i2.14>

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## **Pre-Schooling and Academic Performance of Lower Primary School Pupils in Rural Zambia**

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### Abstract

The primary objective of this study was to investigate the relationship between pre-schooling and the academic performance of pre-schooled lower primary school pupils in a rural Zambian setting of Zambezi district. The study also assessed the socio-economic status (SES) of parents, pupils' sex, age and their academic performance. This study employed a quantitative cross sectional design and used Chi-square test of independence, Phi and Cramer's V test, Independent sample t-test and Pearson correlation coefficient to analyze the data obtained. The results indicated that there was a relationship between pre-schooling and the performance of pre-schooled lower primary school pupils in literacy and numeracy. However, it was also shown that there was no relationship between the SES of parents, pupil's sex age and academic performance of the pupils in literacy and numeracy. Based on the obtained results, the study recommended that the Ministry of Education should scale up the implementation of preschools in government schools. This may provide easy access to pre-school education especially in rural areas where pre-schools are very few.

**Key words:** Social Economic Status (SES), pre-schooling, academic performance

### Introduction

Over the years, Early Childhood Care, Development and Education (ECCDE) has gained momentum in Africa through its programs. Not only has its importance increased as a result of several factors, its dramatic socio-cultural change is changing the traditional patterns of child care (Njenga & Kabiru, 2001). According to Kipkorir (1993), subsistence economies are losing viability and mobility and their settlement patterns are reducing the role of extended family members in child care. Other than that, they have enhanced schooling opportunities for children which have diminished older siblings' involvement in traditional socially distributed child-care systems. As a result, alternative arrangements for child care have become necessary, and communities are increasingly looking to ECCDE programs like pre-schools as a realistic option.

Globally, pre-school is regarded as the first step in the formal education journey of a child. Pre-school education refers to the type of education which is given in a group setting to children aged three to seven years. In other words, a pre-school, nursery or kindergarten is an educational establishment offering early childhood education (ECE) to children between the ages of three and seven prior to the commencement of compulsory education at primary school. Pre-school education is designed to assist in the mental, physical, emotional, linguistic development and social upbringing of the child. Such schools may be government or privately operated (Moreira, Patron & Tansini, 2007).

As one of the sub areas under ECCDE, pre-schooling's influence on pupil's academic performance and long term general life effects has received considerable attention in the field of early childhood and parent education in psychology. Studies on early childhood education and care like that of Johnson (2011) revealed that investing in early childhood education initiatives such as preschool has long term positive life effects and that access to quality early childhood educational resources is a key engine to upward mobility. Such programs therefore have gained great importance in their own right such that even among poor and uneducated families, a growing conviction that children exposed to such programs have a better chance of succeeding in school has developed (Hyde and Kabiru, 2006). Similarly, Serpell (2011) asserts that the call for increased public investment in Early Child Development (ECD) as a strategic contribution to sustainable national development rests on a number of premises like; early childhood is a period of human life in which the quality of development is likely to have significant long-term consequences for society, and that specifiable types of interventions can reliably influence the quality of development in early childhood in a positive direction.

For these reasons, the continent of Africa is making all efforts to support the concept of pre-school. There are a good number of locally adapted and designed pre-schools in Africa. One such example is the Madrasa Resource Centre (MRC). The Madrasa resource centre on early childhood and development is a regional initiative in East Africa that began in the 1980's. Its overall effect has been to improve the well-being of children. Madrasa preschools are common in Kenya, Uganda, Tanzania, and Zanzibar. Zambia also has some Madrasa preschools in Lusaka district and Chipata in the Eastern province. The Madrasa initiative has resulted in the creation of quality affordable, culturally appropriate and sustained pre-schools among the socio-economically disadvantaged Muslim communities in East Africa (Mwaura, 2002).

In Zambia, the development of early childhood education traces its beginning to the colonial era when the colonial government came up with the Day Nurseries Act of 1957. This Act was the first matter of policy direction in relation to early childhood education in Zambia. The Day Nurseries Act facilitated the establishment, registration and regulation of Day Nurseries for children under the age of seven. The Act of 1957 also provided for the legal support for any one capable of providing early childhood education (ECE) for African children to do so. This saw the introduction of ECE for the native children (Nalwimba, 2000). UNICEF (2007) state that only 17.1 percent of children enrolled in Grade One in 2007 had pre-school experience in Zambia. Urban provinces have the highest rates of new school entrants with prior early childhood education. Lusaka and Copperbelt provinces are the highest provinces with entrants at Grade One that has preschool background. Rural provinces such as Western, North Western, Luapula and Northern have lower proportions of Grade One entrants that have

been to preschool. The concept of preschool is still relatively new in Zambia (UNICEF, 2007).

Many researchers have identified that there are many factors that affect academic performance of pupils. These factors include age, sex, teaching faculty, parents or guardians socio-economic status to mention just a few (Shoukat, Haider, Khan, Ahmed, 2013). For instance, various studies and literature on school dynamics have shown that parents' socio-economic status is associated to the academic excellence of their children (Escarce, 2003 & Eamon, 2005; Jeynes, 2002; Sirin 2005)). It is important to note however, that apart from parents' socio-economic status being related to the academic performance of children, parental interactive behaviour may have significant effects on the academic achievement of the child as well. Doralia and Wydick (2011) argue that in the context of parent-child interaction, there are varying opinions on what is responsible for academic achievement in the child. On the other hand, Sylva, Melhuish, Samsons and Siraj-Blatchford (1999) found that parental interactive behaviour at home was associated with increased child academic achievement, co-operation, conformity, peer sociability and confidence.

Gaps in academic performance between males and females continue to be observed all over the world. A large volume of literature attests to this effect (Guiso, Monte, Sapienza and Zingales, 2008; Else-Quest, Hyde, and Linn, 2010; Sutter and Rutzler, 2010). It is observed that low academic achievement among females is more prevalent in science related disciplines such as Mathematics. In Zambia, perceived sex differences in academic performance are prevalent. The Government of the Republic of Zambia National Gender Policy (2000) states that despite the increase in participation of girls in the education system, the performance of girls however has still lagged behind that of boys. In addition to the above described scenario, it is observed that the Zambian society in some parts of the country especially in rural and illiterate communities still hold stereotyping attitudes towards females. In the context of pupils that attend pre-school, there is evidence that pupils who attend pre-school may exhibit higher cognitive maturation as compared to their counterparts that do not attend preschool. A study done by Sabbie and Agyeman (2015) on preschool and intellectual abilities of primary school pupils in Ghana found statistically significant differences in intellectual maturity scores between pupils with pre-school experience and those without it. Based on all this, the overall objective of this study was to investigate the relationship between pre-schooling and the academic performance of pre-schooled lower primary school pupils in rural Zambia in Zambezi district.

## **Methods**

This was a quantitative cross sectional study that examined whether pre-schooling, SES of parents, sex and age of the pupils were related to the academic

performance of pupils. The reason for using this study design was that such a design would enable the researcher determine the relationship between pre-schooling and academic performance of lower primary school pupils. The sampling procedure used was convenience sampling as only those participants that were readily available in the selected schools and met the inclusion criteria took part in the study. It also used purposive sampling method in selecting the parents or guardians of the pupils. The study recruited 240 participants (120 pupils and 120 parents), 60 girls and 60 boys of Grades One (1) and Two (2) in the age range of seven (7) to ten (10). The parents comprised 35 males 85 females. 60 pupils had pre-school experience while the other 60 pupils had no pre-school experience before being enrolled in Grade One. The sample comprised all pupils from the selected classes that met the inclusion criteria at Zambezi, Lwampungwa and Chilen'a primary schools.

The data collected were coded and analysed quantitatively using the statistical package for social sciences (SPSS). The Chi-square ( $\chi^2$ ) test of independence, Phi & Cramer's V test were computed to investigate the relationship and direction of the relationship between pre-schooling and the academic performance of lower primary school pupils in Literacy and Numeracy. The independent sample t-test was also computed to analyse differences in mean scores of the pupils in literacy and numeracy and also to determine if pupils from parents of high socio- economic status would perform differently from those of low socio- economic status. ANOVA in this research was computed to determine variance accounted for by parent-child interactive behaviours such as child praise, parent conversation with school staff and homework assistance to the child.

Ethical clearance was obtained from the University of Zambia Ethics Committee. Further, permission was obtained from the Ministry of Education, District Board Secretary (Zambezi District) and School Headmasters to conduct this research. Data were collected using a questionnaire, dictation test in Literacy and the Zambian Achievement test (ZAT-M) in Numeracy. The data collected from the dictation test in Literacy and ZAT-M test in Numeracy captured the academic performance of the pupils. All parents who participated in the study completed consent forms for themselves and for their children.

## Results

The results indicated that there was a relationship between pre-schooling and the performance of pre-schooled lower primary school pupils in literacy and numeracy. The hypothesis was that "pre-schooling had a positive relationship with academic performance of pre-schooled lower primary school pupils". The results from table 1 shows that children who had attended pre-school performed better than those who did not attend pre-school. Children who had pre-school experience were 8 times more

likely to perform well than those who did not attend pre-school. This was significant at  $P < 0.05$  level (Table1).

The second objective of this study was to assess whether the socio-economic status of the parents is related to the academic performance of pre-schooled pupils and non pre schooled pupils in lower primary school. The hypothesis was that “lower primary school pupils from parents of high socio-economic status would academically perform better than pupils from parents of lower socio-economic status”. The results of the Multivariate logistic model show that parents in full time employment and had bachelor’s degree had children who had higher chances of performing better than others. However, this was not significant at  $P < 0.05$  level. The result indicated that there was no statistical difference in academic performance of pupils from parents of high and low socio-economic status.

The third objective of this study was to explore whether sex is related to the academic performance of preschool and non-preschool lower primary school pupils. The hypothesis was that “girls who attended pre-school would perform better than boys who attended preschool”. Results from our analysis showed that female pupils who attended pre-school did not perform better than boys who as well attended pre-school and the result were significant at  $P < 0.05$  level.

The fourth objective of the study was to explore whether age was related to academic performance of pre-schooled and non-pre-schooled lower primary school pupils. The hypothesis was that “age has a positive relationship with the academic performance of lower primary school pupils”. The analysis showed that older pupils had higher chances to perform better than younger pupils, However, the result was not significant at  $P < 0.05$  level. The results on child’s age and academic performance showed that there was no relationship.

The fifth objective of the study was to explore whether parent-child interactive behaviour was related to academic performance of pre-schooled and non-pre-schooled lower primary school pupils. The hypothesis that the parent-child interactive behaviour has a positive relationship with academic performance of lower primary school pupils. The results of the multivariate analysis showed that children who had never heard a friendly voice from parents on academic issues performed 4 times better than those who heard a friendly voice from parents. However, the result was not significant at  $p < 0.05$ . The analysis further showed that children who received praise, had parents attending PTA and had parents who had conversations with school staff had higher chances of performing better than those who had parents who did not praise them. Furthermore, the analysis showed that children whose parents attended to their homework had higher chances of performing better than those whose parents did not help out in homework.

**Table 1:** Logistic Regression analysis examining association between academic performance and socio-economic variables

Variables		Odds Ratio	Significance
Pre-Schooling	NPA	1.000	
	PA	8.281	0.028
Sex	Male	1.000	
	Female	0.192	0.058
Age	7-8	1.000	
	9-10	0.236	0.164
Friendly voice of parent behaviour	Always	1.000	
	Never	4.625	0.065
	Often	2.163	0.548
	Sometimes	2.719	0.426
Child praise	Always	1.000	
	Never	0.415	0.613
	Sometimes	0.033\	0.008
Parent attended PTA	Always	1.000	
	Never	0.465	0.560
	Often	0.736	0.752
	Sometimes	1.232	0.853
School conversation	Always	1.000	
	Never	0.038	0.178
	Often	0.075	0.081
	Sometimes	0.152	0.462
Home work	Always	1.000	
	Never	0.820	0.178
	Often	0.945	0.081
	Sometimes	2.698	0.449
Parent's employment status	Full-time employed	1.000	
	Part-time employed	0.711	0.524
	Retired	0.501	0.315
	Unemployed	0.320	0.119
Academic Qualification	Bachelor's Degree	1.000	
	Certificate	0.927	0.936
	Diploma	0.852	0.811
	None	0.711	0.721

## Discussion

The results of this study have shown that pre-schooling is related to the academic performance of lower primary school pupils in Literacy and Numeracy in Zambezi district in rural Zambia. The Chi-square test of independence ( $\chi^2$  39.397, N= 120, df= 3, sig. < 0.001), (two tailed) showed that there was no independence between pre-schooling and academic performance at alpha level 0.05. It was concluded that pre-schooling and academic performance were dependent. The Cramer's V test conducted to investigate the direction of the relationship between pre-schooling and academic performance (Phi and Cramer's V = .573,  $p < 0.01$ ) indicated a strong positive relationship. The alternative hypothesis that pre-schooling has a positive relationship with the academic performance of pre-schooled lower primary school pupils could not be rejected but confirmed. The results suggest that pupils who attend pre-school before being enrolled in primary school perform better than their counterparts without pre-school experience. The above research results are consistent with Almond and Currie (2006) and Gibbs, Ludwig and Milner (2011) results of the Head Start Impact study (HSIS) that found positive effects on medium and long term outcomes of early childhood education such as improved test scores and high school progression rates for pupils that attended pre-school as compared to pupils that did not attend pre-school.

It was hypothesized that lower primary school pupils from parents of high socio-economic status would perform better academically than pupils from parents of lower socio-economic status. The results of the independent sample t-test on parent's socio-economic status and pupil's academic performance indicated that there was no statistically significant differences in the average mean score of pupils from parents of high socio-economic status and those of lower socio-economic status in numeracy. The results of this study are inconsistent with the findings of Sirin's (2005) meta-analysis review on SES which found that school success was influenced by the learner's family socio-economic status. The assumption that the academic achievement of pupils is contingent upon parents' socio-economic status was not the case in this current study because this study was carried out in a rural setting where the majority of the parents are peasant farmers and earn less than twenty-nine thousand Kwacha (K29, 000) income per year. The majority of the parents in rural settings such as Zambezi have minimal education and qualifications; therefore, it could be argued that there was not enough variability of income in the case of the parents included in this sample.

It was further hypothesised that girls who attended pre-school would perform better than boys who attended pre-school. The results in the independent sample t-test indicated that there was no statistically significant difference in the mean score of girls and boys that attended pre-school in numeracy. This means that girls performed as well as boys. On the other hand, sex had no significant relationship with the academic



performance of girls and boys that attended pre-school. The results of this study are inconsistent with Jules and Kutnick (1990) study that found that in primary schools, girls had higher scores in English and Mathematics than boys. This study found no statistically significant difference in the mean scores of girls and boys. The performance of girls was similar to that of boys in Literacy and Numeracy.

It was hypothesized that age has a positive relationship with the academic performance of lower primary school pupils. Pearson's correlation coefficient on age and scores in literacy and numeracy for pre-schoolers and non-pre-schoolers indicated that there was no statistically significant correlation between the age of the pupils and their academic performance. The results of this study are contrary to Sharp & Hutchison's (1997) views which state that early school starting age gives a head start to learning to the younger pupils and provides an opportunity for children from less advantaged backgrounds to make up for their deficits in academic skills. It can be argued that perhaps by this early age the gap has not grown in terms of differences according to chronological age.

### **Conclusion**

The study aimed at investigating the relationship between pre-schooling and academic performance of pre-schooled lower primary school's pupils in Zambezi district in rural Zambia. In line with the objectives, the study found that there is a positive relationship between pre-schooling and academic performance of pre-schooled lower primary school pupils in literacy and numeracy. The socio-economic status of pupils' parents, sex and age of the pupils had no significant relationship with the academic performance of lower primary school pupils in literacy and numeracy. In light of the above research results, there is need for the Ministry of Education to scale up the implementation of preschools in government schools and encourage parents of children in rural Zambia to take their children to Pre-school before they start Grade One. Based on the above findings, it is then recommended that the Ministry of Education should scale up the implementation of preschools in government schools. This may provide easy access to pre-school education especially in rural areas where pre-schools are very few. Other than that, it is essential that the Ministry of Education revises the policy on Early Childhood Care, Development and Education (ECCDE) and directs the operation of ECCDE in Zambia. The ECCDE policy would spell out the Ministry structure from district to national level and may help in the implementation, monitoring and evaluation of activities related to ECCDE.

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