

EFFECT OF HOMEWORK ON JUNIOR SECONDARY SCHOOL STUDENTS' MATHEMATICS ACHIEVEMENT IN KOKONA LGA, NASARAWASTATE

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Abstract

The purpose of the study was to determine the effect of homework on mathematics academic achievement of students in Kokona Local Government Area of Nasarawa State. Home background in terms of literate and illiterate parents was employed as moderator. Two research questions were answered and hypotheses were tested. A sample of 73 junior secondary school students from two schools (38 students in experimental group and 35 in control group) were selected. Purposive sampling was adopted to select schools and classes that have students from both literate and illiterate parents; Quasi experimental design of pre-test and post-tests match group was adopted. Mathematics Achievement test was used as instrument. The instrument was validated by two experts and a logical validity index of 0.87 was obtained; also a pilot test of the instrument was carried out on 30 students and a reliability index of 0.79 was obtained using split-half method. Mean and standard deviation were used to answer the research questions and ANCOVA was used to test the hypotheses at 0.05 level of significance. The findings showed that students that were given homework performed better than their counterpart that were not given homework; also students from illiterate parents perform better than those from literate parents and there is no significant difference between the mean achievement of students given homework and those were not given homework. The result of oral interview revealed that students from illiterate parents efforts do the assignment themselves most often or were been assisted/taught by others but students from literate parent often have their assignments done by their parents and the only copy them with their writing. The researcher recommended that students should be made to work out answer to the questions on the board for other to see most often when assignments were given and parents should be enlightened at PTA meetings the need to teach their wards to do their assignments than have them done for the students.

Key words: Homework, Home background, Academic achievement.

Introduction

Homework is one of the continuous assessment strategies often adopted by teachers in schools. It is a task teachers give to learner to be completed at home or after normal school hours. Homework is an extension of the learning that takes at school. Homework involves tasks assigned to students by schoolteachers that are meant to be carried out during non-instructional time (kitsantas, A., Cheema, J., & Ware, H. W., 2011). Olufemi (2014) referred Homework assignment as exercises or tasks assigned to students by their teachers to be completed outside the class. A slightly broader definition of homework by De Jong,

Westerhof, and Creemers (2000) sees homework as an act performing school curriculum tasks outside regular school classes

The primary purpose of assigning homework is to help students strengthen the skills they learn at school, build on that understanding and knowledge and use it in preparation for future lessons. The purpose of homework according to Sharma (2013) is to enhance the learning skills, develop self-study skills and motivate parents' involvement in student learning. The effect of homework on student achievement was highly debated issue and has been for over a century. With the current educational system being compared to countries around the world, there has been a push to raise the standards in schools so that we can compete in the global marketplace (Hyde, Else-Quest, Alibali, Knuth, & Romberg, 2006). One of the variables being scrutinized is homework. How much to give, how often to give it and what it should entail are all questions that researchers studying the homework-achievement relationship have strived to address. However, the questions on who are involve in doing the assignment and how they are involved were not paid much attention. The question of how homework affects student achievement is an important one considering the ultimate goal as a teacher is for students to be successful and make an impact in the world.

Investigations show that the level of parental involvement and its impact on students' academic success tend to vary according to the school level (Jaiswal, 2018). Parents of early school aged children are likely to be more involved in school activities which include assisting their children's homework rather than the parents of older children (Epstein & Dauber, 1991; Stevenson & Baker, 1987). Similarly, the relationship between parental involvement and academic achievement is strongest for elementary school children and decline from elementary level to upper school level (Singh, Bickley, Trivette, Keith, Keith, & Anderson, 1995; Fan & Chen, 2001; Jaiswal, 2018). At the same time, some researchers have reported no effects of parental involvement on students' performance at high school level (Pezdek, Berry, & Renno, 2002; Keith, 1991). However, other researchers concluded that parental involvement remains important for children's success throughout secondary education (Stevenson & Baker, 1987; Sui-Chu & Willms, 1996; Jaiswal, 2018).

Student achievement can be defined as a student's score on a standardized test (Cooper, Valentine, Nye, and Lindsay, 1999; De Jong, Westerhof, and Creemers, 2000) or a student's grades in their classes (Keith, 1982; Bryan and Sullivan, 1998; Xu, 2009). Students' performance in mathematics courses has been problematic for many years. Students performed poorly at both internal and external examinations (Adebule 2009; Ologunwa, 2012; Suleiman & Hammed, 2019). Examination bodies like West African Examination Council (WAEC), National Examination Council (NECO), National Business and Technical Examinations Board (NABTEB) in their Chief Examiners Reports for the past decade showed poor results of students in mathematics.

Cooper, Robinson and Patall, (2006) examined the relationship between homework and achievement. The study compared achievement in those students who were assigned homework to those who were not assigned homework and had no other compensatory treatment. The studies included over 3,300 students in 85 classrooms and 30 schools in 11 states. The studies contained 48 comparisons of which 18 used class tests or grades as the outcome measure for homework and 30 used standardized achievement tests. Twenty-five comparisons involved achievement in mathematics, 13 reading and English, and 10 involved science and social studies. The length of the studies averaged 9-10 weeks. These studies revealed a strong relationship between the grade level of the student and the effect the homework had on student achievement.

Also Olufemi (2014) investigated the effect of homework assignment on Mathematics achievement of Secondary School Students in South West Nigeria. The study was an experimental research design that employed the pretest and posttest control group. A sample of 600 students was selected from six Senior Secondary School 1 from Oyo, Ondo and Ekiti States through the stratified random sampling technique. The subjects and schools were randomly assigned to treatment. The two groups were taught the same concepts in Mathematics for a period of four weeks. Group A (Experimental) was given homework assignment daily while Group B (Control) was not exposed to homework assignment. Two hypotheses were generated and the data collected were analyzed using t-test statistics at 0.05 level of significance. The results showed that there was no significant difference in the students' achievement before treatment was given. It shows the homogeneity of the group. However, when post tested there was a significant difference between the achievement of students exposed to homework assignment and those not exposed to homework assignment.

Jaiswal (2018) revealed that educated parents tend to be academically more involved in their children's education than that of less educated parents and that educated parents monitor their children educational activities at home, try to provide learning enriched environment, help in homework and preparation of examination, and participate in school activities and program. He further recommended that future research should be in in-depth to unveil understanding of the role of parental education in parental involvement in their children educational activities at home using mixed method qualitative and quantitative approaches

Homework may affect the family relationship since both the parents and students will have less quality time to spend on leisure time activities (Bembenutty, 2011). udley-marling in sharma (2013) conducted an interview study on twenty three parents of different racial, ethnic and socio economic backgrounds. Some of the parents were couples and some of them were single mothers. Parents reported that homework took long hours to complete and became a stressful and dreadful activity. Younger students demanded parents to sit with them that interfered with the parents' household responsibilities. Deets (2015) found that the most potent factor affecting achievement was the amount of homework the student actually completed as opposed to the amount of homework that was assigned. Although this pattern was consistent across most students, the proportion of homework completed was found to especially impact the academic achievement of upper elementary and high school students as opposed to younger elementary school students. Throughout history, the effect that homework has on student achievement has been an active investigation and it continues to be a source of debate among educators, parents, and educational policymakers (Hayward, 2010). Just as public opinion has wavered over the years, researchers have also found opposing conclusions from studies conducted on the relationship between homework and student achievement. It is an important issue to revisit as research evolves and as the global marketplace continues to advance.

According to ukessay in Olufemi (2014) opined that even though a different set of constraints and challenges in education has been faced worldwide, educational development has been actively promoted by means of adapting to rapid global changes. Ensuring quality of education is one of the six Education For All (EFA) goals agreed by over 160 governments during the World Education Forum in Dakar Senegal in 2000. The achievement of high School Students has been a great concern to educators, teachers, parents and government. Even though measures have been taken to improve the quality of education, a large proportion

of students still perform poorly in the classroom and externally organized examinations. Thus homework assignment might be an invaluable tool to develop the skills of the learner and helped them to perform better in examinations. Therefore, the study investigated the extent to which homework assignment improved the achievement of Junior Secondary School Students in Mathematics in Kokona LGA in Nasarawa, Nigeria. This study also focused on how completing homework and the role of parents affect student achievement in mathematics.

The purpose of the study is observing the effect of home work on JSS students' academic achievement in Kokona LGA. Specifically, the researcher

1. Compare the mean scores of students in experimental and control groups
2. Compare the mean score of students from literate and illiterate families

Research Questions

1. What are the mean achievements of students exposed to homework and those that were not exposed to homework?
2. What are the mean achievements of illiterate and literate student in the experimental group?

Research hypotheses

1. There is no significant difference between the achievement of students exposed to homework and those not exposed to homework.
2. There is no significant difference between the achievement of students exposed to homework from literate and illiterate families

Methodology

Quasi experimental design was use for the study. The researcher used pre-test, posttest - match group design. Instrument was developed and administered as pre-test and post-test to two matched groups from two different JSS classes in two schools. The researcher did the teaching for 4 weeks in the two classes and one the classes (experimental group) was given homework (treatment) and the other, normal classroom activities. The population of the study consist all JSS I students in Kokona Local Government Area for 2017/2018 academic session. The sample consist 73 students (38 students in experimental group and 35 in control group) were obtained using purposive sampling. Out of the 38 students in the experimental group, 22 from illiterate parents while 16 are from literate parents. Also out of 35 students in the control group, 20 are from illiterate parents while 15 from literate parents. Purposive sampling was used to select schools and classes that have students from both illiterate and literate families.

The researcher developed and used Students Mathematics Achievement Test (SMAT) as pretest and posttest. The instrument contained 20 items derived from four topics taught during the period of treatment. The instrument was validated by two experts; one from measurement and Evaluation Unit and the other from Mathematics Education unit in Faculty of Education, Nasarawa State University. A logical validity index of 0.87 was obtained from the experts' rating. Also the instrument was pilot tested on 20 students that are not part of the sample, split-half method was used to estimate reliability coefficient index of 0.79

Mean and standard deviation was used to answer research questions, simple percentages was

use to analysis the responses of interview and ANCOVA was used to test hypotheses at 0.05 level of significance.

Results

Research Question One: *What are the mean achievements of students exposed to homework and those that were not exposed to homework?*

Table 1: Mean and Standard Deviation of Students' Achievement in Experimental and Control Groups

Groups	Test	Mean	N	Std. Deviation	Mean gain
Exp Group	Pretest	19.0000	38	1.29448	45.0789
	Posttest	64.0789	38	3.63453	
Cont Group	Pretest	18.4000	35	1.16821	23.8286
	Posttest	42.2286	35	3.35266	

From table1, the mean gain of experimental (45.0789) is greater than the mean gain of control group (23.8286). This implies that the experimental group outperformed the control group. Therefore, homework improves students' academic achievement in mathematics in junior secondary school.

Research Question Two: *What are the mean achievements of students exposed to homework from literate and illiterate families?*

Table 2: Mean and Standard Deviation of Students' Achievement from Illiterate and Literate Family in Experimental Group

Groups	Test	Mean	N	Std. Deviation	Mean gain
Illiterate parents	Pretest	18.6250	22	1.45346	47.6875
	Posttest	66.3125	22	3.20308	
Literate parents	Pretest	19.2727	16	0.95743	43.1818
	Posttest	62.4545	16	3.00486	

Table 2 depicted the mean and standard deviation of students from literate and illiterate families. The mean-gain of students from illiterate parents (47.6875) was greater than that from literate parents (43.1818). This implies that the students from illiterate parents achieved higher than those from literate parents.

Hypothesis One: *There is no significant difference between the achievement of students exposed to homework and those not exposed to homework.*

Table 3: Summary of ANCOVA of students' Achievement in control and experimental groups

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	32.324 ^a	2	16.162	13.691	0.000
Intercept	28.040	1	28.040	23.753	0.000
Posttest	25.765	1	25.765	21.826	0.000
Group	16.539	1	16.539	14.011	0.000
Error	82.635	70	1.180		
Total	25676.000	73			
Corrected Total	114.959	72			

a. R Squared = .281 (Adjusted R Squared = .261)

From table 3, the value of F is equal to 14.011 and $p = 0.000 < 0.05$, therefore, the null hypothesis was rejected. This implies, There is significant difference between the achievement of students exposed to homework and those not exposed to homework..

Hypothesis Two: *There is no significant difference between the achievement of students exposed to homework from literate and illiterate families*

Table 4: Summary of ANCOVA of students' Achievement from literate and illiterate families

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	34.798 ^a	2	17.399	22.387	0.000
Intercept	0.002	1	0.002	0.003	0.958
posttest	30.912	1	30.912	39.774	0.000
group	21.375	1	21.375	27.502	0.000
Error	27.202	35	0.777		
Total	13780.000	38			
Corrected Total	62.000	37			

a. R Squared = .561 (Adjusted R Squared = .536)

From table 4, the F - value was 27.502 and $p = 0.000 < 0.05$ implies the null hypothesis was rejected. It then therefore means that there is significant difference between the achievement of students exposed to homework from literate and illiterate families

Discussion of Findings

The result of hypothesis one which revealed that there is a significant difference between the mean achievement of students that were exposed to homework and those that were not agreed with Latif and Miles (2011), Olufemi (2014) and Deets (2015) which shows a significant difference between the mean achievement of students exposed to homework assignment and those not exposed to homework assignment. McMullen (2010) in a study found out that homework assignment have visible impacts on academic achievement of students and therefore recommended more additional homework as this could be useful for

lowering the achievement gap between high achieving and low achieving students. The result of hypothesis 2 which revealed that students from illiterate parents achieved higher in Homework than those from literate parents oppose the result of Jaiswal (2018) which revealed that educated parents monitor their children educational activities at home, try to provide cognitive enrich the environment, help in homework and preparation of examination, and participate in school activities and program. The involvement of the parents should be on teach the children further especially in homework and not actually do the work for their children. The researcher further inquiry revealed that students from illiterate parents like do their homework with their friends, in a small group while students from literate parents mostly have their homework done by their parents and they only copy.

Conclusion

Base on the findings of this study, the following conclusions were arrived at: that homework promotes students' achievement in Mathematics. Students from illiterate family background who do their homework in groups achieved higher than students from literate family background whose homework were done by their parents and they only copy.

Recommendations

The following recommendations were made based on the research findings:

1. Teachers should give students homework frequently to promote students' participation and academic achievement in mathematics.
2. School authorities should during PTA meetings discuss the role and participation of parents in students' academic activities at home which include homework. Literate parents especially should be encouraged in assist their children by teaching them how to accomplish the task in the homework given to the children rather than do it for them and they copy.

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