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Effects of Pre-Lesson and Post-Lesson Home Assignment On Senior Secondary School Students' Performance in Difficult Concepts in Mathematics

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Abstract

This study investigated the effects of pre-lesson and post-lesson assignment on students' performance in difficult topics in Mathematics. The study employed a quasi-experimental pre-test post-test control group design. The population for the study comprised all Senior Secondary School Two (SSS II) students in Ekiti State. A sample of one hundred and twenty SS II students were selected for the study using Multi-Stage sampling procedure across the 16 Local Government Areas (LGAs) in Ekiti State. The instrument used for data collection was Mathematics Performance Test (MPT) developed by the researchers for the purpose of examining Students' Performance in Mathematics. The face and content validity of the instrument was ensured. The reliability was ascertained using test re- test method and a reliability coefficient of 0.86 was obtained through Pearson's' Product Moment Correlation Analysis. The data collected were analyzed using mean, standard deviation and t-test. Results of the study indicated that home assignment had significant effects on students' performance in difficult concepts in Mathematics. The study therefore recommended that teachers give home assignment regularly to their students in order to encourage them to practice previous lessons and prepare for forthcoming lessons.

Keywords: Pre-lesson, Post-lesson, Home Assignment, Mathematics, Difficult Concepts,

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Introduction

Observation shows that students' performance in Mathematics at the Senior Secondary School level is not encouraging. This may be attributed to some factors such as: poor method of teaching, poor attitude of students towards mathematics among others. It is obvious that some topics call for thorough explanation in mathematics in other to improve students' performance in the subjects. This includes circle geometry, bearing and probability. These topics also require constant and home practice. Classroom teachers in educational system are actively and continuously involved in assignment and evaluation. Oluwayemi (2010) stated that assessment and evaluation is concerned primarily with improving instruction so that students' learning is enhanced. Over the years, home assignment has been a controversial educational tool used to enhance student learning for as long as it has been around.

It seems that the most accurate predictor of students' performance in school is not the income or the social status, but the extent to which families are able to create home environment that supports academic work. Students need to be motivated to practice and review mathematics concept taught in the classroom in order to ensure better performance. According to Coopers (2007), homework is any task assigned to students by school teachers that is meant to be carried out during non-school hours. Coopers definition of homework has been a common one throughout researchers related to home assignment.

A slightly broader definition of homework by Dejong, Westerhof and Creemers (2000) stated that homework is performing school curriculum tasks outside regular school classes. Although these definitions are very similar, it was clarified that the non-school hours phrase used because students complete homework during study halls, library time, or during subsequent classes (Cooper 2007).

In this paper, the researcher examines the effect of pre-lesson and post-lesson home assignment on the academic performance of students in difficult concepts in Mathematics. Assignment in particular according to Instructional Assessment Resources (2011) includes activities given to learners by the teacher within the school setting and period. It is known as a home assignment when school tasks are assigned to be accomplished at home.

Preparation or Pre-lesson home assignment, as used in this study, focuses on preparing students for the next lesson at home. This type of home assignment is inherently linked to pre-learning by Vatterott (2009). The homework is designed to improve students' thinking about a previous topic discussed in class and prepare for future topics. In a study carried out by Rosário (2015), preparation homework tasks showed impact on students' mathematic performance. Students were able to review the topics covered in the future lesson from textbooks and write the main ideas covered in a notebook to help prepare the students for learning. Students used the textbook to help focus on the next lesson and prepared for what would be covered in the future class lesson.

Practice homework also known as Post-lesson assignments, as used in this study, can be used by teachers when assigning homework tasks to promote student engagement and meaningful learning. Practice homework focuses on tasks taught in class to increase speed, demonstrate mastery, review work, study for tests, and retain specific skills over time. Teachers assign practice and preparation homework most often because it can be more convenient and less time consuming. Practice homework is more often useful in mathematics classes.

Pre-lesson assignments are capable of enhancing students' performance in statistics and in general mathematics Ovute and Ede (2015). Although the role of pre-lesson and post-

lesson homework overlaps in learning, the effects of homework on students' performance are not entirely clear (Dean, 2012). Dean (2012) opined that the academic benefits gained from homework generally take the form of improved academic scores, although Kohn (2006) states that there is no way to show homework's effect on actual student learning.

According to Cihad and Faith (2017), Cooper conducted a meta-analysis in which he reported that 70 percent of various studies found that doing homework was associated with higher performance. Out of twelve studies in a meta-analysis of research on homework; eleven was found to be positively associated to improve students' grades on standardized tests, while one showed a negative link.

Research Hypotheses

The following research hypotheses were generated for the study:

1. There is no significant difference in the pre-test mean scores of students that engage in pre-lesson, post-lesson assignment and the conventional method groups.
2. There is no significant difference in the post-test mean scores of students that engage in pre-lesson, post-lesson assignment and the conventional method groups.

Research Method

The study employed quasi-experimental pre-test, post-test control group design which examined the effect of pre-lesson and post-lesson home assignments on senior secondary school students' performance in difficult concepts of Mathematics. The population for the study comprised all Senior Secondary Two (SS II) students in Ekiti State, Nigeria. The sample for this study consisted of 120 SS II students selected using Multi-stage sampling procedure across the 16 Local Government Area of Ekiti State, Nigeria. The Mathematics Performance Test (MPT) was the instrument used for the study.

Face and Content validity of the instruments was ensured by giving them to two experts in the field of Tests and Measurement in Faculty of Education EKSU and one Mathematics teacher in Secondary School. The reliability of the instrument was ascertained using test re-test method of testing reliability. A reliability co-efficient of 0.86 was obtained and was adjudged to be high, thus making the instrument to be reliable and adequate for this study.

The researcher visited six schools used for this study to seek permission of the school authority to use their students and teachers. The six schools used were divided into two groups namely: the experimental and the control group. A pre-test was conducted on the experimental groups on circle geometry, bearing, and probability using mathematics performance (MPT). The topics considered difficult by students such as probability, circle geometry and bearing were taught. The teachers in the experimental group gave home assignment on every topic and marked, while the control group taught without giving assignment. The pre-lesson home assignment was given to the students at least a day before mathematics lessons while, the post-lesson home assignments were given at the end of every Mathematics lesson. After teaching, the pre-test was re-arranged and administered as a post-test. The instrument was collected, marked, recorded and collated for data analysis.

Results

Hypothesis 1: There is no significant difference in the pre-test mean scores of students engaged in pre-lesson, post-lesson assignment and the conventional method groups.

Table 1: t-test of pre-test scores of the experimental and conventional method groups

Variations	N	Mean	SD	df	t_{cal}	P
Experimental Group	60	8.83	2.87	118	0.14	0.956
Control Group	60	8.87	3.74			

P>0.05

Table 1 showed that t_{cal} value of 0.14 is not significant because the p value of 0.956 > 0.05. Therefore, the null hypothesis is not rejected. Hence, there is no significant difference in the pre-test mean scores of students that engage in pre-lesson, post-lesson assignment and the conventional groups. By implication, there was homogeneity in the performance of the two groups before treatment.

Hypothesis 2: There is no significant difference in the post-test mean scores of students that engage in pre-lesson, post-lesson assignment and the conventional groups.

Table 2: t-test of post-test scores of the experimental and control group

Variations	N	Mean	SD	df	t_{cal}	P
Experimental Group	60	11.00	3.35	118	2.357*	0.020
Control Group	60	9.53	3.47			

*P<0.05

Table 2 showed that t_{cal} value of 2.357 is significant because the p value of 0.020 < 0.05. Therefore, the null hypothesis is rejected. Hence, there is significant difference in the post-test mean scores of students engage in pre-lesson, post-lesson assignment and the conventional method groups. By implication, there was significant difference in the performance of the experimental group after treatment and the experimental group performed better.

Discussion

The result of this study showed that there was no significant difference in students' performance in the pre-test mean scores of students exposed to pre-lesson and post-lesson home assignment and the conventional method groups. This is an indication that there was homogeneity in the academic performance of students in the groups prior treatment.

The result of this study showed that there is significant difference in the performance of students who are exposed to pre-lesson and post-lesson home assignments and those who do not. The finding is in agreement with the findings of Cooper (2007) which provided evidence that students' homework performance is a strong predictor of students' academic success in Mathematics. This finding is also in line with the submissions of Ovute and Ede (2015) which showed that pre-lesson assignments are capable of enhancing students' performance in statistics and General Mathematics. Also, Popoola suggested that the adoption of this approach to difficult areas of Senior Secondary School Mathematics would improve the performance scores of students in Nigeria.

Conclusion

From the finding of the study, it can be considered that students who engage in pre and post lesson home assignment recorded higher mean scores than their counterparts who do not participate in pre and post lesson assignment. By implication, the use of pre-lesson and post-lesson home assignment supports the use of evaluation as learning for improving the performance of students in Mathematics. The researcher concluded from his observations during the study that home assignments given on topics that is yet to be taught in the class enables the students to read ahead of the teacher, thereby making teaching easier and aiding

better understanding of Mathematics concepts by students. Assignment propels students to engage in practice and preparation which enables higher performance in Mathematics.

Recommendation

Based on the findings of this study, it is recommended that:

1. Teachers should give home assignment to their students in order to propel them to practice previous lessons and prepare for oncoming lessons.
2. Teachers ensure that students complete home assignments by making it a compulsory evaluation tool in every lesson.

REFERENCES

Bishop, J. (2008). 10 Benefits of homework lesson plans. Retrieved from June 14, 2021 from http//:www.page.com/benefits-of-homework-lesson-plans.

Cooper, H. (2007). *The battle over homework: Common ground for administrators, teachers, and parents*. (Rev Ed.) Thousand Oaks, CA: Corwin Press.

Cooper, H., Robinson, J. & Patall, E. (2006). Does homework improve academic achievement? A synthesis of research, 1987-2003. *Review of Educational Research*, 76, 1-62.

Dean, C., Hubbell, E., Pitler, H., & Stone, B. (2012). *Classroom instruction that works: Research-based strategies for increasing student achievement*. (Rev. Ed.) Alexandria, VA: ASCD.

DeJong, R., Westerhof, K., & Creemers, B. (2000). Homework and student math achievement in junior high schools. *Educational Research & Evaluation*, 6, 130-157.

Dettmers, S., Trautwein, U., & Ludtke, O. (2009). The relationship between homework time and achievement is not universal: Evidence from multilevel analyses in 40 countries. *School Effectiveness and School Improvement*, 20, 375-405. doi: 10.1080/09243450902904601

Instructional Assessment Resources (IAR) (2011). Retrieved at www.yourarticlelibrary.com on 8/10/2020.

Kohn, A. (2006). *The homework myth: Why our kids get too much of a bad thing*. Cambridge, MA: Da Capo Life Long

Oluwayemi, A. C. (2010). School Assignment and Academic Performance of Secondary School Students in Ido-Osi Local Government Area of Ekiti State. An unpublished B. Ed project, University of Ado-Ekiti.

Ovute, A. and Ede, J. (2015). Effect of Pre-lesson Assignment on Secondary School Academic Achievement in Some Selected Statistical Concepts in Economics. *Journal of Research in Humanities and Social Science*, 3(2), 45 – 49.

Rosário, P., Núñez, J. C., Vallejo, G., Cunha, J., Nunes, T., Mourão, R., & Pinto, R. (2015). Does homework design matter? The role of homework's purpose in student mathematics achievement. *Contemporary Educational Psychology,* 43, 10-24. doi:10.1016/j.cedpsych.2015.08.001.

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