



ELECTRONIC INVIGILATION INCLUSION IN CURBING EXAMINATION MALPRACTICES AMONG POSTGRADUATE STUDENTS IN SELECTED PUBLIC TERTIARY INSTITUTIONS IN RIVERS STATE

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ABSTRACT: *The study investigated electronic invigilation inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. The study adopted the descriptive survey research design. Three research questions and three hypotheses guided the study. The population of the study consisted of all 9,510 postgraduate students of three academic sessions of three tertiary institutions. Taro Yamane Formula was used for the sample size. The multi-stage sampling techniques were adopted in selecting the sample size of 400. A structured questionnaire titled electronic invigilation inclusion in curbing examination malpractice questionnaire (EIICEMQ) was used as an instrument for data collection. Three experts validated the instrument and Cronbach Alpha Method was used to obtain an average reliability coefficient of 0.83. 400 copies of the questionnaire were administered to the respondents but only 365 were retrieved and used for the study. The items were rated on a four (4) point rating scale; mean and standard deviation were used to answer the research questions while z-test was used in testing the formulated hypotheses. The findings reviewed that there is a high extent of close-circuit television (CCTV) camera, biometric system and signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. The researcher recommended that tertiary institutions should adopt the use of CCTV camera for surveillance and the recording of examination offenses because the mere presence of CCTV cameras alone is capable of scaring potential malpractice candidates, since they are well aware of being watched, with the possibilities of recorded clips being filed as evidence of malpractice endeavors, tertiary institutions should adopt the use of biometric system in registering admitted students and use same process in identifying the registered students during examinations and tertiary institutions should also deploy signal jamming devices in order to temporarily stop the functionality of cell phones and its usage for unnecessary communications during examinations.*

KEYWORDS: Electronic Invigilation Inclusion, Curbing, Examination Malpractices, Post Graduate Students, Tertiary Institutions



INTRODUCTION

Examination in the school setting is the assessment of an examinee's ability, performance or achievement in a given task or subject matter. It is made up of a set of tasks, questions, situations, among others. It is intended to elicit particular types of behavior from the examinee and can take different forms depending on the purpose. Generally, examination assesses an examinee's performance when he is confronted with series of questions, problems, tasks or situations set for him in order to ascertain the amount of knowledge that he has acquired, the extent to which he is able to utilize it or the quality and effectiveness of the skills he has developed (Asuru, 2012). The result of such an examination represents an estimate of the testee's behavior (achievement, ability, performance, and so on). Over the years, examinations have become the basic characteristics of the school system all over the world. It is regarded as a requirement upon which the most important decisions about the progress of the learners and the performance of the teachers, school administrators and all stakeholders in the educational system are based (Agbor, 2013). Generally, the basic role of examination is to generate ideas for promotion, certification, selection, prediction, monitoring of educational standards and performance, instructional and motivational aids, and research (Asuru, 2012). However, despite the importance of examination in teaching and learning situations, a number of factors affect the credibility of examination scores. One of such practices that may affect the reliability of examination scores is examination malpractice.

According to Omiebi (2016), examination malpractice is any illegal act committed by a student single handedly or in collaboration with others like fellow students, parents, teachers, supervisors, invigilators, printers and anybody or group of people before, during or after examinations in order to obtain undeserved marks or grades. Some forms of examination malpractices include copying on sheet of papers, handkerchiefs, desk/chairs; collusion with other candidates, electronic gadgets like calculators, mobile phones, bringing books into the hall, insulting or assaulting supervisor or invigilator, replacement of answer script with another one during or after the examination, smuggling scripts written outside into the examination hall, writing on handkerchief/thigh, stretching of neck like the giraffe to look at the work of a fellow and leakage of examination questions before the actual examination day.

Adekale (2013) opined that examination malpractices have been flourishing at the background in Nigerian schools as some students in tertiary institutions are known to exhibit this unhealthy attitude in schools. He recommended the deployment of electronic invigilators such as the close-circuit television (CCTV) camera, biometric system and signal jamming devices to monitor examinations in public schools across the states. Electronic invigilation is the use of remote-controlled terminals that are linked with the main servers of any institution in managing both offline and online invigilation of examinations.

According to Horn and Schunck (2021), CCTV is a television system in which signals are not publicly distributed but are monitored, primarily for surveillance and security purposes. CCTV relies on strategic placement of cameras and private observation of the camera's input on monitors. Biometric systems on the other hand is the use of measurable, biological characteristics such as fingerprints or iris patterns to identify a person to an electronic system. Once these measurements have been taken, they may then be used to authenticate an individual or user. This is done by comparing the sampled biometric against a template taken earlier (Bladergroen, Chigona, Bytheway, Cos, Dunas & Van-Zyl, 2014). Signal jamming devices are devices that transmit radio frequencies, similar to the cell phones' frequencies,



thereby disrupting the communication between the base station and the cell phones (Aduwa-Ogrebaen and Iyamu, 2015).

CONCEPTUALIZING EXAMINATION MALPRACTICE

Examination malpractices are common in tertiary institutions and every examination season witnesses the emergence of new and ingenious ways of cheating. In Nigeria, the Examination Malpractice Act, Cap E15 Laws of Federal Government of Nigeria (2004) explains examination malpractice as any act of omission or commission by a person who in anticipation of, before, during or after any examination fraudulently secure an unfair advantage for himself or any other person in such a manner that contravenes the rules and regulations to the extent of undermining the validity, reliability, authenticity of the examination and ultimately the integrity of the certificate issued Federal Government of Nigeria (FRN, 2014). From the above enactment, examination malpractice covers both the pre, during and post-mindset of the stakeholder targeted at perpetrating fraud in the examination. On the other hand, Omenu (2015) defined examination malpractice as any dishonest or unauthorized action or deed committed by a student on his own or in collaboration with others like fellow students, guardians, parents, teachers, head teacher, examination officials, supervisors, invigilators, security officers and anybody or group of people before, during or after examination in order to obtain undeserved marks or grades. From all the definitions, it is clear that examination malpractice tends to confer undue advantage or undeserved grade to the perpetrators of the act. Again, it may be committed by not only the candidates but also by other bodies charged with the responsibilities of examination management.

Closed-Circuit-Television (CCTV) Camera in Curbing Examination Malpractice

Most examination malpractices in Nigeria occur while the examination is in progress, in the form of bringing in unauthorized materials, writing on currency notes and identity cards, spying on other candidates in examination halls, substitution of answer sheets and impersonation. Effective invigilation can nip these examination malpractices in the bud and that can be done using closed-circuit-television (CCTV) cameras (Okorie, 2018). CCTV cameras have the advantage of providing video surveillance of examinations, deterrent effect on potential offenders, and evidence of occurrence or non-occurrence of malpractice.

CCTV cameras, therefore, have the capacity to perfect the examination invigilation process and curb the propensity of candidates to indulge in such examination malpractices. The system provides a surreptitious/secret monitoring of people's activities. According to Olasehinde (2013), CCTV cameras provide an unimpeded real-time monitoring by the federal law enforcement agencies and other governmental organizations, making the activities, for example, examination of tertiary institutions, quick and prompt, provides quick and prompt response when there is a security problem, makes the location and tracking of law fugitives easier the and ensures a more secured and safer environment conducive for meaningful socio-economic development. CCTV cameras, when installed in strategic positions in examination halls, can be used to monitor in real-time the activities of both candidates and exam facilitators such as invigilators. Such unbiased machine monitoring or surveillance enhances proper invigilation of examinations, ensures that participants in the examination conduct



themselves properly in a transparent manner, and instills confidence in the participants against molestation or wrong accusation of malpractice (Ayuwa, 2018). It also gives the examiner confidence that his/her examination is free and fair and can equally be verified.

The Digital Video Recorder (DVR) component of the CCTV system has the capacity to record and store for future review the video or images captured by the cameras. Footage of a CCTV can be used as a proof in the event that malpractice is carried out. It is believed that with CCTV, incidences of malpractice during examinations can be drastically reduced given that both surveillance technologies have the capacity to ensure that examinations are properly monitored and recorded, serve as deterrence to potential offenders, and provide footage evidence to that effect (Curran, Middleton & Doherty, 2014). Okorie (2018) revealed that the installation of closed-circuit television (CCTV) cameras in all examination halls to check malpractices were innovative measures to curb examination insecurity in Nigeria with examination malpractice being the focus.

Biometric System in Curbing Examination Malpractice

Davies, Yin and Velastin (2015) opined that biometric is a technology that (uniquely) identifies a person based on his physiological or behavioral characteristics. It relies on —something that makes personal identification and therefore can inherently differentiate between an authorized person and a fraudulent imposter. Biometrics can be used to achieve a positive identification with a very high level of confidence, such as an error rate of 0.001% (Alutu & Aluede, 2016).

The use of biometric identification in the view of Adesina (2016) has led to increase in efficiency. Instead of serving a long queue for checking the students' identity before letting them inside an examination room, the biometrics helps schools to avoid backed-up, unauthorized entry, and fake identity cards. Ijabadeniyi (2017) in a survey found that in a school system where biometric devices were used instead of PIN pads, minutes saved can prove precious in not only helping students adjust themselves better before an exam but also helped the school authorities in curbing any malpractices. It was also found that the use of biometric devices helped increase security levels of the school and protect the students' privacy. This is because of the simple fact that as against the traditional identity cards and pins, one student cannot misuse, forge, steal another student's biometric identification in order to access a fellow students account.

Fingerprint technology using biometrics employs a certain advantage of eradicating the problem of examination impersonation by allowing the measure of what you are to perform the security activities of student participation in the examinations. With such benefits of fingerprint software, more and more schools all over the world are using these methods (Onyibe, Uwa & Ibina, 2015). These biometrics are very reliable, they save the cost of producing cards, are easy to use, as well as secure for the students. Along with this, schools' managements are also being aware that biometric identification is not a high-tech ultramodern concept and is quite affordable. These methods have proved to be very handy in curbing the problems relating to forgotten pins, lost cards, and the potential for misuse due to bullying and so on (Horn & Schunck, 2021).



Signal Jamming Devices in Curbing Examination Malpractice

A jammer is, fundamentally, a signal blocking device, which transmits synchronized radio waves on the same frequency range of the device that one needs to blur, therefore preventing devices from transmitting data in the chosen area (Omnijo & Nnedum, 2013). Augustine and Okereke (2018) pointed out that it is technologically easy to disrupt mobile phones by making all attempts to block the electrical fields. Signal jamming devices according to Curran, Middleton and Doherty (2014) are intended to prevent radio equipment from receiving and transmitting signals relevant to their functions. Such jammers can be programmed to be strong enough to block mobile phone signals without interfering with the functionalities of other electronically-powered equipment in the examination halls, such as electronic doors and boards, CCTV camera, among others.

Jamming devices overpower the cell phone by transmitting a signal on the same frequency and at a high enough power that the two signals collide and cancel each other out. Cell phones are full-duplex devices, which means they use two separate frequencies, one for talking and one for listening simultaneously. Jammers block several types of networks at once to head off dual-mode or tri-mode phones that automatically switch among different network types to find an open signal (Bruno & Ogidigbo, 2013). Some of the high-end devices block all frequencies at once, and others can be tuned to specific frequencies.

Mobile phones have been found to be a perceived tool when students choose to engage in acts of examination malpractice. Increased use of mobile phones by students has enhanced examination malpractice in schools (Okorie, 2018). Students use electronic devices like mobile phones to send information silently through text messages or faxing to friends. Cases of this form of examination malpractice abound in our tertiary institutions. For instance, Omnijo and Nnedum (2013) reported that students used mobile phones to solicit help in the examination hall and collect information from colleagues outside the examination hall. Mobile phones used under this condition are put on silence and vibration modes.

Statement of the Problem

One of the principal aims of the examination is to assess how much learning has taken place and to what extent the educational objectives and goals have been achieved. Regrettably, examination malpractice keeps posing a threat to proper education in the country, and the various merits accrued to it. While stiffer measures have been put in place to tackle this menace, perpetrators still find their way to beat the system. Oftentimes, they insult, embarrass, threaten, and even assault invigilators and supervisors who fail to cooperate with them in the unholy practice. The problem of examination malpractice is in fact multi-dimensional. Some schools and players within the system have been reported to be aiding and abetting the act. A good number of parents and wards are equally culpable. Recently, examination bodies are calling for the deployment of technology in tackling examination malpractice since human invigilation has failed in curbing the menace. But the question is what technology should be used in curbing the menace of examination malpractice?

The study investigated electronic invigilation inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.



Purpose of the Study

The purpose of this study is to investigate electronic invigilation inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. Specifically, the objectives of the study are to;

1. Determine the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State;
2. Ascertain the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State; and to
3. Assess the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Research Questions

The following research questions guided the study;

1. To what extent is close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?
2. To what extent is biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?
3. To what extent is signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?

Hypotheses

The following null hypotheses were formulated for the study and was tested at 0.05 level of significance;

1. There is no significant difference in the mean responses of male and female postgraduate students to the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.
2. There is no significant difference in the mean responses of male and female postgraduate students on the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.
3. There is no significant difference in the mean responses of male and female postgraduate students on the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.



METHODOLOGY

The research design used for the study was a descriptive survey design. The population of the study was 9510 postgraduate students consisting of 4844, 3688 and 978 postgraduate students of 2019-2020, 2020-2021 and 2021-2022 academic sessions from University of Port Harcourt (Uniport), Rivers State University (RSU) and National Open University of Nigeria (NOUN) respectively. A sample size of 400 consisting of 200 male and 200 female postgraduate students was derived through Taro Yamane Formula. Multi-stage sampling technique was adopted to select the sampled number amongst the three tertiary institutions. “Electronic invigilation inclusion in curbing examination malpractice questionnaire” (EIICEMQ) was used to collect data from the respondents. The instrument had two (2) sections; section A and B. Section A dealt with demographic information while Section B had 15 questionnaire items based on the objectives of the study. The response scale was structured on a 4-point likert rating scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE) with values 4, 3, 2, 1 respectively. Cronbach Alpha method was used to determine and obtain reliability indexes of 0.86, 0.80 and 0.82 for clusters 1-3 and an overall reliability coefficient index of 0.83 was obtained indicating that the instrument was reliable. Mean and standard deviation were used to answer the research questions using real limits for 3.50-4.00, 2.50-3.49, 1.50-2.49 and 0.50-1.4 for VHE, HE, LE and VLE respectively to evaluate each item on the instrument. The hypotheses were tested using z at 0.05 level of significance. Analyzed data therefore, with calculated z-values above the z-critical of ± 1.96 were rejected and below ± 1.96 were accepted.

RESULTS

Research Question 1: To what extent is close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?

Table 1: Mean Responses of Male and Female Postgraduate Students on Close-circuit Television Camera Inclusion in Curbing Examination Malpractice

S/No	ITEMS	Male		Decisions	Females		Decisions
		— X	SD		— X	SD	
1	CCTV camera is useful in controlling examination malpractice	3.30	1.05	HE	2.56	1.10	HE
2	With CCTV camera the level of examination malpractice will significantly reduce in tertiary institutions	2.68	0.97	HE	2.57	1.16	HE
3	CCTV camera will easily expose students better than human invigilators	2.70	0.93	HE	2.59	1.14	HE



4	With CCTV camera there will be enough evidence to judge students caught in examination malpractice	2.71	0.98	HE	2.75	1.10	HE
5	Students caught could readily plead guilty with evidence from CCTV camera	2.69	0.95	HE	2.64	1.10	HE
Grand Mean/SD		2.82	0.98	HE	2.62	1.12	HE

Source: *Researcher's Field Result, 2023.*

Table 1 above showed that the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent with the following mean values for items (1-5) for male: 3.30, 2.68, 2.70, 2.71 and 2.69 and for female: 2.56, 2.57, 2.59, 2.75 and 2.64 respectively. The standard deviation values range from 0.93 to 1.05 for males and 1.10 to 1.16 for females, indicating a close response from respondents on all items.

Research Question 2: To what extent is biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?

Table 2: Mean Responses of Male and Female Postgraduate Students on Biometric System Inclusion in Curbing Examination Malpractice

S/No	ITEMS	Male			Females		
		\bar{X}	SD	Decisions	\bar{X}	SD	Decisions
6	Imputation of fingerprint template helps curb examination malpractice	2.61	0.98	HE	2.67	1.14	HE
7	The use of captured passport photograph reduces impersonation	2.63	0.94	HE	2.61	1.22	HE
8	Registration number biometrics reduces examination malpractice	2.88	1.04	HE	2.53	1.20	HE
9	Using biometrics identity number curbs examination malpractice	2.69	0.95	HE	2.76	0.90	HE
10	Biometric system is used to identify the gender of an examinee and eliminates impersonation	2.93	1.06	HE	2.57	0.95	HE
Grand Mean/SD		2.75	0.99	HE	2.63	1.08	HE

Source: *Researcher's Field Result, 2023.*



Table 2 above revealed that male and female postgraduate students in selected public tertiary institutions in Rivers State responded to a high extent to all the questionnaire items (6-10) with average mean scores of 2.61, 2.63, 2.88, 2.69 and 2.93 for male and 2.67, 2.61, 2.53, 2.76 and 2.57 for female. This infers that biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent.

Research Question 3: To what extent is signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State?

Table 3: Mean Responses of Male and Female Postgraduate Students on Signal Jamming Devices Inclusion in Curbing Examination Malpractice

S/No	ITEMS	Male			Females		
		— X	SD	Decisions	— X	SD	Decisions
11	Installation of short message service (SMS) tracking devices at all examination centers that can access network curbs examination malpractice	3.10	1.07	HE	2.94	0.90	HE
12	Prohibition of mobile phone in examination hall eliminates examination malpractice	2.70	1.06	HE	2.22	0.80	HE
13	Jamming devices eliminates calls reception during examinations and removes examination malpractice	2.60	1.14	HE	3.21	0.98	HE
14	Cuts off possible communication channels between students and cancels examination malpractice	3.05	0.98	HE	2.75	0.95	HE
15	Eliminates communication between examinees and those outside examination halls	3.26	0.81	HE	2.33	1.08	HE
	Grand Mean/SD	2.94	1.01	HE	2.69	0.94	HE

Source: *Researcher's Field Result, 2023.*

The result on Table 3 above showed that the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent with the following mean values for items (11-15) for male: 3.10, 2.70, 2.60, 3.05 and 3.26 and for female: 2.94, 2.22, 3.21, 2.75 and 2.33 respectively.



Hypothesis 1: There is no significant difference in the mean responses of male and female postgraduate students on the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Table 4: Z-Test Analysis of the Responses on CCTV Cameras Inclusion

Respondents	N	— X	SD	DF	LS	z-cal	z-crit	Decision
Males	191	2.82	0.98	363	0.05	1.43	±1.96	Rejected no significant difference
Females	174	2.62	1.12					

Source: Researcher's Field Result, 2023.

Table 4 above shows no significant difference in the mean responses of male and female postgraduate students on the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. The z-calculated value of 1.43 was less than the z-critical value of ± 1.96 ($1.43 \leq \pm 1.96$) for the degree of freedom of 363 at 0.05 level of significance. Therefore, the null hypothesis was accepted which states that there is no significant difference in the mean responses of male and female postgraduate students to the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Hypothesis 2: There is no significant difference in the mean responses of male and female postgraduate students on the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Table 5: Z-Test Analysis of the Responses on Biometric System Inclusion

Respondents	N	— X	SD	DF	LS	z-cal	z-crit	Decision
Males	191	2.75	0.99	363	0.05	0.86	±1.96	Rejected no significant difference
Females	174	2.63	1.08					

Source: Researcher's Field Result, 2023.



Data on Table 5 above revealed a z-test analysis of the difference between the mean responses of male and female postgraduate students on the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. At 0.05 level of significance and 363 degree of freedom, the z-calculated value of 0.86 was less than the z-critical value of ± 1.96 ; therefore, the null hypothesis was accepted which states that there is no significant difference in the mean responses of male and female postgraduate students on the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Hypothesis 3: There is no significant difference in the mean responses of male and female postgraduate students on the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

Table 6: Z-Test Analysis of the Responses on Signal Jamming Devices Inclusion

Respondents	N	\bar{X}	SD	DF	LS	z-cal	z-crit	Decision
Males	191	2.94	1.01	363	0.05	1.79	± 1.96	Rejected no significant difference
Females	174	2.69	0.94					

Source: *Researcher's Field Result, 2023.*

Table 6 above shows no significant difference in the mean responses of male and female postgraduate students on the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State. The z-calculated value of 1.79 was less than the z-critical value of ± 1.96 ($1.79 \leq \pm 1.96$) for the degree of freedom of 363 at 0.05 level of significance. Therefore, the null hypothesis was accepted which states that there is no significant difference in the mean responses of male and female postgraduate students on the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

DISCUSSION OF FINDINGS

Findings on research question 1 on Table 1 revealed that the extent of close-circuit television cameras inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent with grand mean of 2.82 and 2.62 for male and female postgraduate students respectively. Hypothesis 1 on Table 4 showed that there is no significant difference in the mean responses of male and female postgraduate students on the extent of close-circuit television camera inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State with z-calculated value of 1.43 which is less than z-critical value of ± 1.96 .



This finding was in line with the findings of Okorie (2018) which revealed that installation of closed-circuit television (CCTV) cameras in all examination halls to check malpractices were innovative measures to curb examination malpractice in Nigeria.

Findings on research question 2 on Table 2 revealed that the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent with a grand mean of 2.75 and 2.63 for male and female postgraduate students respectively. Hypothesis 2 on Table 5 showed that there is no significant difference in the mean responses of male and female postgraduate students on the extent of biometric system inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State with z-calculated value of 0.86 which is less than z-critical value of ± 1.96 . The finding of the study is in agreement with Ijabadeniyi (2017) who in a survey found that a school system where biometric system was used instead of PIN pads helped students accommodate themselves better before an exam when inside the room and also helped the school authorities in curbing any malpractices.

Findings on research question 3 on Table 3 revealed that the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State is to a high extent with grand mean of 2.94 and 2.69 for male and female postgraduate students respectively. Hypothesis 3 on Table 6 showed that there is no significant difference in the mean responses of male and female postgraduate students on the extent of signal jamming devices inclusion in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State with z-calculated value of 1.79 which is less than z-critical value of ± 1.96 . This finding is in tandem with Curran, Middleton and Doherty (2014) that jammers are programmed to be strong enough to block mobile phone signals without interfering with the functionalities of other electronically-powered equipment in the examination halls in order to eliminate examination malpractice.

CONCLUSION

In view of the results obtained from the study, it was concluded that CCTV camera, biometric system and signal jamming devices inclusion have a high extent in curbing examination malpractices among postgraduate students in selected public tertiary institutions in Rivers State.

RECOMMENDATIONS

1. Tertiary institutions should adopt the use of CCTV cameras for surveillance and the recording of examination offenses because the mere presence of CCTV cameras alone is capable of scaring potential malpractice candidates, since they are well aware of being watched, with the possibilities of recorded clips being filed as evidence of malpractice endeavors.



2. Tertiary institutions should adopt the use of a biometric system in registering admitted students and use the same process in identifying the registered students during examinations.
3. Tertiary institutions should also deploy signal jamming devices in order to temporarily stop the functionality of cell phones and its usage for unnecessary communications during examinations.

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