

Availability and Utilization of Chief Examiner's Report among Mathematics Teachers in Senior Secondary Schools in Rivers State Nigeria

¹Nchelem R. George & ²Enefaa I. Amachree

¹Department of Mathematics/Statistics, ²Department of Curriculum Studies & Educational Technology, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria.

Abstract

This study investigated the availability and utilization of chief examiner's report among Mathematics teachers in public senior secondary schools in Obio Akpor and Port Harcourt Local Government Areas of Rivers State, Nigeria. Four objectives and four research questions guided the study. The survey research design was employed for the investigation. The population comprised of all 106 Mathematics teachers in the 28 public senior secondary schools in both local government areas under investigation. A simple random sampling technique was used to select 50 Mathematics teachers from 11 sampled schools. The instrument used for data collection was a researcher constructed 14-item questionnaire called "Teachers Questionnaire on Chief Examiners' Report" (TQCER). The instrument was validated and the reliability coefficient of 0.79 was established using the test retest reliability model. The mean and standard deviation were used to analyze the data collected. The findings of the study showed that Mathematics teachers have knowledge of the CER but do not have access to CER and that Mathematics teacher neither employed the CER to remediate students' weakness in Mathematics nor improve students' strengths in Mathematics. The study recommended that school principals should give Mathematics teachers the CER so that they can employ it to remediate students' weakness in Mathematics and improve students strengths in Mathematics during classroom instruction.

Keywords - Chief Examiners Report, Mathematics, Availability, Utilization, Teachers.

I. INTRODUCTION

In the educational system, the teachers are responsible in the development and acquisition of functional skills that students are expected to acquire in order to succeed in life and to improve the society. The above mentioned can be measured by examining the skills imparted unto the students under the auspices of the school. An examination is the testing of knowledge, progress or skill in other to see how good somebody is at something [1]. In education, as examination is a test that shows the knowledge and ability of a student while an examiner is someone whose job is to decide how well someone has performed in an examination.

The Mathematics teacher uses various teaching methods to carry out classroom instruction. [2] identified such teaching methods as discovery, demonstration, laboratory, discussion, collaborative, lecture and field trip. In a situation where the students fail to comprehend the Mathematics concepts after these teaching methods have been employed, the teacher has to carry out remedial teaching. Remedial teaching according to [3] is the reverse instructional action taken by a teacher to enhance the academic performance of students who are struggling with Mathematics and also to improve the strength of students who are not struggling with Mathematics. Remedial teaching is inevitable when it comes to the teaching and learning of mathematical concepts due to the nature and structure of Mathematics. Difficulties in Mathematics are often caused by lack of mathematical skills. [4] asserted that students experience Mathematics difficulty for a variety of reasons such as dyscalculia, dyslexia, cognitive delay, poor preparation in pre requisite skills, delay in development of Mathematics basics and inappropriate learning experiences.

These ugly experiences have grounded the continuous poor performance of students in both internal and external Mathematics examinations. Thus external examination bodies such as West African Examination Council (WAEC) and National Examination Council (NECO) have come up with a document known as Chief Examiner's Report in all school subjects. [5] defined the Chief Examiner's Report (CER) as a document compiled to provide a review of performance of candidates in the examination and detailed analysis of the standard of answering questions. Every year, the chief examiner in several subject areas writes a report on the performance of students and suggests how their performance can be improved upon in that subject. Furthermore,

the CER informs teachers as to which area the candidates are weak, rather than an indication of what area questions might be asked in future year.

In the West African Senior School Certificate Examination (WASSCE) the subject Mathematics is an indispensable subject to all Nigerian students from primary to secondary school. Mathematics is a compulsory subject for all candidates and attention is devoted to the teaching of this subject. The [6] stated that candidates appear to have issues with format of the paper, candidates do not read the questions carefully and students' lack of calculative skills. According to the [7], the general performance of subjects especially in Mathematics for the year was not impressive. The main weaknesses observed in the scripts of the candidates had to do with insufficient exposure to the basic concepts and theories correctly in some aspects of the syllabus. Such include Mensuration of three dimensional shapes, Circle theorem, Trigonometry and Geometrical construction.

In the same vein, the CER on WASSCE [8] reports that apart from not adhering to instructions and accuracies required, candidates weaknesses were observed in the areas of Probability, Geometry, Sets and Algebraic graph. According to the report, majority of the candidates did not understand what was meant by "mutually exclusive events". Candidates exhibited poor knowledge of circle theorem and geometrical construction. Also, many candidates were unable to put down on paper drawings that would help them in solving questions where they are required. Furthermore, the performance of the student in WASSCE in the 2012 was reported poor by the chief examiner [9]). Among the areas students performed poorly in Mathematics were:

1. Application of laws of logarithms
2. Converting indices to logarithms
3. Reading from graphs
4. Geometrical construction

Although, it was observed that many candidates did not adhere to the rubrics of the questions such as leaving the required answers to required degree of accuracies. The chief examiner as cited in [9] reported that the students were ill prepared for WASSCE in the 2012 examination year due to some reasons. One of the reasons as deduced by the report was related to inadequate coverage of the Mathematics syllabus. [10] carried out a study and recommended that the chief examiners report is a classroom instructional document that can be employed to remediate students' weaknesses and improve students' strengths in Mathematics. This study therefore sought to investigate if this document called the CER is available to the Mathematics teachers and if they use it for classroom instruction.

II. STATEMENT OF THE PROBLEM

One of the responsibilities of the Mathematics teacher is to identify and remediate the misconceptions and errors that students' exhibit. The remediation can be done by employing valid and reliable instructional techniques such as problem solving, team teaching, discovery, direct instruction, use of laboratory peer tutoring, self instruction and visual representation. There is yet one method of remediation which teachers are expected to employ, which is the use of CER. The researcher observed that the Mathematics teachers do not use the CER to remediate students' mathematical misconception. This study was therefore, set to investigate the availability and utilisation WAEC CER to senior secondary Mathematics teachers.

III. OBJECTIVES OF THE STUDY

The objectives of this study were to:

1. Find out the extent to which the CER is available to Mathematics teachers.
2. Ascertain whether Mathematics teachers are knowledgeable of the CER as an instructional document.
3. Determine the extent to which Mathematics teachers employ the CER to remediate weaknesses of students in Mathematics.
4. Determine the extent to which Mathematics teachers employ the DER to improve the strengths of students in Mathematics.

IV. RESEARCH QUESTIONS

The following four research questions guided the study.

1. To what extent is the CER available to Mathematics teachers?
2. What is the Mathematics teachers' knowledge level of CER as an instructional document?
3. Do Mathematics teachers employ the CER to remediate students' weaknesses in Mathematics?
4. To what extent do Mathematics teachers employ the CER to improve students' strengths in Mathematics?

V. RESEARCH DESIGN

The research design employed to carry out this study was survey.

VI. AREA OF THE STUDY

The area of study is Obio Akpor and Port Harcourt Local Government Areas of Rivers State, Nigeria.

VII. POPULATION OF THE STUDY

The population of the study comprised of all 106 Mathematics teachers in the 28 public senior secondary schools in both local government areas under investigation.

VIII. SAMPLE AND SAMPLING TECHNIQUE

The sample for the study was 50 senior secondary school Mathematics teachers from the 11 sampled schools in both LGAs. A simple random sampling technique was used to select 11 schools from the two LGAs and the senior Mathematics teachers in the 11 sampled schools made up the sample for the study.

IX. INSTRUMENT FOR DATA COLLECTION

The instrument used for data collection was a researcher constructed 14-item questionnaire called Teachers Questionnaire on Chief Examiners' Report (TQCER). TQCER was made up of sections A and B. Section A elicited information on teachers' personal data while section B elicited information on CER. Items 1-5 measured the extent to which the CER is available to Mathematics teachers, items 6-8 measured Mathematics teachers knowledge of CER as an instructional remediation document, items 9-12 measured the extent to which Mathematics teachers employ the CER to remediate students' weaknesses in Mathematics while items 13-14 measured the extent to which Mathematics teachers employ the CER to improve students' strengths in Mathematics. The response scale of TQCER was on a 4-point Likert of Strongly Agree (SA= 4), Agree (A= 3), Disagree (D = 2) and Strongly Disagree (SD = 1). Decision on each item in TQCER was made based on a criterion mean of 2.50.

X. VALIDITY OF INSTRUMENT

Two Mathematics educators validated the instrument. The corrections made by the experts were effected in the instrument before administering them to the respondents.

XI. RELIABILITY OF INSTRUMENT

The reliability of TQCER was established using the test-retest method. TQCER was administered to 15 Mathematics teachers. After two weeks, the same TQCER was re-administered to the same group of Mathematics teachers. The Pearson Product Moment Correlation Coefficient was used to establish the reliability. The teachers used for the test-retest were not part of the main sample for the study. The reliability of the TQCER was found to be 0.79.

XII. METHOD OF DATA COLLECTION

TQCER was administered to the senior Mathematics teachers of the sampled schools on a face to face mode by the researchers. To avoid damage, the filled out TQCER were collected from the respondents on the same day.

XIII. METHOD OF DATA ANALYSIS

The descriptive (mean and standard deviation) were used to analyse the data collected.

XIV. RESULTS

Answer to RQ 1

To what extent is the CER available to Mathematics teachers?

Table 1: Mathematics teachers’ mean rating of availability of CER

SN	ITEM	MEAN	SD	DECISION
1	I always have access to the chief examiner’s report from the principal’s office	1.67	0.75	Not Accepted
2	The school principal keeps the chief examiner’s report under lock and key	2.59	1.04	Accepted
3	The examination bodies send the chief examiner’s report late to schools	2.55	1.03	Accepted
4	My school does do not have even one copy of the chief examiner’s report	2.69	1.02	Accepted
5	The school principal always informs us on the availability of the chief examiner’s report in his/her office	1.89	0.85	Not Accepted
	Grand Mean	2.27	1.35	Not Accepted

Criterion Mean = 2.50

Table 1 showed that Mathematics teachers did not accept item 1 (Mean=1.67, SD=0.75) and item 5 (Mean=1.89, SD=0.85). On the other hand, Mathematics teachers accepted item 2 (Mean=2.59, SD= 1.04), item 3 (Mean=2.55, SD=1.03) and item 4 (Mean=2.69, SD=1.02). With a criterion mean of 2.50 and grand mean of 2.27, SD=1.35, table 1 revealed that Mathematics teachers did not accept that the CER was made available to them.

Answer to RQ 2

What is the Mathematics teachers’ knowledge of CER as an instructional document?

Table 2: Mathematics teachers’ mean rating of knowledge of CER as an instructional document

SN	Item	MEAN	SD	DECISION
6	The chief examiner’s report is a document produced by examination bodies and used by the same examination bodies.	2.86	0.96	Accepted
7	Students’ weaknesses and strengths in Mathematics can be identified in the chief examiner’s report	3.20	0.89	Accepted
8	The chief examiner’s report is a document produced by examination bodies and used by subject teachers for classroom remediation instructions.	2.96	0.91	Accepted
	Grand Mean	3.01	0.82	Accepted

Criterion Mean = 2.50

Table 2 showed that Mathematics teachers accepted items 6,7 and 8. They accepted item 6 (Mean=2.86, SD=0.96), item 7(Mean= 3.20, SD=0.89) and item 8 (Mean=2.96, SD=0.91). With a criterion mean of 2.50 and grand mean of 3.01, SD=0.82, table 2 revealed that Mathematics teachers accepted that they have knowledge of Chief Examiner’s Report as instructional document.

Answer to RQ 3

Do Mathematics teachers employ the CER to remediate students’ weaknesses in Mathematics?

Table 3: Mathematics teachers’ mean rating of use of CER to remediate students’ weaknesses in Mathematics

SN	ITEM	MEAN	SD	DECISION
9	I always use the chief examiner’s report to remediate students’ weaknesses in Mathematics	1.27	0.86	Not Accepted
10	I photocopy the chief examiner’s report and give to students to study and correct themselves.	2.50	0.67	Accepted
11	I do not use the chief examiner’s report for remedial teaching	2.56	1.01	Accepted
12	I prefer other remedial teaching strategies to use of chief examiner’s report	2.45	0.91	Accepted
	Grand Mean	2.19	0.83	Not accepted

Criterion Mean = 2.50

Table 3 showed that Mathematics teachers did not accept item 9 (Mean=1.27, SD=0.86). On the other hand, Mathematics teachers accepted item 10 (Mean=2.50, SD= 0.67), item 11 (Mean=2.56, SD=1.01) and item 12 (Mean=2.45, SD=0.91). With a criterion mean of 2.50 and grand mean of 2.19, SD=0.83, table 3 revealed that Mathematics teachers did not accept that they use CER to remediate students’ weaknesses in Mathematics.

Answer to RQ 4

To what extent do Mathematics teachers employ the CER to improve students’ strengths in Mathematics?

Table 4: Mathematics teachers’ mean rating of use of CER to improve students’ strengths in Mathematics

SN	ITEM	MEAN	SD	DECISION
13	The chief examiner’s report can also be used to improve students’ strengths in Mathematics	1.79	0.96	Not Accepted
14	There is no need to remediate Mathematics instruction in above average students using the chief examiner’s report	1.22	0.98	Not Accepted
	Grand Mean	1.51	1.72	Not Accepted

Criterion Mean = 2.50

Table 4 showed that Mathematics teachers did not accept items 13 and 14. They did not accept item 13 (Mean=1.79, SD=0.96) and item 14 (Mean= 1.22, SD=0.98).). With a criterion mean of 2.50 and grand mean of 1.51, SD=1.72, table 4 revealed that Mathematics teachers did not accept that they use CER to improve students’ strengths in Mathematics.

XV. DISCUSSION OF FINDINGS

Availability of CER to Mathematics teachers

Table 1 showed that Mathematics teachers do not have access to the CER. The CER is produced on a yearly basis and sent to schools via the school head teachers. It is therefore the responsibility of the school head teachers to ensure that the Subject teachers have access to this document. Denying the subject teachers’ access to the CER makes it impossible for them to employ it for classroom instructional practices. Also hoarding of the CER by the school head teachers does not help the situation because both teachers and students cannot access the remarks compiled by the chief examiner for either remediation or improvement. Teachers and students will also not have access to the topics that students mostly skip or the suggestions made by the chief examiner of each subject for possible implementation. The head teachers should inform subject teachers on the

Mathematics teachers have varieties of classroom instructional documents and materials which they employ for effective classroom subject delivery. These documents and materials ranges from but not limited to subject textbooks, lesson notes, diaries, instructional materials to chief examiners report. The result of table 2 revealed that Mathematics teachers have knowledge of the CER as a classroom instructional document. This knowledge must have been as a result of their participation in workshops, symposia, seminars and conferences or what they learnt during their teacher education training programme. This makes it crucial for them to have access to the CER so as to use them during teaching to either remediate students; weaknesses or improve students’ strengths in Mathematics.

The result from table 3 indicated that so many Mathematics teachers do not use the CER to remediate or improve students’ weaknesses or strengths in Mathematics respectively. This is not in agreement with George and Charles-Ogan (2015) who opined that the CER can be employed as an instructional document for

remediation and improvement of students' weaknesses and strengths in Mathematics. The few teachers that venture into using the CER for either remediation or improvement do it the wrong way by giving students xeroxed copies to study on their own. The CER is not to be given to students rather teachers are to study the content and use for remediation or improvement students' weaknesses and strengths in Mathematics. Teachers are of the opinion that they prefer other remediation strategies to the use of CER. It is very important for teachers to employ the CER for teaching since they are preparing students for the senior secondary school terminal examination which is set by the body that prepares the report (WAEC and NECO). Table 4 result showed that teachers grossly do not employ the CER to improve the strengths of students in mathematical concepts and skills. This is very wrong. Every student in the Mathematics class have needs and interest which have to be met no matter the student's intellectual standing. Mathematics teacher should therefore desist from the practice of neglecting the remedial teaching of the above average students in the name that "they know it".

XVI. CONCLUSION

Based on the findings of this study, it was concluded that Mathematics do not have access to chief examiner's report of examination bodies and as such do not use the document to remediate and improve students' weaknesses and strengths in Mathematics respectively.

XVII. RECOMMENDATIONS

The results of this study gave impetus to the following recommendations.

1. The Examination Bodies (WAEC OR NECO) should make the CER to reach the school principals on time.
2. The school principals should release the CER to all subject teachers in the senior secondary school.
3. Mathematics teachers should study the CER and use it to remediate and improve students' weaknesses and strengths respectively in Mathematics.

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