
EXAMINATION MALPRACTICES IN SENIOR SECONDARY SCHOOL MATHEMATICS: TYPES, CAUSES, AND SOLUTION

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Abstract

Mathematics teaching and learning is evaluated through examination at the end of the learning period. Administration of examination serves as feedback for the Mathematics teachers to ascertain the level of knowledge acquisition and measure of Mathematics knowledge retention by the students. Any irregularity distorts this feedback system, which can result to an inaccurate Mathematics learning outcome. This paper examined examination malpractices in senior secondary school Mathematics: types, causes and solution. After conducting a thorough examination of relevant journals and articles, it became evident that there are types of examination malpractices in Mathematics and numerous factors have been identified as causes for the persistent prevalence of this issue within academic assessment practices. This renders the outcomes of Mathematics examinations nearly devoid of value, posing a significant risk to their validity and reliability. Consequently, the fundamental purpose of examination is undermined. Inscription, neck-stretching, impersonation, scientific misconduct, bribery and instances of Mathematics examination question leaks were identified as the types of Mathematics examination malpractices. The causes of Mathematics examination malpractices were also identified as inadequate understanding of the subject matter, insufficient student preparation, inadequate library resources, and questionable admission policies, overcrowded examination seating arrangements among other factors. It was concluded that inadequate preparation and lack of effective utilization of Mathematics resources among Mathematics teachers creates a platform for Mathematics phobia for students who place undue emphasis on certificates, inculcated by the society. It was suggested that government should enact a law that will mitigate against malpractices in all the secondary schools, both private and public.

Keywords: Examination, Mathematics, Malpractice, Causes, Solution

Introduction

Mathematics is seen today as the mother of all subjects. It is an important subject that is applicable to all facets of life. Everyone in the society makes use of Mathematics on daily basis including the market women. Going by this, Mathematics can be said to be a subject that no one should toy with. Ernest and Okyere (2016) stated that the role played by Mathematics in almost all areas of development cannot be under-estimated. Mathematics serves as a backbone to all technological advancement in the world. There can be no meaningful development in this modern world of technological era without adequate and sufficient knowledge of Mathematics. The study of Mathematics enhances one's understanding of the world through the use of symbols and logical representation of phenomena. It is a subject that is very important for the academic excellence of people irrespective of the programme of study.

Knowledge of Mathematics is applied in almost every school subject. In Nigeria, Mathematics features prominently as one of the core subjects in the curricula of basic schools, senior secondary schools and colleges of education (Ernest & Okyere, 2016). Ekwueme (2013) opined that Mathematics is the study of measurement, relationships and properties of quantities and set. Mathematics is all about logical analysis, deduction, calculation, pattern and structures. Mathematics is also described by Gunter and Andreas (2014) as a science that investigates geometric figures, compute numbers, and study abstract topics such as quantity (numbers), structures, space and change. Elaine (2013), defined Mathematics as the science that deals with logic, shape, quality and arrangement. Mathematics is all around us, in all we do. It is the building block for all our daily activities including mobile devices, architecture (ancient and modern) art, money, engineering and even sports. Although, Mathematics has no generally accepted definition, it can be described as the study of different topics such as quantity, structure, space and change. Through the use of abstraction and logic, Mathematics is developed from counting, calculating, measurement and the systematic study of the shapes and motions of physical objects (Sanjiv, 2018). Therefore, it is very difficult to imagine a world without Mathematics.

Mathematics is featured as one of the most important subjects for entry into higher institutions. In addition, many Universities having realized the importance of mathematical knowledge have embedded some mathematical courses in various courses to be studied in the non-Mathematics programmes. For instance, students that are supposed to undertake a research work as part of their programme can only be successful when they have acquired basic knowledge in statistics which is an aspect of mathematical knowledge.

The importance of Mathematics as a pre-requisite for admission into the higher institution has made a lot of students devise several means of passing the subject at all cost. Examination remains the valid and reliable instrument for assessing students' mathematical knowledge and skills. Examination is the process by which students' knowledge and performance are critically assessed and evaluated through a set of organized tasks either in written form or verbal form. The teaching and learning of Mathematics become more active when the students are exposed to examination processes to determine the extent to which the students have assimilated taught Mathematics contents. The major problem confronting Mathematics teachers and stake holders is the challenge of examination malpractices in Mathematics.

Examination malpractice refers to any dishonest or unethical behaviour committed by a student or anyone involved in the examination process to gain an unfair advantage during exams. This may include cheating, using unauthorized materials, communication with others

impersonation, or any act that violates the rules and integrity of the examination process. The problem of examination malpractice has become an important issue in Mathematics education and, due to its tragic consequences, requires the collective attention of all concerned. Many strategies have been devised by examination bodies to eradicate Mathematics examination malpractice, but it is still thriving and looming in the school system, proving difficult to tackle. The problems of examination malpractices have been of great concern to many examination bodies in Nigeria. There has been a strong feeling among these examination bodies that difficulty in tackling examination malpractice in secondary schools is traceable to teachers' involvement in the unmitigated act.

According to Ayoade and Agboola (2022), examination malpractice is described as any deliberate action that deviates from the established rules of an examination, with the intention of providing an unfair advantage to a candidate. Kamau and Kiprop (2017) defined examination malpractice as any type of dishonest behavior that undermines the purpose of examinations in the education system. As noted by Asante-Kyei and Nduro (2014), examination malpractice is a deliberate and coordinated form of misconduct involving diverse individuals such as academic authorities, students, teachers, and parents. This misconduct happens before, during and after the exam with the purpose of improving the academic reputation of both the student and the school during the assessment and evaluation process.

This phenomenon makes the conduct of examination in the school system unreliable and unproductive. Examination malpractice means any form of illegal and intentional organized practice undertaken by teachers, students or even parents before, during or after the exam in order to derail the aim and purpose of the examinations by inflating the grades of the students in examination results. Achio et al. (2012) found out cases of cheating, which are violations of rules governing conduct in examination. Such cases include:

1. Leaks – unauthorized acquisition of exam questions prior to the scheduled exam time;
2. Impersonation – the act of assuming the identity of another person and taking an exam on their behalf;
3. Plagiarism - the act of impersonating someone else's work as your own without properly acknowledging the original source. Unfortunately, they are the common form of academic misconduct in examinations in the Nigerian education system.

There are several research studies on examination malpractices. For instance, Uzoagulu (2008) identified giraffing, coping, and taking handwritten materials and textbooks to the exam hall ranked first among the other types of examination practices. Similarly, Maheshwari (2011) revealed various instances of academic dishonesty, such as: altering answer books, engaging in espionage, impersonating others, seeking help from proctors/examiners, falsifying entries in examination registers, and producing counterfeit certificates, among other misconduct. In addition, Ayanniyi and Anya (2017) found out different types of academic dishonesty during examinations, such as Tattoo, token, contract, expo, identity theft, examination paper leakage, faculty support, collusion among students, unauthorized materials in the exam room, students craning their necks to copy from others, and spying during examination.

The research findings of Adeoti et al. (2015); Mutinda (2017) and Makaula (2018) revealed that the factors contributing to unethical examination practices in the educational system include an intense drive to succeed in examinations, the evaluation of schools' performance, and disciplinary issues among students. In a similar vein, Asante (2014); Dzakadzie (2015)

and Otoo (2018) found in their research studies that insufficient teaching and learning resources, student indiscipline, and inadequate exam preparation were the underlying factors contributing to instances of academic misconduct. Similarly, Ayoade and Agboola (2022) asserted that the root of examination malpractices is traceable to insufficient monitoring of the teaching and learning process, leading to absenteeism among both students and teachers. The reason for cheating during secondary school Mathematics examinations may stem from various factors. These include lack of readiness for Mathematics examination among students, Mathematics phobia, incomplete coverage of Mathematics content, lack of funding for schools, and scarcity of Mathematics resources, as well as a shortage of Mathematics teachers within the education system. Petters and Okon (2013) pointed out fear of failing Mathematics, a strong desire for certificates, parental aspirations for their children to enter prestigious professions and universities, students being pressured into pursuing courses they are not suited for, teachers feeling compelled to gain favor with students, and overcrowded seating arrangements as the factors causing examination in secondary schools. Uzoamaka et al. (2021) identified lack of dedication among students and teachers, as well as an overwhelming curriculum as the primary factors contributing to examination malpractice in secondary schools.

Examination malpractices have led to the production of unqualified candidates in the society who are presently within the academic sector, contributing to the lowering of academic standards in the educational system. Unless some drastic measures are taken to stop this anomaly, the educational system will be filled with unqualified Mathematics teachers in future. In order to decrease and prevent the occurrence of cheating during examinations in the education system, Ene and Ursula (2015) opined that the focus of the government should be on creating favorable teaching and learning conditions in schools and increasing teachers' salaries. As stated by Fagbemi (2011), it is crucial for the government, examination bodies, and educational institutions to organize effective stakeholder orientation programs on examination misconduct and its consequences. This will help in reducing instances of examination malpractices. It is important to implement a rotation system for invigilators and supervisors, as well as rearrange the seating plan during exams for students. Additionally, maintaining a ratio of one invigilator per twenty students can effectively manage student behavior. The problem of academic dishonesty in high schools Government intervention in education policies can effectively address the issue of examination malpractices and leakages in Mathematics. By implementing measures to deter learners and Mathematics teachers from engaging in such unethical practices, the integrity of examinations can be upheld. Additionally, the introduction of favorable policies to enhance teachers' salaries can attract qualified Mathematics educators, ensuring the availability of competent professionals in the field. Furthermore, the establishment of well-equipped Mathematics laboratories can facilitate practical teaching methods, providing students with a more comprehensive learning experience.

Despite the sensitization by the examination bodies before the commencement of any examination, the examination malpractices' rate in senior secondary school Mathematics are just increasing and even getting worse than ever. And with all the efforts to reduce or eradicate the rate at which examination malpractices are spreading, proved abortive.

The state of Mathematics in Nigeria has become a significant issue for educators and examination bodies. The urgency in addressing the prevalence of examination malpractice in senior secondary schools is evident. The devastating impact of examination malpractice extends beyond the destruction it has caused in our secondary school system; it also serves as

a gateway for young individuals to become involved in fraudulent activities. Due to the fact that passing Mathematics is the sole requirement for secondary school students to secure admission into higher institutions, a significant number of students in Nigeria now perceive achieving success in Mathematics as an extremely crucial matter. In spite of the government's and various examination bodies' attempts to address the issue of examination malpractice, their efforts have unfortunately proven ineffective.

Mathematics Teachers and Examination Malpractices in Senior Secondary School

The role of Mathematics teachers in senior secondary schools can significantly influence students' attitudes towards examinations and their propensity to engage in malpractices. Teachers play a crucial role in shaping students' academic integrity and ethical behavior, and their actions and approaches can either discourage or inadvertently promote examination malpractices. As stated by Ifijeh et al. (2015), educators play a crucial role in influencing the academic outcomes of students within the educational system. Truly, the caliber of the instructor is arguably the primary factor influencing educational benchmarks. Effective Mathematics instruction enhances the significance and comprehension of Mathematics education. Regrettably, though, the Mathematics instructors have not shown dedication in developing students who possess the ability to independently solve mathematical problems without any external assistance. There are ways in which Mathematics teachers may influence examination malpractices in senior secondary schools namely:

1. **Teaching and Assessment Practices:** The teaching and assessment methods used by Mathematics teachers can impact students' motivation and engagement with the subject. Teachers who prioritize rote memorization and emphasize high-stakes examinations may inadvertently create an environment that encourages malpractices as students may feel the need to resort to shortcuts to meet performance expectations. The inadequate teaching and learning methods in our educational institutions contribute to the prevalence of cheating during exams (Ufuoma, 2015).
2. **Academic Pressure:** Mathematics teachers who place excessive academic pressure on students, such as focusing solely on exam results or ranking, can contribute to an atmosphere where students may feel compelled to engage in malpractices to achieve higher grades.
3. **Lack of Academic Integrity Education:** If teachers do not address the importance of academic integrity and ethical conduct in their classrooms, students may not fully comprehend the consequences of malpractices. The instructor is the primary focal point of transformation and the cornerstone in the process of teaching and learning. During their time in school, the teachers serve as mentors to the students, fostering an environment of active, interactive, and creative learning that is built upon a strong moral foundation and a commitment to academic excellence. The duties of educators include fostering the development of students who are pertinent, effective, fruitful, competitive, and outstanding in all aspects of existence. When educators neglect their primary duties within the educational system and neglect to adhere to the prescribed school curriculum, students resort to engaging in dishonest practices during examinations in order to achieve academic success.
4. **Inadequate Preparation and Coverage of Syllabus:** When teachers do not adequately cover the syllabus or do not provide comprehensive learning opportunities, students may feel ill-prepared for examinations, leading to increased temptation to engage in malpractices to compensate for their knowledge gaps.
5. **Unrealistic Expectations:** If teachers set unrealistically high expectations for students without providing adequate support, some students may resort to malpractices to meet those expectations.

6. **Limited Feedback and Support:** Lack of constructive feedback and support from teachers can lead students to feel frustrated and disengaged, contributing to a higher likelihood of malpractices as they may view exams as mere hurdles to overcome. Effective Mathematics instructional support enhances the significance and comprehension of Mathematics education. Regrettably, though, the Mathematics instructors have not shown support in developing students who possess the ability to independently solve mathematical problems without any external assistance.

Types of Examination Malpractices in Senior Secondary School Mathematics

During each Mathematics exam, students come up with innovative approaches to engage in academic misconduct. The methods used for engaging in Mathematics examination malpractices differ. The various types of misconduct include impersonation, unauthorized disclosure of questions, manipulation of results, computer fraud, and dishonest behavior exhibited by supervisors. Some types of examination malpractices in secondary school Mathematics are discussed below.

- a) **Inscription:** This refers to the practice of students writing mathematical formulae and other mathematical information on various surfaces in their vicinity, such as their own body parts, as well as materials like paper, clothing, and classroom objects like desks, chairs, and walls of examination halls.
- b) **Neck-stretching:** This method of dishonesty occurs when test-takers extend their neck to its maximum length in order to observe and replicate the work of another test-taker, particularly when they are struggling with a specific Mathematics question.
- c) **Impersonation:** This occurs when another candidate or hired mercenary sits for Mathematics examination on behalf of the genuine candidate.
- d) **Scientific misconduct:** This occurs when students utilize mobile devices, particularly those equipped with cameras and imaging capabilities, to capture condensed versions of entire textbooks for reference during exams. During an examination that includes a series of multiple-choice questions, candidates who are present in the examination room receive the answers through handheld devices from their representatives who are located outside the confines of the examination area.
- e) **Bribery:** This type of misconduct could potentially be employed to facilitate collusion between teachers and students for the purpose of cheating. This situation arises when a student provides monetary compensation to an examination official, not necessarily for the purpose of purchasing the question paper, but to gain permission to utilize unauthorized materials during the exam or to extend the allotted time for the examination. For instance, male students may offer money or valuable items, while female students may resort to monetary compensation or other means to negotiate for "improvement" in their examination scores.
- f) **Instances of Mathematics examination question leaks:** These incidents occur when individuals working at the production site, responsible for printing examination questions, packaging examination materials, or transporting the questions from the press to the centers, become sources of concern or make the questions accessible to students. During academic assessments, individuals such as examiners, typists, and messengers play a significant role as they can potentially share exam questions with certain candidates for personal gain or satisfaction.

Causal Factors of Examination Malpractices in Senior Secondary School Mathematics

Examination malpractices in senior secondary school Mathematics can be influenced by various causal factors that contribute to dishonest behaviors during exams. Identifying and understanding these factors is crucial for developing effective strategies to address and

mitigate examination malpractices. Petters and Okon (2014) identified the fear of failing in Mathematics, a strong emphasis on obtaining certificates in Mathematics-related fields, parental aspirations for their children to enter prestigious professions and universities, the pressure on students to pursue courses they may not be suited for, the pressure on teachers to please their students, and the challenges posed by overcrowded examination seating arrangements as the factors responsible for examination practice. George and Ukpong (2013) established a connection between the causes of examination malpractice and various factors such as inadequate understanding of the subject matter, insufficient student preparation, inadequate library resources, and questionable admission policies. According to Akaranga and Ongong (2013), the parental upbringing is considered as the root cause of examination malpractice. The correlation between social standing and financial capacity can be observed in situations where many parents resort to bribing teachers and even examination authorities in order to secure success for their children and fulfill their own desires for personal satisfaction. The causal factors responsible for examination malpractices in secondary school Mathematics are classified into four namely;

1. **Society-Related Factors:**
 - a) Undue emphasis on Certificates in the society
 - b) Poor staffing in the school system
 - c) Negative attitude towards prosecuting offenders
 - d) Lack of funding
2. **School-Related Factors:**
 - a) Too difficult Mathematics examination questions
 - b) Poor invigilation during Mathematics examination
 - c) Lack of conducive Mathematics examination environment
3. **Teacher-Related Factors**
 - a) Ineffective teaching methods can make students feel unprepared for the exam, leading them to engage in malpractice to compensate for their lack of knowledge.
 - b) Mathematics teacher's threat to fail students
 - c) Lack of commitment on the part of teachers to finishing Mathematics scheme
 - d) Mathematics anxiety caused by non-completion of the syllabus
 - e) Leakages of Mathematics questions through Mathematics teachers
 - f) Un-stimulating Mathematics text books
 - g) Interruption of school programme through unexpected strike
4. **Learner-Related Factors**
 - a) The fear of failing Mathematics examination
 - b) Inadequate preparation of Mathematics examination
 - c) Desire to meet societal expectations
 - d) Lack of confidence in students' mathematical ability
 - e) Poor study habits among students

Solution to Examination Malpractices in Senior Secondary School Mathematics

Mathematics examination malpractice especially at the secondary school level is a difficult problem confronting the educational system in Nigeria. Discussed below are some of the solutions to examination malpractices in Mathematics.

1. **Retraining and reassessment of Mathematics Teachers:** Mathematics Teachers should be equipped for the technological-driven world. Mathematics teachers cannot impart Mathematics knowledge, skills and experience to students if they lack the ability to do that. A compulsory retraining is essential to remind the Mathematics teachers the ethics that govern the teaching and learning of Mathematics.

2. **Employment of qualified Mathematics teachers at all levels of education:** The need for qualified Mathematics teachers in the secondary school education cannot be overemphasized. Mathematics teacher must acquire a good knowledge of the subject matter and thoroughly interviewed before sending into the school system to impart skills and knowledge to students since nobody can dispense knowledge above what he or she has.
3. **Provision of School libraries and Mathematics laboratories for Mathematics:** The government should provide well-equipped and standard libraries and mathematics laboratories, along with qualified mathematics teachers, to facilitate effective teaching and learning. This support will enable mathematics teachers to stay relevant in their field by keeping up with the latest updates and innovative teaching methods. The provision of libraries and mathematics laboratories creates a conducive environment for mathematics learning activities.
4. **Enforcement of examination malpractice (prohibition) laws:** It is important for the government and examination bodies to consistently emphasize to Mathematics teachers the importance and repercussions of examination malpractice, as stated in the examination malpractice Act 33. This act prescribes a severe punishment of twenty-one (21) years imprisonment for individuals found guilty of examination malpractice, with no possibility of paying a fine instead. Once this is completely put into action, it will act as a strong deterrent for students, supervisors, security agents, and other individuals involved in the malpractice industry within the educational system.
5. Various examination bodies in Nigeria should adopt stringent measures in checking examination malpractices in the examination centres during examinations. Like the use of CCTV during examination can go a long way to curb the spread of examination malpractices in the secondary school.

Conclusion

Mathematics is not a subject that any student should downplay especially by any individual that wants to be productive or any nation that strives for scientific/technological development. Students' poor performance in the subject is indeed worrisome just as it is for many Mathematics educators. This, in turn, necessitates immediate action, among other measures, in the realms of science and technology, as students are not being adequately equipped with mathematical knowledge and skills. Secondary school students if properly guided can learn mathematical concepts with maximum understanding. The problem however is that many students think the only way to pass Mathematics is through examination malpractices because students have the impression that Mathematics is an abstract and difficult subject.

Examination malpractice is a serious threat to the standard of educational system and national development. One of the primary causes of examination malpractice in secondary school Mathematics is traceable to inadequate preparation and lack of effective utilization of Mathematics resources by Mathematics teachers. This creates a platform for Mathematics phobia for students who place undue emphasis on certificates, inculcated by the society. This problem can be solved through effective utilization of Mathematics resources, provision of well-equipped library and Mathematics laboratory, enforcement of malpractice law and employing qualified teachers into the system.

Suggestions

1. Workshop and seminars should be conducted for both the parents and teachers to combat examination malpractices.

2. The government should enact a law with fines to combat malpractice in all secondary schools, both private and public.
3. Students should be advised to imbibe good study habit before examinations so that they will not be dependent on malpractice.
4. Parents should not intervene in the examination of their children especially by using money to buy examination questions either online or physical.
5. There should be combined efforts at the effective supervision of students during examinations to be able to curb those common malpractices in the examination hall.

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