IMPACT OF EXAMINATION MALPRACTICE ON SCIENCE STUDENTS' CREATIVITY AND INNOVATION AS PERCEIVED BY SECONDARY SCHOOL SCIENCE TEACHERS AND STUDENTS

Eunice Odugo Chukwunwogor, Priscilla Okwuchukwu Dave-Ugwu and *Anthonia Ebere Onah

Department of Science Education, University of Nigeria, Nsukka

*Corresponding author

Abstract

The study investigated the impact of examination malpractice on science students' creativity and innovation as perceived by secondary school science teachers and students. Four research questions and one hypothesis guided the study. A descriptive survey research design was used in the study. The population of the study consisted of all the senior secondary three (SS3) science students and all science teachers in Government owned secondary schools in Nsukka Local Government Area of Enugu State. The sample was made up of 37 science teachers and 127 SS3 science students both drawn using purposive and simple random sampling techniques. The instrument for data collection was a 43-item structured questionnaire titled Teachers and Students Perception on Examination Malpractice Questionnaire (TSPEMQ) developed by the researchers. The reliability coefficient of the instrument was established as 0.76 using Cronbach Alpha. Mean, standard deviation and t-test were used to analyze the data. The findings revealed that both the science teachers and students perceived examination malpractices as wrong and impacting negatively on creativity and innovation in science students. Based on these findings, recommendations were made.

Keywords: Examination malpractice, creativity and innovation

Introduction

Education is a universally acclaimed instrument par excellence for nation building as it plays an indispensable role in shaping the attitudes, beliefs, skills and competencies of individuals exposed to it. Thus, Ughamadu (2006) defined education as "a process by which young people acquire the cultural heritage, ideals and civilization of the past so as to be able to take part in the civilization of the present and help build the civilization of the future". Ughamadu further noted that education is a means by which the individual is developed so that he will be able to live effectively and efficiently in the present society and contribute to its advancement and upliftment. Thus education is aimed at changing the behavior of individuals exposed to it in desirable directions.

Generally, education could be formal or informal. Informal education is accidental and has no specified curricula while formal education is planned and has

well-defined curricula contents. One major attribute of formal education is evaluation. As education seeks to change the behavior of learners in desirable directions, it becomes imperative that the nature and extent of these changes be determined after the learners have been exposed to a particular course of study or curriculum and that is what evaluation does. Evaluation of instruction therefore is a systematic way by which the effectiveness or otherwise of a programme of instruction in relation to the set objectives is determined (Ughamadu, 2006; Ugwuja & Igbokwe, 2009).

There are different types of evaluation. The two major types are formative and summative (Igbokwe, 2009). Formative evaluation is carried out during instruction and used for discovering the strength and weaknesses of students as instruction progresses. Summative evaluation is carried out at the end of a course and the result used for promotion purposes and certification. Both types of evaluation if well conducted help the trainers to ascertain the learners' level of mastery of subject matter after being exposed to a course of instruction. Nnam and Inah (2015) noted that evaluation is the yardstick against which students competences and progress are formally measured and appraised in the education sector. Evaluation is thus passing a value judgment based on certain measures. These measures are provided by one form of assessment or the other. Evaluation therefore involves both measurement and assessment. Assessment techniques in Science education include tests, projects, practicals, take-home assignments, field trips and examinations (Ugwuja & Igbokwe, 2009). This paper will focus more on examination especially external examination. George and Ukpong (2013) opined that examination is the most common tool around which the entire education system revolves.

In Nigeria, certain examination bodies have been charged with the responsibility of conducting external examinations leading to certification and placement in higher levels of education. These bodies include West Africa Examination Council (WAEC), National Examination Council (NECO), National Business and Technical Education Board (NABTEB), Joint Admission and Matriculation Board (JAMB) as well as the various states ministries of education. It is however regrettable to note that the conduct of the various examinations undertaken by these bodies leaves much to be desired being fraught with a lot of examination malpractices.

Examination malpractice in Nigeria is not a recent phenomenon. It dates back to 1914 when Senior Cambridge local examination leaked (Anzene as cited in Onyibe, Uma & Ibina, 2015). Examination malpractice is any act that gives a candidate undue advantage before, during or after the examination. It gives rise to undeserving candidates getting grades, admission, promotion or jobs they do not merit. It is academic dishonesty or academic fraud (Tinibu, n.d). It is a cankerworm, that has eaten deep into the fabric of our educational system in Nigeria. Examination malpractice takes different shapes and forms which includes leakage of examination question papers, impersonation, exchange of question papers by candidates,

smuggling of question papers out of the hall for mercenaries to solve and bring back in the hall, 'girrafing', use of mobile phones to send answers to candidates, subject teachers giving science students values to work with in science practical examinations, bribing of supervisors by students or school authorities to allow the students to cheat and so many others. WAEC chief examiners report 2018 indicated massive involvement of candidates in examination malpractices resulting in the withholding of many results. Onyibe, Uma and Ibina (2015) noted that though examination malpractice has been a social problem for decades, the rate and manner it is being perpetrated these days calls for serious concern. It has become so alarming that there is virtually no examination anywhere at all levels of education in this country that one form of malpractice or another does not go on (Nnam & Innah, 2015; Ojonemi, Enejoh, Enejoh, & Olatunmibi, 2013). This no doubt is an embarrassment to the nation's image as it tends to discredit the quality of our educational system (Onyibe, Uma & Ibina 2015)

Examination malpractice has far reaching effects on the educational system and the society at large. It poses a serious threat to the purpose of education (Kolawole, 2019) and examination. Examination malpractice has many effects on the students, the teachers, the educational institution and the educational system at large (Tinibu, n.d). Students who indulge in it are most likely to grow with lack of self confidence especially in future examinations. They are also more likely to be dishonest in life. Certificates obtained through malpractice cannot give employers the correct judgment of who deserves a job or not (Tinibu, n.d), and teachers cannot use the results obtained through malpractice to ascertain whether the objectives of the programme of instruction have been achieved or not. In addition to these effects, examination malpractice could also have impact on creativity and innovation in students and this paper seeks to find out the perception of science teachers and science students on this view.

Creativity and innovation are two great engines that drive scientific and technological breakthroughs. The two terms are however defined in many different ways by different people. Some define them separately while others integrate the two terms in their definitions. According to Wikipedia," Creativity is a phenomenon whereby something new and valuable is formed. The joke) or a physical object (such as an invention, a literary work, or a painting". F created item may be intangible (such as an idea, a scientific theory, a musical composition, or aor May (2014) creativity is the process of bringing something new into being. It requires passion and commitment and brings to our awareness what was previously hidden and points to new life. Ahmad (2014) defined creativity as the capability or act of conceiving something original or unusual, thinking out something new while innovation is the implementation of that new thing. According to Gupta (2015), ''Creativity is coming up with new thoughts, ideas and innovation is converting that creative thought into a final product". Thus while creativity is related to imagination, innovation is related to

implementation. One thing that stands out in these definitions is that creativity and innovation have nothing in common with laxity and indolence. They are borne out of a curious and critical mind.

Furthermore, creativity is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Making connections is considered an important aspect of creativity and science education involves making connections between different aspects of learning across the curriculum (Anthony, et. al, as cited in Ibrahim & Muhammed, 2015). Thus no nation can grow scientifically without creativity and innovation. In fact, science and technology is all about creativity and innovation. Science deals with the study of nature and natural phenomena while technology deals with the human ability to shape and change the physical world to meet needs by manipulating materials and tools with techniques.

The secondary school is the base for preparing future scientists and technologists and if we must harvest them from the cradle, adequate attention must be given to what goes on at that level. One of the set of beliefs on which the Nigeria's philosophy of education is based is that "education maximizes the creative potentials and skills of the individual for self-fulfilment and general development of the society'' (Federal Ministry of Education, FME, 2013). Furthermore, it is the goal of education in Nigeria to ensure the development of appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society. If examination malpractice continues unabated in our society, this laudable belief and goal will be far from being achieved, as it promotes laxity and kills incentive or motivation for hard work and creativity which is the precursor of innovation and runs counter to an objective of the secondary education which is to raise morally upright and well-adjusted individuals who think independently and rationally, respect the views and feelings of others and appreciate the dignity of labour (FME, 2013). It is against this backdrop that the researchers sought to know the perception of the science teachers who are the implementers of the curriculum and the science students themselves on the impact of examination malpractices on creativity and innovation in science students. It is expected that one's perception towards examination malpractice will determine his/her attitude towards it. The problem of this study therefore put in question form is: what is the perception of secondary school science teachers and students on the impact of examination malpractices on creativity and innovation in science students?

Purpose of the Study

The purpose of this study is to determine the impact of examination malpractice on science students' creativity and innovation as perceived by secondary school science teachers and students. Specifically, the study will determine the:

1. perception of senior secondary school science students on examination malpractice.
2. perception of senior secondary school science teachers on examination malpractice.
3. impact of examination malpractice on creativity and innovation as perceived by secondary school science students.
4. the impact of examination malpractice on creativity and innovation as perceived by secondary school science teachers.

Research Questions

1. What is the perception of senior secondary school science students on examination malpractice?
2. What is the perception of senior secondary school science teachers on examination malpractice?
3. What is the perception of senior secondary school science students on the impact of examination malpractice on their creativity and innovation?
4. What is the perception of senior secondary school science teachers on the impact of examination malpractice on the creativity and innovation of science students?

Hypothesis

There is no significant difference in the mean perception rating of secondary school science students and science teachers on examination malpractice.

Method

Descriptive survey research design was adopted in this study. The population of the study consisted of all the senior secondary three (SS3) students and all science teachers in public secondary schools in Nsukka Local Government Area of Enugu State. The sample consisted of 127 science students and 37 science teachers both drawn from seven public secondary schools in Nsukka Local Government Area using purposive and simple random sampling techniques. The instrument for data collection was a forty three-item structured questionnaire (section A for students and section B for teachers) on a 4-point Likert scale (of strongly agree, agree, disagree and strongly disagree) developed by the researchers. The instrument was titled “Perception of Teachers and Students on Examination Malpractice Questionnaire” (PTSEMQ). The questionnaire was validated by two experts in science education and an expert in measurement and evaluation from the University of Nigeria, Nsukka. The reliability of the instrument was determined using Cronbach Alpha and the reliability coefficient obtained was 0.76. Copies of the questionnaire were administered to the respondents by the researchers. The research questions were answered using mean and standard deviation while t-test was used to test the hypothesis at 0.05 level of significance. For positively cued items, a mean above 2.50 indicated that the respondents agreed with

the item on the questionnaire while a mean below 2.50 indicated respondents' disagreement. For negatively cued items, a mean above 2.50 indicated that the respondents disagreed with the item on the questionnaire while a mean below 2.50 indicated that they agreed.

Results

Table 1: Mean rating and the standard deviation of the responses on science students' perception of examination malpractice.

S/N	Items	Mean	Sd	Decision
1	I don't see anything wrong with examination malpractice	3.6	0.70	Disagree
2	Science subjects are very difficult to pass without examination malpractice	3.1	0.94	Disagree
3	I feel guilty when I engage in examination malpractice	3.1	0.94	Agree
4	Examination malpractice will help me to make good grades	2.8	1.12	Disagree
5	Cheating in examination is dishonesty, it should be avoided	3.3	0.98	Agree
6	Since everybody is doing it, I do not feel bad being involved in examination malpractice	2.8	1.07	Disagree
7	Cheating in examination is degrading and should be avoided	2.2	0.97	Disagree
8	I only cheat during an important examination	2.6	1.15	Disagree
9	Examination malpractice is not a proper way to achieve success	3.2	1.04	Agree
10	If you are always honest in examination, you will not make good grades	2.9	1.13	Disagree
11	There is nothing wrong in preparing well for examination and receiving help from others in addition	1.97	1.07	Agree
12	Cheating in examination is wrong even if the examination is difficult	2.9	1.11	Agree
13	I welcome it with joy when my teachers give me values to work with in practical examination	2.3	1.05	Agree
14	I love to make good grades even if it is through examination malpractice	2.7	1.03	Agree
15	There is no way I can pass my science subjects very well without help from others	3.1	0.95	Disagree
16	Cheating does not disturb my conscience at all	3.1	0.95	Disagree

17	There is nothing wrong with students helping one another during examination	2.4	1.04	Agree
18	Examination malpractices are against science ethics	2.7	0.98	Agree
	Grand Mean	**2.90**		

The grand mean of 2.90 reveals that the science students generally perceive examination malpractice as wrong. Items 7, 11, 13 and 17 however reveal that though the students perceive examination malpractice as wrong, they do not see it as degrading for a science student to engage in examination malpractice and they do not mind preparing for examination and still receiving help from others including their teachers giving them the values to work with in science practical examinations. In other words, though science students perceive examination malpractice as wrong, they still feel there is need to indulge in one form of examination malpractice or the other.

Table 2: mean rating and the standard deviation of responses on science teachers' perception of examination malpractice.

S/N	Items	Mean	SD	Decision
19	There is nothing wrong in helping students in examination	3.7	0.73	Disagree
20	My conscience is disturbed if I get involved in any form of examination malpractice	3.3	1.08	Disagree
21	My students may not do well if I do not assist them in examination	3.6	0.80	Disagree
22	I am not only against any form of examination malpractice but also against other teachers who indulge in it	3.5	0.96	Agree
23	It is very degrading for a science teacher to aid or abet examination malpractice	3.4	1.12	Agree
24	Science students should be helped in examination because science subjects are difficult to pass	3.6	0.82	Disagree
25	I am always very strict in invigilation to avoid examination malpractice	3.6	0.73	Agree
26	Examination malpractice is an act of dishonesty. It is against science ethics	3.5	0.84	Agree
27	It is not necessary to allow students to cheat once I teach my subjects very well	3.5	0.90	Agree
28	Being involved in examination malpractice is morally wrong	3.8	0.63	Agree

29	Since every other person and school is involved, I don't feel bad being involved in examination malpractice	3.8	0.55	Disagree
30	Examination malpractice should be avoided because it is against examination rules and regulations	3.4	0.53	Agree
31	Cheating in examination is not a proper way to success	3.9	0.35	Agree
32	It is not good to give students values to work during science practical examination	2.9	1.30	Agree
33	Allowing students to engage in examination malpractice is the only way out because science is very difficult	3.7	0.78	Disagree
34	I don't feel disturbed when I give my students values to work with during science practical examination	3.2	1.04	Disagree
35	I feel happy when my students make good grades even if it is through examination malpractice	3.7	0.66	Disagree
	Grand mean	3.5		

The grand mean of 3.5 shows that science teachers strongly perceive examination malpractice as wrong.

Table 3: mean rating and standard deviation of responses on the perception of science students on the impact of examination malpractice on creativity and innovation.

S/N	Items	Mean	SD	Decision
36	Examination malpractice will have negative effect on my future	3.2	0.94	Agree
37	Being involved in examination malpractice will hinder my creativity as a science student	3.0	0.96	Agree
38	Examination malpractice does not affect my creativity as a science student	2.7	1.04	Disagree
39	Examination malpractice will hinder national development	3.1	1.01	Agree

The result in table 3 reveals that the students agreed to items 36, 37 and 39 and disagreed to item 38. This shows that science students perceive examination malpractice as having a negative impact on creativity in science students and hence on innovation and national development.

Table 4: mean rating and standard deviation of science teachers' perception on the impact of examination malpractices on creativity and innovation in students.

SN	Items	Mean	SD	Decision
40	Examination malpractice has negative effect on the future of the students	3.6	0.93	Agree
41	Examination malpractice by science teachers will impact negatively on our national development	3.7	0.66	Agree
42	Examination malpractice will hinder creativity in science students	3.6	0.72	Agree
43	Examination malpractice has no effect on the creativity of science students	3.5	0.96	Disagree

The result in the table reveals that the science teachers agreed to items 40, 41 and 42 and disagreed to item 43. This shows that science teachers perceive examination malpractice as having a negative impact on creativity in science students and hence on innovation and national development.

Table 5: t-test analysis of the significant difference in the mean ratings of the perception of science teachers and students on examination malpractice.

Group	Mean	SD	Df	t-value	sig.	Decision
Teacher	3.5	0.5	162	6.732	0.00	Reject
Students	2.9	0.49				

Table 5 shows that the probability associated with the calculated value of t (6.732) for the perception of science teachers and students on examination malpractices is 0.000. Thus the null hypothesis is rejected since the probability value is less than 0.05 level of significance meaning that there is a significant difference in the mean rating of the perception of science teachers and science students on examination malpractices.

Discussion of Results

The findings of this study show that science students perceive examination malpractice as wrong and as having a negative impact on creativity and innovation. It is however evident from the item analysis that though they perceive it as such; they still indulge in it in many ways. When students have the hope of being assisted in any way during examination, it has the tendency of reducing the motivation to work hard to achieve success but rather promotes laxity. This is the bane of our educational system in Nigeria. Adeniyi (as cited in Obiajulu, 2017) opined that “the fast pace of development recorded by developed countries clearly show that it is driven by innovativeness, creativity and enterprise of people” The situation in Nigeria is quite different and this can be attributed to the negative impact of examination malpractice

which gives rise to poor quality of science education products at the secondary school level (Onyibe, Uma & Ibina, 2015, Kolawole, 2019). The secondary school level as earlier stated should provide the base for preparing future scientists and technologists but if the science students do not have the foundation of critical thinking that breeds creativity and subsequent innovation, the pace of national development will remain unsatisfactory.

Certificates remain the only means to prove academic worth and for securing jobs in Nigeria. This fact has contributed to the increasing rate of examination malpractices in schools (Binitie, Ezzeh & Akhator, 2017). Students are therefore ready to go to any length in order to obtain the certificate. If this state of affair continues, creativity and innovation will remain elusive among our secondary school students and scientific and technological advancement of the nation a mirage. This is so because creativity and innovation are two great engines that drive scientific and technological breakthroughs as earlier noted and indulgence in examination malpractice does not encourage critical thinking that breeds creativity and innovation

The findings of the study also revealed that science teachers not only perceived examination malpractice as wrong and as a hindrance to creativity and innovation but did so more strongly than the students. This is worthy of note and quite encouraging as teachers are the implementers of the science curriculum and an educational system is only as good as the quality of its teachers (FME, 2012). The perception of science teachers on this issue is thus very critical as it is expected to influence their attitude to teaching, invigilation, marking of examination scripts, and supervision of both internal and external examinations. Despite this perception by science teachers, it is disheartening to note that some science teachers either aid or abet examination malpractices, at times unintentionally. Tinibu (n.d) noted that teachers can unintentionally aid examination malpractice when they are very strict (and unapproachable) and incompetent in their teaching approaches. This ought not to be so. Science teachers should therefore move from merely perceiving examination malpractices as wrong to taking definite and decisive steps to exterminate it from our schools as the power to do so lies in their hands.

Conclusion

The development of any nation relies solely on its human resources through creativity and innovation. It is through education that this creativity which breeds innovation is activated. Examination malpractice hinders human resources development especially among secondary school science students who should be the bedrock of our scientific and technological advancement. Examination malpractice is an ill-wind that blows no good. It is morally wrong, It is against science ethics and the objectives of secondary school education. It is a heinous crime. All science educators

should raise an out-cry against it, if not, our hope of scientific and technological advancement will remain a mirage.

Recommendations

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

1. Value reorientation programmes should be mounted in schools for science teachers and science students in particular to acquaint them with the impact of examination malpractice on creativity and innovation.
2. Stringent sanctions should be taken against anyone who aids and abets examination malpractice.
3. Adequate number of qualified science teachers should be recruited and adequate remuneration given to discourage science teachers from examination malpractice.
4. Schools who are reputed for not engaging in examination malpractice should be recognized and rewarded.

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