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STUDENTS' PERFORMANCE IN FURTHER MATHEMATICS AT SENIOR SECONDARY CERTIFICATE EXAMINATION AND MATHEMATICS IN REMEDIAL SCIENCES PROGRAMME, UNIVERSITY OF JOS-NIGERIA

By

GOTRING, D. D and MATAWAL, D. B

Department of Remedial Sciences, Faculty of Natural Sciences, University of Jos, Nigeria

Email: matawalbd24@gmail.com

Abstract

The importance of Further Mathematics in the study of Mathematics in Remedial Sciences Programme (RSP) cannot be overemphasized. It is in the light of this that this study was carried out to determine the relationship between students' performance in Further Mathematics and Mathematics in Remedial Sciences Programme, University of Jos-Nigeria. The sample of the study comprised all the students that offered Further Mathematics in secondary school that were admitted into the Remedial Sciences Programme for the 2010/2011 and 2011/2012 sessions. Two instruments were used for the collection of data-namely; Further Mathematics Results Grades (FMRG) and Remedial Programme Mathematics Grades (RPMRG). The grades of the two results were converted from Letter Grades (LG) to Grade Points (GP). Thus, the letter grades A-F were converted to Grade Points 5-0 respectively. This means that A=5, B=4, C=3, D=2, E=1 and F=0 for both FMRG and RPMRG. The data collected were analyzed using Karl Pearson correlation coefficient (r) at .05 level of significance. Independent analyses of the results revealed that a positive relationship exists between students' performance in Further Mathematic in SSCE and Mathematics in Remedial Sciences Programme. Based on this finding it was recommended that students should be encouraged to offer Further Mathematics in secondary schools.

Key Words: Students' Performance, Secondary School Certificate Examination, Further Mathematics.

Introduction

Studying Further Mathematics at the Senior School Certificate is not only helpful in general or basic Mathematics, but also helps students to perform better in other science subjects like Physics and Chemistry (Adekoya, 2009). Students who offer Further Mathematics usually perform well in General Mathematics.

Mathematics teachers at all levels of our educational system are always in search of better methods of simplifying the

teaching and learning of mathematics. This is so because of the importance accorded the subject from primary school to tertiary levels as enshrined in the National Policy of Education (FGN, 2004). If a nation wants to develop technologically, the teaching and learning of Mathematics, which is the backbone of Science and Technology should not should be treated with utmost concern.(Gotring, 2005).

Teaching and learning of Mathematics are associated with a number

of problems, which stem from individuals to the government and other stakeholders. Sule (2009) identified some of these problems as unavailability of learning materials and insufficient Mathematics teachers. He however asserts that for the teaching and learning of Mathematics at any level to be effective, such impediments have to be removed. This study intends to find out is students' performance in Further Mathematics is related to their performance in Remedial Mathematics as offered in the Remedial Sciences Department of University of Jos.

In the United Kingdom and even elsewhere, Further Mathematics describes that aspect of Mathematics that is more advanced in content, which is studied in secondary school in addition to standard or basic Mathematics (Qureshi, 2010). In Nigeria, Further Mathematics is that type of Mathematics that is offered at the Secondary School level by students who have some potential in Mathematics. The content of Further Mathematics is more advanced than that of the Basic Mathematics. Probably it is because of this that it is referred to as Higher Mathematics by the Wikipedia. Before now, Further Mathematics was offered from Senior Secondary School One (SSS 1) to Senior Secondary School Three (SSS 3), but today, because of its importance, it has been introduced into the Basic Mathematics curriculum content.

The fact that Further Mathematics is more advanced in content than the basic Mathematics shows that if a student can cope with it, then he or she can as well cope with basic Mathematics which is less advanced. The content of Further

Mathematics has some topics from Physics and Chemistry, which again explains the reason why it helps Further Mathematics students to solve problems in Physics and Chemistry.

Remedial Mathematics as offered in the Remedial Science programme of the University is primarily designed for students who have deficiencies in their SSCE, and so cannot gain entry into the University directly to one hundred level (100L). Calucag and Petilos (2012) viewed Remedial programme generally as a sequence of activities designed to bring unprepared students to the level of skill competency expected of University fresh students.

In the University of Jos, Remedial programme lasts for one academic session and a student is expected to pass at the end of the programme in order to be placed or given a course in 100L. Remedial programme, therefore serves as one of the entry points into the University.

Statement of the problem

Generally, Students' performance in Mathematics in Remedial Sciences Programme is not encouraging despite all the efforts put in by Mathematics lecturers. It is in realization of this fact that this work sets to find out what the problem might have been. However, preliminary experience and observation show that some students perform extraordinarily in Remedial Mathematics and such students are also good in other science subjects like Physics and Chemistry too. Yet, some of those who perform well are those who are discovered to have offered Further Mathematics in SSCE.

The questions that need answers therefore are;

1. What is the relationship between students' performance in Further Mathematics at SSCE and Mathematics in Remedial Sciences Programme?
2. If the relationship exists, how strong is it?

Purpose of the study

The study therefore was aimed at;

1. Finding out if there is a relationship between students' performance in Further Mathematics at SSCE and Mathematics in Remedial Sciences Programme.
2. Finding out the strength of such a relationship (if any) between students' performance in Further Mathematics and Remedial Programme Mathematics.

Research hypothesis

There is no significant relationship between students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme.

Methodology

The population of this study was made up of 40 students in the Remedial Sciences Department of the University of Jos for the 2010/2011 and 2011/2012 sessions. Because the number of those who offered Further Mathematics at SSCE level admitted into the Remedial Sciences Programme for the two sessions was so small, all the forty students that offered Further Mathematics were involved in the study. Their grades in Further Mathematics were compared with their grades in Remedial Programme Mathematics.

Two instruments were used for the collection of data-namely; Further Mathematics Results Grades (FMRG) and Remedial Programme Mathematics Grades (RPMRG). The grades of the two results were converted from letter grades (LG) to Grade Points (GP). Thus, the letter grades A-F were converted to Grade Points 5-0. This meant that A=5, B=4, C=3, D=2, E=1 and F=0 for both FMRG and RPMRG. The data collected were analyzed using Karl Pearson correlation coefficient (r) at 0.05 level of significance.

Presentation of results

Research hypothesis

There is no significant relationship between students' performance in Further Mathematics at SSCE and Mathematics in Remedial Sciences Programme.

TABLE 1

Karl Pearson Product Moment Correlation Coefficient analysis of the relationship between students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme for the 2010/2011 session

Examination Type	No. of Students	Df	Mean	r – cal.	r-critical	Decision
Further Mathematics	17	15	2.60	0.08	0.48	Accept
Remedial Mathematics			3.82			

Data in Table 1 shows that Further Mathematics had mean score of 2.60 and Remedial Mathematics 3.82. The data further revealed that the calculated value of r (0.08) was less than the critical value of r (0.48) for the 2010/2011 session. Hence, the

null hypothesis was retained. This implied that a positive relationship exists between Students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme.

TABLE 2

Karl Pearson Product Moment Correlation Coefficient analysis of the relationship between students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme for the 2011/2012 session

Examination Type	No. of Students	Df	Mean	r – cal.	r-critical	Decision
Further Mathematics	23	21	2.48	0.46	0.13	Reject
Remedial Mathematics			4.17			

Results in Table 2 above shows that Further Mathematics has mean score of 2.48 while Remedial Mathematics mean score was 4.17. The result further revealed that the calculated r-value of 0.46 was greater than the critical r-value 0.13 for the 2011/2012 session. Hence, the null hypothesis was rejected. This indicated that a significant relationship exists between students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme in 2011/2012 session.

Discussion of findings

This study sought to examine the relationship between Students' performance in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme. The result of the study revealed that a low positive relationship exists between Students' performance in Further Mathematics and Mathematics in Remedial Sciences Programme for the 2010/2011 session even though further analysis of the result shows that the relationship was insignificant. The insignificant relationship corroborates with the research work of Arinola (1996) in Ajao and Awogbemi (2012) who found in his research that the insignificant relationship shows that both results were generally low.

Furthermore, the analysis of the result also revealed that a significant relationship exists between Students' performance in Further Mathematics and Mathematics in Remedial Sciences Programme for the 2011/2012 session. This revelation is in consonance with the research works of Gay (1996) and Ajegbeje (2001) in

Wushishi and Usman (2013) who found that a significant relationship exists between students' scores in West Africa School Certificate (WASC), semester score Current Points Grade Average (CGPA) and Grade Point Average (GPA) and that high school grade could be used to predict college grades. In addition, Matawal (2013) found that a significant relationship exists between students' achievement in Mathematics in SSCE and Remedial Sciences Programme.

Conclusion

The major thrust of this study was to examine the relationship between students' achievement in Further Mathematics in SSCE and Mathematics in Remedial Sciences Programme. Independent analyses of the results revealed that a positive relationship exists between students' performance in Further Mathematic in SSCE and Mathematics in Remedial Sciences Programme even though the relationship was found to be insignificant.

Recommendations

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

1. The students should be encouraged to offer Further Mathematics in secondary schools.
2. Secondary School managers and administrators should provide enabling environment through the provision of relevant Further Mathematics learning materials to encourage the students to offer Further Mathematics.
3. Parents should encourage their children and wards to offer Further

Mathematics and help in providing all the needed texts and other relevant materials.

4. Provision of well equipped Mathematics laboratories in Secondary Schools by the Government and other stakeholders will go a long way in facilitating the teaching and learning of, not only basic Mathematics, but also Further Mathematics.

References

- Adekoya, S.O. (2009). Effects of offering Further Mathematics on the performance of science students in Lagos state schools: *ABACUS*. 34(1), 146.
- Ajao, I.S & Awogbemi, A.C (2012). A correlational analysis of student' achievement in Mathematics in WAEC and NECO mathematics. *Journal of Education and Practice*, 3(1). Retrieved on 6th June, 2013 from <http://www.slideshare.net/AlexanderDecker/11a-correlational-analysis-of-students-achievement-in-waec-and-neco-mathematics>.
- Calucag, L.S. & Petilos, G.P (2012). Effects of Remedial Mathematics on learning college algebra: *Journal of Education and Practice* 3(12), 36.
- FGN (2004). *National Policy on Education*. Lagos, NERDC.
- Gotring, D. D. (2005). The role of mathematical games and recreational activities in teaching and learning Mathematics in secondary schools: *Journal of Educational Studies*. 11(1), 108.
- Matawal, D.B. (2013). Analyses of the relationship between students' achievement in Mathematics in SSCE and remedial sciences programme, University of Jos –Nigeria. *Comprehensive Journal of Educational Research*, 1(1), 117–125. Retrieved from <http://www.knowledgebasepublishers.org/maincjer.html> on 27th August, 2015.
- Qureshi, N. (2010). Mathematics remediation activities I: e-How. Why is remediation in Mathematics necessary? Retrieved on 10th June, 2014 from www.ehow.com/...iation-activities.html.
- Sule, S.O. (2009). Improving instruction and achievement in Mathematics at all level of education in Nigeria: *ABACUS*. 34(1), 54.
- Wikipedia (2015). Retrieved on 5th February, 2015 from en.m.wikipedia.org/wiki/furthermathematics.
- Wushishi, D.I & Usman, H. (2013). Relationship between Senior Secondary School Certificate Examination (SSCE) Mathematics grades and final Nigeria Certificate of Education (NCE) Mathematics students' results of Niger State College of Education Minna. *International Journal of Humanities and Social Sciences Invention*, 2(2), 16-21. Retrieved 27.11.2013 from [http://www.ijhssi.org/papers/V2\(2\)/revision-2/D221621.pdf](http://www.ijhssi.org/papers/V2(2)/revision-2/D221621.pdf)