



OVER SCHOOLING AND PUPILS' ACADEMIC ACHIEVEMENT IN MATHEMATICS IN CALABAR MUNICIPALITY LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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ABSTRACT

This study which adopted the survey design research determined the influence of over schooling on pupil s' academic achievement in mathematics. The study answered two research questions and tested two null hypotheses. A sample of 400 primary four pupils were selected from public schools using the simple random and purposive sampling techniques for the study. One instrument titled "Mathematics Achievement Test" (MAT) was used for data collection. The reliability of pupils' MPT was established through Kuder Richardson formula K-R20 which yielded .81. The independent t-test was used to test the two null hypotheses. The two analyses were tested at .05 level of significance. The findings of the study reveal that pupils in over schooling schools significantly differ in their academic achievement in Mathematics from their counterpart in schools without over schooling and also there is a significant influence of gender on pupils' academic achievement in Mathematics based on over schooling schools. Based on the findings of this study, it was recommended, amongst others, that policy makers should formulate policies to promote and encourages primary schools over-schooling and also Mathematics teaching and evaluation strategies should be free of gender bias.

KEYWORDS: Over Schooling, Mathematics achievement

INTRODUCTION

In Nigeria, primary education is designed to meet the basic learning needs of children.

Education at this level is geared towards enabling children to develop essential learning skills and providing them with basic learning content (Jimba, 2015).

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It contributes to the development of the child in all areas such as cognitive development, emotional, social, moral, psychomotor and aesthetic to the acquisition of skills which is useful for their lives, right attitudes and values (Anero, 2014). Mba (2019) asserted that a good primary school education underpins all the vocational and technical skills acquired in the secondary and higher institutions of learning. These skills are not just vital to the child, but also critical to the development of a nation's economy. In spite of the importance of primary education, it has been observed that most children are subjected to teaching content far above their mental age, attention, concentration and comprehension.

Mathematics is one of the core subjects in both the primary and secondary school education system in Nigeria which requires effective teaching and learning in order to acquire skills which is useful in science, technological activities as well as nation development (Ibok & Unoh 2019). The processes of teaching and learning Mathematics may be characterized by factors that result in learners staying in school longer than the prescribed duration for achieving skills or learning.

Most times, some children are over-stressed, overburdened with mathematics tasks or activities, subjected to over-learning. The consequence of over-learning or spending a longer period in learning Mathematics tasks resulted in over-schooling which is the issue in this work. Over-schooling is defined as the act of over-engaging and over-drilling of children through academic processes more than they could bear. In other words, it could be seen as over-stressing the child in a bid to impart knowledge on him. Okonkwo (2014) posited that over-schooling is when a child, pupil or student is made to undergo, and undertake, the act or process of being trained, drilled, instructed, taught or educated far above or in excess of what is provided in the curriculum. This drilling usually takes a longer period of time from the classroom and most times extends to the home.

Over-schooling poses a threat to the development of the Nigerian child in primary education. Schools most often overburden the pupils with excessive classroom activities, homework, note copying and extra-mural classes could affect the child's achievement in learning. Over-schooling at the primary level can be stressful to the children and in fact makes schooling to be

very stressful. Children at this level are denied rest and play which are very necessary for their cognitive, social, emotional and physical development. Overstimulation of a child's brain through over-tutoring may be detrimental to their mental development and functioning. An over-schooled child, according to Okoro and Udoh (2012), is regarded as one who has schooled beyond the level expected of him/her, or one who has spent a number of years in excess of the number required or expected of him/her. This implies that children are exposed to information above and beyond their chronological age and developmental task. In fact, as a result of the overload of the curriculum of most schools at this level, children are made to stay for a long time in school in an attempt for the school to cover the curriculum without considering the adverse effect this long stay may have on the children. Having children stay long in school does not encourage creativity which is acquired through free play.

Over-schooling influences pupils' learning habits in schools. Manga (2019) opined that school work can help students to develop effective study habits and also foster independent learning and responsible character or traits among the pupils. Okeke, Nwinkpo, and Anierobi (2019) explained over-schooling as subjecting children to teaching content far above their mental age which could influence pupil academic achievement in schools. Uzochukwu, Ndubueze, and Agu (2022) found in their studies that over-schooling influences academic achievement of pupils in school. Ariful, and Sanzida (2021) found over-schooling as one of the factors that influence pupil academic achievement in schools. Usoro, and Essien (2012) in their studies found most of the pupils in primary schools overburdened, over-tasking, and over-tutoring with school activities which affected their academic achievement in Mathematics. MwoMede, and Jimba (2019) in his study concluded that curriculum overload which is a consequence of over-schooling highly determines pupils' academic achievement in schools. Udoh, Joseph, and Amajuoyi (2014) examined graduate over-schooling: Measurement issues and the Nigerian situation and found over-schooling as educational issues that influence students' academic achievement in schools.

Over-schooling as observed by Akaneme, Onwu, Mbaegbu and Ibenekwu (2019) might lead to overstimulation of the learner's brain which could

be detrimental to the learner's wellbeing and could lead to nervous disorder, depression and insanity. Mezieobi, and Isiozor (2017) while expressing fear over this issue of over-schooling, stated that excessive tutoring could damage a child's intrinsic motivation and self-esteem. Omede and Jumba (2019) conducted a study on perception of parents about the consequences of over-schooling on the cognitive and psychosocial development of the Nigeria child at the private pre-primary schools and found over-schooling to have a negative impact on the cognitive development of children. According to them, overworking school children hinders their ability to learn and thus affects their academic output in schools. Umobong, Akubuiro and Idika (2012) observed that too much schooling could work against education. Byokeke, Anierobi, Nwikpo, Unachukwu (2018) examined the impact of over-schooling on the intellectual and emotional development of pre-primary pupils and found over schooling to influence children's academic achievement in schools.

Unachukwu, Ebenebe, and Nwosu (2019) opined that spending more time on school activities adversely affects children's scores in schools and also leads to depression in children and suggests that children should be allowed 8 hours of play and 8 hours of rest (sleep) in a day. Leuven (2014) stated that over involvement of children in the school academic activities influences a child's overall achievement in schools. Irmiya, and Olarewaju, (2020) found that higher educational attainment is significantly related to higher expectations of children's academic achievement. Etuk, Akpan, and Etuk (2012) found school activities significantly influence their academic expectations of their children. Oparinde (2013) stated that over schooling is a factor of the schooling system that debars teachers' effectiveness and leads to a high rate of internal inefficiency.

Gender was one of the factors identified to influence students' academic achievement in Mathematics. Gender identity made a difference to students' performance (Aguillon et al., 2020. Steegh, et al. (2019). Ibok, Meremikwu, and Umoh, (2020) discovered that male primary school pupils performed better than females in science and mathematics. These differences in performance can be attributed to gender stereotyping which encourages male and female pupils to show interest in subjects relevant and

related to the roles expected of them in the society. Male students participated more actively and frequently in active-learning mathematics concepts in classrooms. Girls had no other choice but to spare more effort to study, striving for better performance (Van Houtte, 2017). Anderson, and Brown (2017) examined the interaction between gender, self-efficacy, and math achievement and found gender significantly influence pupil achievement in Mathematics. Moreover, in terms of academic adjustment, male students were more adaptive to transition to higher education (Rosman et al., 2020). Ibok, Thomas, and Nyong (2019) in their study found gender significantly influence pupil academic achievement in Mathematics. Similarly, Ibok, Meremikwu, Orim, Anditung, Inah (2023) in order to examine if birth order or gender influence students' attitude toward mathematics in junior secondary schools in Eket Akwa Ibom state, Nigeria found gender as a significant factor that influence student performance in schools. Regarding the influence of gender alone on mathematics achievement, a meta-analysis by Johnson et al. (2018) indicated that there is a small but statistically significant gender difference favoring males in Mathematics achievement.

Research questions

This study answered the two research questions:

- i). What are the mean difference in responses between academic achievement in Mathematics of pupils in over schooling schools and those in schools without over schooling?
- ii) How does gender influence pupils' academic achievement in Mathematics based on over schooling schools?

Null hypotheses

The following null hypotheses were formulated, at 0.05 significant levels

H₀₁: Pupils in over schooling schools do not significantly differ in their academic achievement in Mathematics from their counterpart in schools without over schooling

H₀₂: There is no significant influence of gender on pupils' academic achievement in Mathematics based on over schooling schools

Research methods

This study was conducted in Calabar Municipality of Cross River State, Nigeria. The research design used for this study was the survey design. The design is appropriate for this study because

its allowed the collection of data from a given population and analyzed in order to explain a pertinent educational issue of concern which in this case is over schooling. The population for the study consisted of all the 3253 primary four pupils in 23 approved public primary schools in Calabar Municipality of Cross River State and out of 23 primary schools in Calabar Municipality, 11 primary schools always have extra mural classes after schools while 12 do not. To select the schools for the study, the researcher using the hat and draw techniques in selecting 10 public primary schools out of 23 schools where all the 23 schools in the study areas were written on a piece of paper, squeezed and shuffled in a hat. The schools that organized extra moral classes after school were separated from those that do not organized extra moral classes. The researcher closed his eyes and picked any one school from the hat without replacement until he pick 5 schools out 12 schools that did organized extra mural lesson and the other five schools were selected from the 11 schools that drilled pupils after school(extra moral classes) from 1.30pm to around 4.30pm on school days. A total of 10 schools representing 43.5% of the entirely 23 schools in the study area were used.

From the 10 selected schools, researchers adopted the hat and draw method of sampling where "Yes" and "No" were written on pieces of papers and learners were asked to pick. The basket was shaken together with the paper balls and each pupil was asked to choose without replacement. Those who picked the paper balls with "Yes" tags were given a copy of the questionnaire to fill. A sample of 400 primary four pupils were selected represented 12.3% of the entire population of primary four pupils in the study area where 183 pupils were selected from 5 schools selected that organized extra moral lesson after schools while 217 pupils were selected from other 5 schools did not organizer extra moral lesson for pupils after schools.. One instrument was used, Mathematics achievement test (MAT) items

constructed by the research with the help of primary four Mathematics syllabus. The instrument consisted of two sections, A and B. Section A described the bio data of the respondent which include gender while section B consisted of 25 items constructed by the researchers used to test pupils' academic achievement in Mathematics tasks. The MAT items were constructed based on four options A, B, C, D. A correct answer attracts one mark while incorrect answer attracts 0mark. The instrument was face-validated by two experts in Measurement and Evaluation and two Mathematics Educators, both from the University of Calabar. Corrections were pointed out by the experts and adjusted by the researchers and the document was considered valid. The reliability of the Mathematics achievement test items after a trial testing with 40 pupils was established through Kuder Richardson formula K-R20 which gave .81. Since the reliability index is above .50, the estimates were considered high enough for the study. The Statistics Package for Social Sciences (SPSS) computer programme was used to analyze the data collected. The two hypotheses were tested using Independent t-test for the two hypotheses of the study.

Presentation of results

The result of the analysis is presented in tables 1 and 2. The hypotheses were tested at .05 significant levels.

RESULTS

The result of the analysis is presented in the table 1 &2. The hypotheses were tested at .05 significance levels.

Pupils in over schooling schools do not significantly differ in their academic achievement in Mathematics from their counterpart in schools without over schooling the independent variable in this hypothesis is over schooling while the dependent variable is pupils' academic achievement in Mathematics. To test this hypothesis, pupils were grouped into two (school that offered over schooling and schools without over schooling). Based on the classification, their means were compared using the independent t-test analysis and the result is presented in Table 1.

Table 1: Independent t-test analysis of the mean difference in Mathematics academic achievement between pupils in schools that offered over schooling and those over schooling is not offered

Variable(Academic achievement)	N	X	SD	t	p-value
With over schooling	183	18.86	3.42	7.311	.000
Without over schooling	217	14.32	3.51		

*Significant at 0.05 level of significance

The result of the analysis ($t=7.311$; $p=.000$) as presented in Table 1 indicates that Pupils in schools that offered over schooling significantly differ in Mathematics academic achievement than those pupils in schools where over schooling are not offered. With this result, the null hypothesis was rejected was rejected at 0.05 level of significance and alternative hypothesis was accepted. Thus, the pupils' academic achievement in Mathematics is significantly influenced by over schooling. The more pupils' participation in classroom learning takes place, the better their academic achievement in mathematics tend to be and vice versa.

Hypothesis two: There is no significant influence of gender on pupils' academic achievement in Mathematics based on over schooling schools. The independent variable in this hypothesis is over schooling, intervening variable is gender while the dependent variable is pupils' academic achievement. To test this hypothesis, genders were classified into two groups (Male and female). Based on the classification, their means were compared using the independent t-test analysis and the result is presented in Table 2.

Table 2: Independent t-test analysis of influence of gender on pupils' academic achievement in Mathematics based on school who offered over schooling

Variable(GENDER)	N	X	SD	T	p-value
Male	86	18.78	3.08	8.057	.000
Female	97	15.16	2.98		

*Significant at 0.05 level of significance

The result of the analysis ($t= 8.057$; $p=.000$) as presented in Table 2 indicated that there is a significant influence of gender on pupils' academic achievement in Mathematics based on the schools who offered over schooling.. With this result, the null hypothesis was rejected was rejected at 0.05 level of significance and alternative hypothesis was accepted. Male pupils with mean score of 18.78 performances better in Mathematics than their female counterpart with mean score of 15.16 in schools where over schoolings are offered.

DISCUSSION OF FINDINGS

The result of the first hypothesis revealed that pupils in over schooling schools significantly differ in their academic achievement in Mathematics from their counterpart in schools without over schooling This is in line with Okonkwo (2014) who posited that over-schooling is the act or process of

being trained, drilled, instructed, taught or educated far above or in excess of what is provided in the curriculum which could enhance their academic achievement in schools. The finding agreed with Manga (2019) who opined that school work can help students to develop effective study habits and also foster independent learning and responsible character or traits among the pupils. The finding agreed with Okeke, Nwikpo, and Anierobi,. (2019) explained over-schooling as subjecting children to teaching content far above their mental age which could influence pupil academic achievement in schools. The finding is in consonance with Uzochukwu, Ndubueze, and Agu, (2022) who found in their studies that over-schooling influence academic achievement of pupil in school. The finding disagreed with Usoro, and Essien, (2012) who in their studies found most of the pupils in primary schools over burdening, over tasking, and over-tutoring with school activities which

affected their academic achievement in Mathematics. The finding agreed with Udoh, Joseph, and Amajuoyi, (2014) who examined graduate over-schooling: Measurement issues and the Nigerian situation and found over-schooling as educational issues that influence students' academic achievement in schools.

The finding of the second hypothesis revealed that there is a significant influence of gender on pupils' academic achievement in Mathematics based on over schooling schools. The finding agreed with Ibok, Meremikwu, and Umoh, (2020) who found a significant influence of gender on mathematics achievement in favour of male pupils. The finding is in line with Van Houtte, (2017) who found a significant influence of gender in Mathematics learning, Moreover, in terms of academic adjustment, male students were more adaptive to transition to higher education (Rosman et al., 2020, Ibok, Meremikwu, Orim, Anditung, Inah, 2023). The finding also agreed with Ibok, Thomas, and Nyong, (2019) who in their study found gender significantly influence pupil academic achievement in Mathematics the finding is in line with a meta-analysis by Johnson et al. (2018) who found statistically significant gender difference favoring males in mathematics achievement

CONCLUSION

Over-schooling can be negative or positive depending on the context of usage. Over-schooling to many is seen as positive without understanding its negative aspects. Individuals think that when one is over-schooled, one is well-educated not knowing that some individuals that are over schooled are uneducated or undereducated. Based on the results and findings of the study, it was concluded that pupils in over schooling schools significantly differ in their academic achievement in Mathematics from their counterpart in schools without over schooling and there is a significant influence of gender on pupils' academic achievement in Mathematics based on over schooling schools

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. Policy makers should formulate policies to promote and encourages primary schools over-schooling. They should find means of monitoring the implementation of such policies by the schools.
2. Relevant government agencies of government should enlighten school teachers and authorities on the importance of over-school through seminars and conferences
3. Stakeholders should ensure Mathematics teaching and evaluation strategies should be free of gender bias. This will make males and females to see themselves as equal, capable of competing and collaborating in school activities.

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