

SECONDARY SCHOOL STUDENTS' COMPLIANCE WITH MATHEMATICS QUESTION PAPER INSTRUCTIONS DURING EXAMINATION

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Abstract

The study was on secondary school students' compliance with mathematics question paper instructions during examination. The research design was survey. There was a population of 2388 JSS3 students in the ten (10) secondary schools in Enugu East LGA. Proportionate sampling Technique was used to sample 342 JSS 3 students for the study. Mathematics Achievement Test for JSS (MATJSS) was the instrument for data collection. This instrument

had the primary aim of obtaining information on JSS 3 students' compliance with instruction on mathematics question papers during examinations. The instrument was validated by three experts (one in measurement and evaluation and two in mathematics education). The reliability of the instrument was 0.69. Percentage was used to answer the research questions while Chi-square was used to test the hypothesis at 5% level of significance. Findings were that (53.51%) did not comply with mathematics question paper instructions on multiple choice items during examinations. Male students that had (51.77%) complied with mathematics question paper instructions more than female students with 48.24%. There is a significant difference between male and female JSS 3 students compliance with mathematics question paper instructions during examinations.

Key words: Students' compliance, Mathematics, Question paper, Instructions and Examination

Introduction

Mathematics is a logical language for expressing ideas, shapes, quantities, sizes, order, change and dynamism in the educational system and explaining complexities of modern society in business, economic, academic, engineering and industrial settings for life-long learning (Iji, 2014). Mathematics therefore remains crucial for man to function effectively in everyday living. According Ajani (2012) the importance of mathematics does not only lie in its contributions to scientific and technological development but also in its utility in day to day interaction at the market places, in transportation, business and all sorts of areas in which it is used by both literate and illiterate members in the society. Consequently, Ogbu (2015) noted that not only an academicians, scientist, and engineer, a shopkeeper, a housewife, a sportsman, an employee need mathematics but also every person in every work of life. Knowledge got from mathematics can be applied to all spheres of human activities.

Mathematics facilitates the learning of other subjects, hence National Policy on Education (FRN 2008) recommended mathematics as a core subject in both primary and post primary schools. According to Kolawole, Oladosu and Ajetunmobi (2013) mathematics is an instrument that facilitates the learning of other school subjects. Nwagbara, Bassey and Enun (2013) said that where there is no mathematics there is no sciences including medical sciences, pharmacy, laboratory science and other science based professional courses. Mathematics gives

an individual confidence in the society and helps students develop their learning skills like ability to concentrate in order to study, focusing on task, being and staying organized, and having the ability to persevere. It is also one of the oldest school subjects that is indispensable for individual and societal development. It is widely used in politics, economic activities, science and technology. Mathematics equips learners with the skills they need to interpret and analyse information, simplify and solve problems, assess risks and make informed decision.

Mathematics ensures the development of the mind thereby resulting to high level intellectual capabilities. Finally, though all individuals need not become mathematicians, but the knowledge of mathematics can provide the individual with the ability to face huge number of life situations critically to bring the best possible decisions. Despite the many importance of mathematics students' achievement in the subject remains poor (Nneji and Obodo 2015)

Several reasons have been adduced for secondary school students' failure in mathematics and by extension other subjects. EPFL (2019) posited that failure is never due to a single cause but an accumulation of reasons, therefore there are always interconnections between several factors both internal and external which are responsible for failure. Internal factors include lack of commitment, low inclination for effort, lack of self-confidence, fear of examinations, and poor emotional control. On the other hand external factors to the student include studying conditions and proper supervision by the teachers. In addition, Hornick (2015) had it that overcrowded mathematics classrooms, stereotyped nature of mathematics textbooks, methodological styles, mathematics teacher's quality, lack of students interest and attitude, socio-economic problems, and language barrier issues are factors militating against the teaching and learning of mathematics. However, there is no doubt that failure posits painful experiences, touches one's self esteem, leaves one feeling helpless, shocked, sad, and leads to demotivation.

Sylvester (2018) further simplified reasons why students fail examinations as follows. “Laziness to read, or do assignments, over-confidence to know everything thus they study less, poor reading habit like cramming; having failure perceptions; lack of concentrations on their study due to the fact that they are too much engaged in other activities. Other reasons are students who are bad influences on others doing most of the things which their friends do at the expense of concentrating in their studies; insufficient finance to procure reading materials; those students taught by uninterested tutors make the students to be less interested with the subject and procrastination since instead of doing correct things or study at correct time, they postpone for very long time till examination approaches. In addition to the reasons given above why students achieve poorly in examination could be non-compliance with question paper instruction during examination. Generally every examination comes with one instruction or the other which the examiner should comply with in order to achieve maximum result. Compliance according to Merriam-Webster (1828) is conformity in fulfilling official requirements; the act or process of complying with a desire, demand, proposal, or coercion. Cambridge Dictionary (2019) defines compliance further as the act of obeying an order, rule or request. It is the state of being in accordance with established guidelines or specifications (Margaret, 2019). It means to conform with, agree to, yield to or adapt to something. Examination which some say is not a true test of knowledge most often comes with anxiety, phobia, and tension. According to Ashrafi (2002), mathematics anxiety is a feeling of tension, apprehension, or fear that interferes with mathematics performance. It is a well-known fact that when an individual has any kind of anxiety or tension in examination, the individual in question fails to bring out his best. This may result to a number of issues such as low memory retrieval and reduced information processing syndrome, low confidence level and in addition, not complying with instructions in the question paper. This will invariably affect the individual negatively and result to poor achievement in the subject. From the above discourse, failure in mathematics

could be linked to students' non-compliance with instructions on mathematics question papers during examinations in secondary schools in Enugu North Local Government area, hence the motivation to further investigate students' level of compliance with instructions on mathematics question papers during examinations.

In addition, generally speaking, there are a lot of conflicting results on gender influence on students' achievement in mathematics. While some researchers agree that there are gender influences on mathematics achievement, others say that there is none. Richard and Lisa (1991) identified that though girls earn good grades in other subjects, their grades in mathematics are lower than their grades in other subjects while boys do better. The researcher stressed that there is no evidence of gender effects on parental encouragement in mathematics, and girl's anxiety about mathematics reflects general test anxiety rather than any special fear of mathematics. Similarly, Asante (2010) revealed that there was a significant difference between mathematics performance of boys and girls with males out performing females in mathematics. On the other hand, Colleen and Sarah (2016) noted that gender differences in mathematics performance are small, due to the fact that girls are less confident and more anxious about mathematics than boys especially at young ages.

Purpose of the study

The purpose of this study was to ascertain secondary school student's compliance to mathematics question paper instruction in written examination in Enugu North Local Government Area.

Specifically the study sought to

1. Determine whether secondary school students comply to mathematics question paper instructions during examinations
2. Find out if males comply with mathematics question paper instructions during examinations more than females.

Research questions

The following research questions guided the study

- 1) Do secondary school students comply with Mathematics question paper instruction during examination?
- 2) Do males comply with mathematics question paper instructions during examinations more than females?

Hypothesis

The hypothesis below guided the study

H₁: There is no significant difference between male and female secondary school students' compliance with mathematics question paper instructions during examinations.

Methodology

Design of the Study

The design of the study was survey research design

Area of Study

The study was conducted in Enugu East Local Government Area which is one of the three Local Government Areas that make up Enugu Education zone in Enugu State

Population of the Study

The population of the study was all 2388 JSS 3 students in Enugu East.

There are ten (10) secondary schools in the study area. Eight are in the urban while two are in the rural areas. The population of JSS 3 males students was 880 (eight hundred and eighty), while there were 1508 (one thousand five hundred and eight) JSS 3 female students in the study area. PPSMB Enugu 2017/2018

Table: 1 Population of JSS Students in Enugu Education Zone.

Area of Study	Population of JSS 3	Male	Female	No of schools
Enugu East LGA	2388	880	1508	10

Sample and Sampling Technique

The sample size for the study was 342 JSS3 students determined using Yaro Yamene formula. Out of the ten schools six were sampled. Using proportionate sampling technique the researchers sampled one hundred and twenty six male students (126) out of eight hundred and eighty (880) and two hundred and sixteen female students out of one thousand five hundred and eight.

Instrument for Data collection

The instrument used to collect data was adapted from JSS 3 NECO mathematics past question papers from 2011 to 2017 tagged Mathematics Achievement Test for JSS (MATJSS). The instrument was mainly used to obtain information on the compliance of JSS 3 students with question paper instructions rather than their achievement in mathematics. The instrument had three parts – 1, 2 and 3. Each of these three had two sections - A & B. Section A in each part contained ten (10) multiple choice items different from each other with specific instructions. Section B in each part contained three essay items different from each other also with specific instructions. Instructions for each part were as follows:

Table 2: Instrument Instruction.

Part	Type of Test Item	Instruction
Part 1	Section A: Multiple choice items	Write only the letters that bear the correct answers
	Section B: Essay Test items	Attempt only two (2) questions
Part 2	Section A: Multiple choice items	Write only the correct answers
	Section B: Essay Test items	Attempt only two (2) questions. Question 1 is compulsory
Part 3	Section A: Multiple choice items	Underline the correct answer
	Section B: Essay Test items	Attempt all the questions

On the whole there were twelve essay test items and thirty multiple choice items. The respondents followed the instructions in each part while responding.

Validity of the Instrument

The instrument was validated by three experts one in measurement and evaluation and two in mathematics education. They critically looked at the instrument, especially the instructions

given in each part and gave their corrections which were used for the final draft of the instrument.

Reliability of the Instrument

The instrument was subjected to reliability by administering it on 35 (thirty five) students from Enugu South Local Government Area. The reliability of the instrument was 0.69

Method of Data Collection

The researchers made use of the JSS 3 teachers teaching in the sampled schools as research assistants who helped in data collection. They administered the instrument directly on the respondents, the respondents responded to the instrument and same was collected back immediately used to obtain information on the compliance of JSS 3 students with question paper instructions.

Method of data Analysis

The research questions were answered using percentages while the hypothesis was tested using Chi-square at 0.05% level of significant.

Research Results

The results of this study were presented in tables with respect to research questions and hypothesis.

Research question 1

How do secondary school students comply with mathematics question paper instructions during examination?

Table 3: Percentage Compliance of Students with question paper instructions

Part 1

Section	Compliance	% Compliance	Non-compliance	% Non-compliance	Total
Section A	169	49.12	173	50.58	342

Section B	153	44.74	189	55.26	342
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Part 2

Section	Compliance	% Compliance	Non-compliance	% Non-compliance	Total
Section A	159	46.49	183	53.51	342
Section B	154	45.03	188	54.97	342

Part 3

Section	Compliance	% Compliance	Non-compliance	% Non-compliance	Total
Section A	170	49.71	172	50.29	342
Section B	151	44.15	191	55.85	342
	Grand Mean	46.49		53.51	

Source: Field survey, 2019.

From Table 3 above, it was found that students complied more with question mathematics question paper instruction in multiple choice items in all the parts with percentage compliance of 49.12%, 46.49% and 49.71% for sections A of parts 1, 2, & 3 respectively, while their compliance in essay test items (Section B) were 44.74%, 45.03%, and 44.15% respectively for parts 1, 2, and 3 respectively. The grand mean of the compliance level of the students to mathematics question paper instructions were 46.49% for compliance and 53.51% for non-compliance.

Research question 2.

Do males comply with mathematics question paper instructions during examinations more than females?

Table 4: JSS 3 Mathematics students' compliance by gender

Section	Compliance		% compliance		Non-compliance		% Non-compliance	
	Male	Female	Male	Female	Male	Female	Male	Female
Section A	88	81	52.07	47.93	60	122	34.68	65.32
Section B	78	82	50.98	49.02	55	134	29.10	70.90

Part 2

Section	Compliance		% compliance		Non-compliance		% Non-compliance	
	Male	female	Male	Female	Male	Female	Male	Female
Section A	81	78	50.94	49.06	45	138	24.59	75.41
Section B	80	74	51.95	48.05	46	142	24.47	75.53

Part 3

Section	Compliance		% compliance		Non-compliance		% Non-compliance	
	Male	Female	Male	Female	Male	Female	Male	Female
Section A	89	81	52.35	47.65	37	135	21.51	78.49
Section B	79	72	52.32	47.68	47	144	24.61	75.39

Source: Field Survey, 2019.

Table 2 above shows it was found that male students complied more with mathematics question paper instructions in multiple choice items in part 1 sections A & B with percentage compliance of 52.07% and 50.98% over the female compliance of 47.93% and 49.02% respectively. In part 2, male students' compliance with the mathematics question paper instructions in multiple choice questions was 50.94% while that of female students was (49.06%), In part 3, 52.35% of the male students complied with the instructions more than the female students who recorded 78.49% non-compliance to the mathematics question paper instructions in multiple choice questions. The grand mean of the compliance level of the male and female students to mathematics question paper instructions were 51.76% and 48.23% for male and female students respectively.

Hypothesis One

There is no significant difference between male and female secondary school students compliance with mathematics question paper instructions during examinations.

The results are shown in Table: 6

Table 5: Chi square statistics verifying the significant difference in compliance based on gender

Variable	N	Df	χ^2_{Cal}	χ^2_{tab}	Sig	Decision
Male	126	1	26.58	3.841	0.05	Reject
Female	216	1				

The analysis shows that χ^2_{cal} (26.58) is greater χ^2_{tab} (3.841), the hypothesis is rejected meaning that there is significant difference between male and female secondary school students' compliance with mathematics question paper instructions during examinations.

Summary of Findings

The following are the summary of the findings of the study:

- The study showed that (53.51%) did not comply with mathematics question paper instructions on multiple choice items during examinations presented differently in the instrument.
- In addition 51.77% males and 48.24% of females complied with mathematics question paper
- There is significant difference between male and female secondary school students compliance with mathematics question paper instructions during examinations.

Discussion of results

The findings that majority of the secondary students did not comply with mathematics question paper instructions is a serious factor that culminate to poor performance on the part of the students. For example, a student who was instructed to answer 4 questions, one from each

section of a four (3) -section question paper, will definitely struggle to pass the examination if he/she ended up answering four (4) questions from only two (2) sections of the question paper, the student's level of preparedness and intelligence notwithstanding. Instructions are guide and considered part of the examination of the students since success in academics is a combination of learning and character. The character aspect of a student among others will include the students' carefulness, demand for details and order. The cause of omitting or overlooking instructions during examinations could be due to poor emotional control (EPFL, 2019). This is why students are always advised to settle down for examinations one hour before the commencement of exams. Ignorance, carelessness, over-confidence and anxiety can also cause non-compliance with instructions. This supports the opinion of Ashrafi (2012) which stated that anxiety leads to candidates not bringing out their best which could include non-compliance with instructions during examination.

Again, the study generated information on secondary school students' compliance with mathematics question paper instructions. Reflecting on the opinion of Colleen and Sarah, (2016), it was noted that gender differences in mathematics performance were traced to the fact that girls are less confident and more anxious about mathematics than boys especially at young ages. This could be the reason why boys perform better in mathematics than girls in that confidence build up is higher in boys than in girls which will go a long way to explain the challenge girls had complying with mathematics question paper instructions. So there is need to build up the confidence of girls to step up in knowing that there is no physiological explanation to justify why males should do better in any subject than females. Differences are only social traceable to the age long mind-set that men should pursue mathematics related courses than women.

Recommendations

Based on the findings, the researchers recommended as follows:

- Considering the strategic importance of instructions which clearly spells out direction on how to complete an activity, the researchers recommended that mathematics students should be drilled to imbibe the culture of reading instructions on their question

papers clearly before answering any number. Failure in examinations especially mathematics starts from taking wrong steps.

- There is need to work on the negative social-cultural mind-set where males are favoured by the parents to take up mathematics related courses. The confidence level of the female students should be built up and sustained to enable the female overcome any anxiety associated with mathematics tests.

Conclusion

Examination is the hallmark of teaching and learning. It is used to ascertain what an individual has learnt. This means that for anybody to be adjudged to have done well in school he must face examination. It is unfortunate though that most often individuals go into examination halls with a lot of fears and anxiety. This may bring lack of composure causing non-compliance with instructions during examination among others leading to failure in that same examination. From the study it was found out that the percentage compliance of students with question paper instruction is not very encouraging. This may be one of the reasons for students' poor achievement in mathematics. This calls for attention on the part of educators to encourage mathematics students and indeed other subjects to ensure that they insist on ensuring that they comply with question paper instructions which are obviously part of the examination.

References

- Ajani, T.O and Konku, A.A 2012. Effect of Computer Assisted Instruction (CAI) on the teaching and Learning of Mathematics in Senior Secondary School in Ogun State. *COEASU Journal pf Multidisciplinary Studies*. 3(1), 68-75.
- Cambridge Dictionary (2019)<https://dictionary.cambridge.org>. Retrieved 23rd July 2019
- Collen Ganley and Sarah Lubienski (2016). Current Research on Gender Differences in Math. <http://www.nctm.org>. Retrieved 29th July, 2019
- EPFL (2019) Reasons for failure.
<https://www.epfl.ch/education/studies/en/exam/preparation/exams-failure/failure/reasons>. Retrieved 30/7/2019.

Federal Republic of Nigeria (2008), National Policy on Education

Hornick J. (2015). Continuous Assessment as a Prediction of the Academic Achievement of Secondary School Students University of *Nigeria Journal of Education* 18 (3)

Iji, C.O (2014). Love Learning and Create Change in Science and Technology Through Effective Mathematics Education at the Upper Basic Education Level in Benue State, Nigeria. In J.S Sadiku (Ed). *The Journal of Mathematics Association of Nigeria*. (MAN) Sept, 2014, (42)5; 74-80.

Asante K. O. (2010). Sex Differences in Mathematics Performance Among Senior High Students in Ghana.
<http://www.Nkeanhgate.net/publication/231598245>.retrieved 29th July,2019.

Kolawole, E. B., Oladosu, C. I and Ajetunmobi, O. (2013). Comparability of Effectiveness of Problem Solving Methods on Learners' Performance in Mathematics. *Unique Journal of Educational Research* 1(2)

Margaret Rouse, (2019). What is compliance? – Definition from Whatis.com.
<https://searchdatamanagement.techtarget.com>

Merriam-Webster (1828) Definition of Conformity <https://www.merriam-webster>. Retrieved 23rd July 2019

Nwagbara, A. C, Bassey E. E and Enu E. E. (2013) Computer Assisted Learning and Achievement in Mathematics for Socio-Economic Transformation. *Niger-Delta Awka, Nigeria. Education Publication of COEASU South-South* 1 (1) 32-38.

Obodo, G O and Nneji Samuel O. (2015). Effect of Computer Game on Students Retention in Mathematics: Imperative for Improving the Quality of Secondary Education in *Nigeria Journal of General Studies II (I)*, March, 132-136.

Ogbu, S. (2015) *Effect of Microsoft Excel on Secondary School Students' Achievement, Interest and Retention in Mathematics in Enugu Education Zone. Ph.D Thesis*, Department of Science and Computer Education, ESUT. Enugu.

Richard B. Felson and Lisa Trudeau (1991) Gender Differences in Mathematics Performance. *American Sociological Association, Social Psychology Quarterly*, Vol. 54 No 2 <http://www.jstor.org/stable/2786930>.Retrieved 29th July, 2019.

Sylvester (2018) Ten Major Reasons Why University Students Fail Exams
<https://www.standardmedia.co.ke>. Retrieved 23rd July 2019

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