

Combating malpractices with digital strategies in national business and technical certificate examinations

Ifeoma M. Isiugo-Abanihe¹, Philomena E. Iro-Aghedo¹, Irene Ovekairi Iluobe^{1*},
Catherine I. Omeonu¹

¹ National Business and Technical Examinations Board, Benin, Nigeria; ifeomaisiugo21@gmail.com

¹ National Business and Technical Examinations Board, Benin, Nigeria; philiroaghedo@gmail.com

¹ National Business and Technical Examinations Board, Benin, Nigeria; ireneovekairi@gmail.com

¹ National Business and Technical Examinations Board, Benin, Nigeria; kateomeonu@gmail.com

*Correspondence: Irene Ovekairi Iluobe, Email: ireneovekairi@gmail.com

ARTICLE HISTORY Received 15 September 2023; Accepted 25 December 2023

ABSTRACT

The use of digital strategies to combat examination malpractices is a relatively new innovation. NABTEB, in recent years, adopted digital measures as part of its vital role in enhancing quality assurance of its assessment as well as ensuring commitment to global best practices. Based on this premise, the Board put some necessary measures in place to mitigate cases of malpractice before, during and after examinations. Despite the noble idea of introducing digital strategies: Biometrics Registration, Electronic Processing of Results and Photo-Embossment on Certificates, perceived challenges persist and the effectiveness of the innovation remains uncertain. This study therefore, investigated the effectiveness of selected digital strategies in combating examination malpractices and challenges associated with the application. Four research questions guided the study. The study adopted ex-post facto design of descriptive survey, employing quantitative and qualitative approaches. The population comprised all the students who sat for 2005-2022 May/June National Business Certificate (NBC)/ National Technical Certificate (NTC) examinations and admission staff of tertiary institutions in Nigeria. The sample comprised all the confirmed cases of impersonation and double scripts submission in the years under review and 252 admissions staff of tertiary institutions were randomly selected. Two instruments were used: Reports on Examination Malpractice Cases and Questionnaire on Effectiveness of Photo-Embossment on Certificates to Curb Examination Malpractice (QEPECCEM) (Cronbach Alpha = 0.81). Quantitative data were analyzed using descriptive statistics while qualitative data were analyzed thematically. Findings revealed that the use of digital strategies has reduced the cases of impersonation and double scripts submission significantly. Non-verification of some candidates' biometrics, among others, hindered the effective use of digital strategies. More effective use of digital innovation in educational assessment was recommended among others.

Keywords: Strategies, malpractices, assessment, NABTEB

INTRODUCTION

Education is aimed at developing individuals to acquire knowledge and skills to meet the nation's manpower requirements and prepare them to face future challenges. The most reliable means of obtaining certificate for any course a learner undergoes is through his or her performance in examination in that particular discipline. Examination is an exercise designed to assess progress or test qualification, skills or knowledge. It is therefore, viewed as a way of ascertaining how much of a subject matter in a particular field of study a candidate has mastered. The main purpose of conducting examination in schools is to provide a measure of learners' ability with a view to making necessary academic and informed decisions about such learners. Examinations play vital roles not only in our educational system but also in the society as a whole. It is the best approach to evaluating the quality of performance of students, the school system and the overall efficacy of educational system as a social organization instituted for the growth and development of a society or nation. Most examinations serve a number of functions, such as certification, promotions, scholarship awards, placement, student motivation, evaluation of teaching method among others. The importance of examinations and the emphasis placed on certificates could make students to have more drive for certificates than acquiring knowledge, thereby leading to examination malpractices.

Examination malpractice is any deliberate act of wrong doing contrary to the rules and regulation of examinations designed to give a candidate an undue advantage. Therefore, examination malpractice is intentional action that threaten the integrity of examinations and reduce the validity and reliability of the educational system. Udoh (2011) defined examination malpractice as the act of disregarding the rules and guidelines by a candidate or their representatives before, during and after assessment to enjoy unnecessary benefits because such exercise gives candidates undue advantage and decrease the dependability of their marks and

scores if not caught or sanctioned. Similarly, Asante-Kyei and Nduro (2014) defined it as any act of omission or commission by a person who in anticipation of, before, during or after any examination fraudulently secures any unfair advantage which undermines the validity and reliability of the examination and the integrity of the certificates issued. Examination malpractice can occur outside or inside the examination hall and it is perpetrated by student, staff and other external agent before, during and after examination.

Examination malpractice occurs in different ways. For instance, some students connive with management of institutions to set up a malpractice centre referred to as "miracle centres" where students are openly allowed to cheat during examinations. Some perpetrators of examination malpractice gain unauthorized access to examination questions before the examinations and others bribe to compromise their grades and marking standards (Solomon, 2014). The agents commonly used are supervisors, custodians, examiners, computer operators, subject officers, office clerks, typists and many others. Aworanti (2012) asserted that examination malpractices carried out at the end of examinations are considered by the perpetrators to be the safest, surest and most reliable form of malpractice capable of achieving their desired objectives. Asuru in Aworanti (2012) affirmed that the substitution of a candidate's original script with a re-written one, alteration of scores in favour of candidates and the falsification of statement of results are very common at the final stage of examinations.

Forms of examination malpractice include impersonation, use of mercenary, leakage, swapping of scripts, use of crips, collusion, spying/copying. Others include use of unauthorized scientific calculators or similar electronic devices, refusing to stop taking the test when the test is over, alteration of examination grades, results/certificate forgery and verbal or physical assault on examination officials (Oko & Adie, 2016). All these scenarios and many others give

students an unfair advantage. Nnam and Inah (2015) stated that examination malpractice is caused by undue emphasis on excellent paper qualifications in the labour market at the expense of requisite skills and wealth of knowledge; environmental nature of some schools (schools located in deviant/criminal neighbourhoods); poor organisational structure under which most examinations are taken; overcrowded examination halls; undue involvement of students in social activities within and outside the school environment and lack of state-of-the-art teaching and learning resources.

Examination malpractice poses a great danger to the individual, the education system and the society at large. Some of these dangers include; inability to defend the certificate, perpetual condemnation of the conscience, possibility of unfulfilled dreams and vision, rustication from school or termination of job, spillover effect borne by parents and other relatives of culprits (Achio, Ameko, Kutsanedzie, Alhassan and Ganaa, 2012). Other effects of examination malpractice include low self-esteem after examination malpractice perpetrators are caught (Emeke, 2012), discouragement of students from hard work, low productivity and poor job performances, bribery, corruption, and certificate racketeering (Ibrahim, 2016; Petters and Okon, 2014). The consequences of examination malpractice both to education and the society will be disastrous if not checked. Many examination bodies in Nigeria, including NABTEB, Joint Admissions and Matriculation Board (JAMB), West African Examination Council (WEAC) and National Examination Council (NECO) have introduced National Identity Number (NIN) to fight examination malpractice. *The introduction of NIN has helped in addressing some of the fundamental channels of perpetrating examination malpractice through multiple applications.*

The National Business and Technical Examination Board (NABTEB), established through Act 70 of 1993 to carry-out assessment leading to the award of numerous categories of skills certificates including the

National Business Certificate (NBC) and National Technical Certificate (NTC), Advanced National Business Certificate (ANBC) and Advanced National Technical Certificate (ANTC) among others, is also faced with these challenges.

According to Kizlik (2010) assessment is a process by which information is collected through the use of test, interview, questionnaire and observation. Assessment is a process for gathering data about students learning and plays a crucial role in informing teaching and processes (Walde, 2016). The impact of good assessment is significantly observable on learners' performance (Black & William, 2018). To ensure credibility in assessment, the use of digital technologies has become a necessity to tackle the menace of examination malpractice.

Information and Communications Technology (ICT) could be introduced in assessment processes. Its application has indeed become a necessity and increasingly part of the mainstream in the educational system in Nigeria. According to Vendlinski and Stevens (2002), technology offers new measures for assessing learning that will yield rich sources of data and expand the ways in which educators understand learning, mastery and teaching effectiveness. Bennett (2002) opined that, technology is central to learning and as a result, it is going to prove to be central to the assessment process. Bennett further explains that technology will not only facilitate testing but also support authentic assessment. Chen and Kee (2005) stated that, information and communications technology is the backbone of knowledge economy and in recent years has been recognized as an effective tool for promoting economic growth and sustainable development. In view of this, it is obvious that the use of digital technologies will result in fundamental changes in assessment processes in Nigeria and other developing countries.

NABTEB has adopted and applied several measures to curtail examination malpractice. These measures include biometric registration of candidates, electronic processing of results, photo embossment of certificates,

Installation of Closed Circuit Television (CCTV) cameras in the score processing hall, applicable to them; use of security bags for collection of examination materials; creation of the post examination investigation committee to handle cases of irregularity and malpractice; deployment of credible staff of the Board and senior officials of the Ministry of Education on monitoring of examination centres; and sanctioning of erring schools, principals, supervisors, candidates and other examination officials. The Board has also put measures in place for curbing breaches of examination security which are introduction of biometric registration and verification of candidates; provision of uniform writing materials to candidates; customized question paper booklets; increase in the number of scanners for speedy processing of candidates' scripts; installation of improvement in examination administration to reduce the incidence of impersonation among others.

Researchers also have come up with recommendations aimed at curbing examination malpractices. Njoku and Njoku (2016) suggested teaching of moral education in secondary schools in Nigeria. Iluobe (2021) suggested that to fight examination malpractice, modern technologies need to be adopted in conducting internal or public examinations. Ogunjobi, Adedara and Ogunleye (2021) recommended the installation of CCTV in examination halls so as to make e-invigilation effective. Isiugo – Abanihe, Ugwoke and Iluobe (2019) recommend that the use of Biometric Registration and Electronic Processing of Results should be strengthened. Onyibe, Uma and Ibina (2015) recommended that the Examination Malpractice Act of 1999 should be amended to incorporate the section of Decree 20 of 1984 which stipulated twenty-one years imprisonment without option of a fine for a convicted culprit, and the Act should be diligently enforced. Several punitive measures have also been taken to serve as as finger prints or iris patterns to identify a candidate through an electronic system. This is done by comparing the sampled biometric against a template taken earlier. Once these measurements have been taken, they may then be used to authenticate an individual or

public enlightenment on the dangers of examination malpractice and the sanctions deterrents to those involved in the act, such as the cancellation and withholding of examination results, blacklisting of schools and individuals, including examiners, supervisors and invigilators from participating in public examinations. Despite all efforts by professionals in the education sector and policy makers in curbing the wide spread of examination malpractice, the menace still prevails in the society (Akunne, Chigbo-Obasi & Iwogbe, 2021).

Curran, Middleton and Doherty (2011) stated that the traditional method of cheating in examinations are speedily being replaced with miniaturized technologies, which can hold larger amounts of information such as mobile phones, scientific calculators, wireless receivers, and watches et cetera. To this effect, Fayomi, Amodu, Charles, Idowu and Francis (2015) and Achio, et al., (2012) suggested the use of Information and Communication Technology (ICT) devices to track and apprehend perpetrators with fraudulent examination acts. Iyi and Collins (2019) stated that ICT is one of the measures that have been taken by WAEC to combat examination malpractice. In line with this, Shaibu, Ogwu and Edegbo (2019) identified the use of biometric data capturing, installation of CCTV cameras in examination halls, embossment of certificates, mounting of Anti-malpractice billboards among others as innovative strategies in curbing the nature of examination insecurity among public secondary schools in Kogi East education zone. NABTEB also has applied some digital strategies such as biometric registration, electronic processing of results and photo-embossment on certificates to curb examination malpractice.

Biometrics registration is the use of measurable, biological characteristics such user. It is used to detect impersonation. Electronic processing of results is the use of automated methods to process results. It is a process whereby students' results are prepared using computer packages. It is used to mark the candidates' responses on the

Optical Mark Reader (OMR) sheets. The use of electronic devices to process results involves the pre-printing of candidate details such as examination number, candidate's name and subject code in which case, the activities are exclusively tailored for a particular candidate, thus, it detects double scores resulting from submission of double scripts by a candidate. To curb cases of impersonation, candidate's photograph is embossed on the certificates.

The use of technology to combat examination malpractice according to Edeh (2019) can be hindered by different connecting factors which largely depend on the context and place. Li (2013) researched on technological advancements designed to fight crimes in international examination. The findings established that the technological infrastructure identified to curb digital crimes is very expensive. The infrastructure identified include: installation of internet facilities in examination venues, stable supply of electricity and employment of technical and professional staff. Iyi and Collins (2019) posited that ICT usage by WAEC in combating examination malpractices has been effective but it has not eliminated it totally due to some challenges which include funds, non-challant supervisors and invigilators, dishonest school authorities, shortage of staff and large centres. Goodluck, Happiness and Ifeakachuku (2015) identified inadequate funding, corruption, issues bordering on morality and legality as challenges to curbing both the traditional and hi-tech examination malpractices in Nigeria. However, it could be said that some developing countries like Nigeria lack the facilities that support the smooth use of technology in education.

Statement of the Problem

At the global level, examination is generally acknowledged as a major means of assessment and certification. Despite the importance of examination in teaching and learning situations, a number of factors affect the credibility of examination scores which include examination malpractice. In an effort to prevent malpractices, examination bodies across the world have put in place a variety of control measures. However, despite the

measures taken, the situation seems not to have yielded the desired results as the cases of examination malpractices keep increasing. This has affected the reliability of examinations, thus, the need to investigate innovative strategies for curbing the menace of examination malpractice has become inevitable. This paper therefore, investigated the effectiveness of such digital strategies as biometric registration, electronic processing of results and photo-embossment on certificates to curb malpractice cases in NABTEB examinations and the challenges confronting their applications.

Objective of the Study

1. To investigate if the use of biometric registration strategy is effective in the reduction of impersonation cases of examination malpractice in the assessment of candidates.
2. To investigate if the use of electronic processing of results strategy is effective in the reduction of double scripts cases of examination malpractice in the assessment of candidates.
3. To determine the extent to which the use of photo-embossment on certificates have reduced examination malpractices.
4. To identify the challenges associated with the use of digital strategies to curb examination malpractices.

Research Questions

1. Does the application of biometric registration strategy reduce impersonation cases of examination malpractice in the assessment of candidates?
2. Does the application of electronic processing of results strategy reduce double scripts submission cases of examination malpractice in the assessment of candidates?
3. To what extent has the use of photo-embossment on certificates reduced examination malpractices?
4. What are the challenges confronting the use of digital strategies to curb examination malpractices?

METHODOLOGY

The study adopted ex-post facto research design of descriptive survey research type. Ex-post facto research is a method of bringing out possible antecedents of events that have happened and cannot, therefore, be controlled or manipulated by the investigator. Descriptive Survey research is a study which uses the sample data of an investigation to describe and explain what is existent or non-existent, on the present status of a phenomenon being investigated. The study employed the research designs in order to allow for a broad-based input into determining the effectiveness of the selected digital strategies in curbing examination malpractices in NABTEB examinations. The study employed both quantitative and qualitative approaches. The population comprised all the candidates that sat for the 2005-2022 May/June NBC/NTC examinations and admission staff of tertiary institutions who admits candidates with NABTEB certificates in Nigeria. Multi-stage sampling procedure was used to select the sample for the study. Simple random sampling was used to select two states from each of the six geo-political zones, making 12 states. Purposive random sampling was used to select three tertiary institutions in each of the selected states. It was purposive because only tertiary institutions that admit candidates with NABTEB certificates were selected. Simple random sampling technique was used to select 7 admissions staff in each of the tertiary institutions, making a total of 252. Also, 2,129 cases of impersonation and 5,484 cases of double scripts submission of examination malpractice in 2005-2022 May/June NBC/NTC examinations were used.

Two instruments were used for data collection, namely, Reports on Examination Malpractice Cases for 2005-2022 May/June NBC/NTC examinations and Questionnaire on Effectiveness of Photo-Embossment on Certificates to Curb Examination Malpractices (QEPECCEM). The questionnaire was made up of 3 sections: A, B and C. Section A solicited information on the bio data of the respondents, Section B consisted of 15-items on a four-point Likert scale of Very Great Extent (VGE), Great Extent (GE), Low Extent (LE) and Very Low Extent (VLE) and Section C consisted of 2-item open-ended questions on challenges confronting the use of digital strategies to curb examination malpractice. The QEPECCEM was validated by experts in Measurement and Evaluation and the reliability coefficients of 0.81 was obtained using Cronbach Alpha. Reports on examination malpractice cases for 2005-2022 May/June NBC/NTC examinations were collected from Post Examination Investigation Committee (PEIC) of the Board and the questionnaire was administered and retrieved by the researchers and research assistants. Quantitative data were analyzed using frequency, percentage, mean and standard deviation while qualitative data were analyzed through the use of themes. The decision rule was that an item with mean score of 2.50 and above was considered as 'Great Extent' while item with a mean score below 2.50 was considered as 'Low Extent'.

RESULTS

Research Question 1

Does the application of biometric registration strategy reduce impersonation cases of examination malpractice in the assessment of candidates?

Table 1: Trend Analysis of Incidences of Impersonation in NABTEB 2005-2022 May/June NBC/NTC Examinations

Year	Enrolment	Total Number of Malpractice Cases	Percentage (%)	Number of Impersonation Cases	Percentage (%)
2005	39275	4460	11.36	271	0.69

Year	Enrolment	Total Number of Malpractice Cases	Percentage (%)	Number of Impersonation Cases	Percentage (%)
2006	37281	1758	4.72	214	0.57
2007	39452	2694	6.83	235	0.60
2008	42727	1745	4.08	211	0.49
2009	48029	2902	6.04	227	0.47
2010	63672	2857	4.49	104	0.16
2011	109,416	4402	4.02	188	0.17
2012	147,056	1842	1.25	315	0.21
2013	106,573	5108	4.79	244	0.23
2014	81,200	1953	2.41	17	0.02
2015	76,821	1435	1.87	19	0.03
2016	69,472	2273	3.27	21	0.03
2017	58,448	1422	2.43	16	0.03
2018	55449	841	1.52	12	0.02
2019	56413	399	0.71	15	0.03
2020	58340	453	0.78	06	0.01
2021	83463	443	0.53	03	0.00
2022	87633	300	0.34	09	0.01

Table 1 shows that before the introduction of biometric registration in 2014, the cases of impersonation fluctuated from 2005 - 2013. The percentage of cases decreased from 0.69% in 2005 to 0.57% in 2006, then increased to 0.60% in 2007 and then decreased to 0.49% in 2008 to 0.16% in 2010. Thereafter, it increased consistently to 0.17% in 2011; 0.21% in 2012 and 0.23% in 2013. However, after the introduction of biometric registration in 2014, the impersonation case decreased to 0.02% in 2014, increased slightly to 0.03% in

2015 and was constant till 2017. In subsequent years, the percentage decreased to 0.02% in 2018 and further dropped to 0.01% in 2022. This indicates that the application of biometric registration strategy has reduced cases of impersonation.

Research Question 2

Does the application of electronic processing of results strategy reduce double scripts submission cases of examination malpractice in the assessment of candidates?

Table 2: Trend Analysis of Cases of Double Scripts Submission in NABTEB 2005-2022 May/June NBC/NTC Examinations

Year	Enrolment	Total Number of Malpractice Cases	Percentage (%)	Number of Double Scripts Submission	Percentage (%)
2005	39275	4460	11.36	244	0.62
2006	37281	1758	4.72	206	0.48
2007	39452	2694	6.83	198	0.50
2008	42727	1745	4.08	216	0.51
2009	48029	2902	6.04	251	0.52
2010	63672	2857	4.49	363	0.57
2011	109,416	4402	4.02	638	0.58
2012	147,056	1842	1.25	967	0.65
2013	106,573	5108	4.79	339	0.32
2014	81,200	1953	2.41	173	0.21
2015	76,821	1435	1.87	314	0.41
2016	69,472	2273	3.27	238	0.34
2017	58,448	1422	2.43	207	0.35
2018	55449	841	1.52	179	0.32

Year	Enrolment	Total Number of Malpractice Cases	Percentage (%)	Number of Double Scripts Submission	Percentage (%)
2019	56413	399	0.71	242	0.43
2020	58340	453	0.78	124	0.21
2021	83463	443	0.53	364	0.44
2022	87633	300	0.34	221	0.25

Table 2 shows that before the introduction of electronic processing of results in 2014, the cases of double scripts submission were 0.62% in 2005, decreased to 0.48% in 2006 then increased in the subsequent years to 0.65% in 2012. However, after the introduction of electronic processing of results in 2014, the double scripts submission cases decreased to 0.21% in 2014, increased slightly to 0.41% in 2015 and decreased in the

subsequent years except in 2019 and 2021 with 0.43% and 0.44% respectively. This indicates that the application of electronic processing of results strategy had reduced cases of double scripts submission.

Research Question 3

To what extent has the use of photo-embossment on certificates reduced examination malpractice?

Table 3: The Extent to which the Embossment of Photo on Certificates has Reduced Examination Malpractice

S/N	Statement	VGE (%)	GE (%)	LE (%)	VLE (%)	Mean	Std. Dev.	Decision
1	Photo-embossment: contributed to the reduction of examination malpractice.	131(51.8)	93(36.8)	23(9.1)	5(2.0)	3.39	.736	Great Extent
2	is a good technique for exposing malpractice candidates.	129(51.0)	87(34.8)	20(7.9)	15(5.9)	3.31	.857	Great Extent
3	provides enough evidence to judge students caught in examination malpractice.	81(32.0)	56 (22.1)	60(23.7)	55(21.7)	2.65	1.146	Great Extent
4	encourages students to work hard in order to perform better in their examination.	124(49.0)	86(34.0)	19(7.5)	23(9.1)	3.23	.939	Great Extent
5	discourages impersonation.	176(69.6)	56(22.1)	14(5.5)	6(2.4)	3.60	.705	Great Extent
6	prevents selection of unqualified candidates.	100(39.5)	97(38.3)	36(14.2)	19(7.5)	3.10	.913	Great Extent
7	discourages certificate racketeering.	166(65.6)	67(26.5)	17(6.7)	2(0.8)	3.58	.655	Great Extent
8	improves transparency in issuance of certificates.	137(54.2)	85(33.6)	20(7.9)	10(4.0)	3.38	.798	Great Extent
9	is a long-term process of malpractice detection.	71 (28.1)	92(36.4)	76(30.0)	13(5.1)	2.88	.882	Great Extent
10	promotes high level of discipline among students.	44(17.4)	34(13.4)	64(25.3)	110(43.5)	2.05	1.128	Low Extent
11	enables students to build their self-confidence.	129(51.0)	79(31.2)	35(13.8)	9(3.6)	3.30	.840	Great Extent

S/ N	Statement	VGE (%)	GE (%)	LE (%)	VLE (%)	Mean	Std. Dev.	Decision
	Photo-embossment:							
12	reduces miscellaneous cases like using of fake certificates by the students.	135(53.4)	89 (35.2)	18(7.1)	10(4.0)	3.38	.788	Great Extent
13	improves the quality of certificates.	127(50.2)	102(40.3)	9(3.6)	14(5.5)	3.36	.798	Great Extent
14	improves the integrity of examinations.	131(51.8)	91(36.0)	24(9.5)	6(2.4)	3.38	.755	Great Extent
15	helps to restore educational values.	117(46.2)	90(35.6)	36(14.2)	9(3.6)	3.25	.831	Great Extent

Decision: Mean value ≥ 2.50 signifies ‘**Great Extent**’; Mean value < 2.50 signifies ‘**Low Extent**’

Table 4 revealed that out of 15 items, 14 representing 93.3% were above the mean value with numbers 5 and 7 items having the highest mean values of 3.60 and 3.58 respectively, while 1 item, (number 10) with 2.05 mean value representing 6.67% was below the mean value. This implies that most of the mean values were above the cut-off point of 2.50, indicating that the photo-embossment on certificates is effective in reducing examination malpractice to a Great Extent.

Research Question 4

What are the challenges confronting the use of digital strategies to curb examination malpractice?

From the responses of the admission staff of tertiary institutions, the following were identified as the challenges affecting effective use of digital strategies to curb examination malpractice. Majority of the staff from different tertiary institutions identified the Lack of funds to purchase and implement the digital devices. A staff had this to say:

“Unavailability of funds to buy the technological tools”.

Another staff’s view:

“It’s costlier to use. very high in financing”.

Many staff identified inadequately trained teachers to handle the technological tools. A respondent said:

“Expertise: The necessary/qualified personnel to handle those devices may not be readily available”.

Another staff identified ‘the non-verification of candidates’ finger prints with the Biometric Verification Machine (BVM)’. The staff has this to say:

“Biometric systems may fail to recognize or verify users due to factors such as environment conditions, sensor quality or user behaviour.”

Other challenges identified by many staff include, inadequate power supply, network/internet issues, lack of maintenance culture among others.

DISCUSSION OF FINDINGS

The findings of research questions one and two revealed that the application of biometric registration and electronic processing of results strategies had reduced impersonation and double scripts submission cases of examination malpractice in NABTEB examinations. This is in line with Iyi and Collins (2019) who posited that ICT usage by WAEC is effective in combating examination malpractices. The findings also revealed that the efforts of NABTEB in curbing examination malpractices using Photo-embossment on Certificates had yielded positive results. This was shown by the high percentage of the admission staff in tertiary institutions who indicated that the photo-embossment on certificates was effective in reducing examination malpractice to a great extent. This finding is supported by Shaibu, Ogwu and Edegbo (2019) who identified the use of biometric data capturing, installation of CCTV cameras in examination halls, embossment of certificates, mounting of anti-malpractice Billboards among others as innovative strategies in curbing the nature of examination

insecurity among public secondary schools in Kogi East education zone.

The study further highlighted the challenges confronting the effective use of digital strategies to curb examination malpractice to include lack of funds to purchase and implement the digital devices, inadequacy of trained personnel to handle the technological tools, non-verification of candidates' finger prints with the BVM, inadequate power supply, network/internet issues, lack of maintenance culture, and corruption on the part of examination officials.

CONCLUSION

The study concluded that the application of biometric registration and electronic processing of results strategies had reduced the cases of impersonation and double scripts submission cases of examination malpractice in NABTEB examinations. Also, the use of photo-embossment on certificates had to a great extent has been effective in reducing examination malpractices. The effective use of digital strategies to combat examination malpractices is confronted by factors such as lack of funds, inadequacy of trained personnel to handle the technological tools, non-verification of candidates' finger prints with the BVM, inadequate power supply, network/internet issues, lack of maintenance culture, and corruption among others.

Thus, the linkage between Industry and Academia for Sustainable Development is that when the products from the Academia are certified based on their competence devoid of any form of examination malpractices, they will be competent and productive in the Industry for Sustainable Development.

RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. There should be a continued and more effective use of digital innovation in educational assessment to promote quality assurance.
2. Computer based examination should be fully adopted with thorough biometric verification.

3. CCTV Cameras should be installed in examination halls.
4. Personnel to handle the technological tools should be trained.

REFERENCES

- Achio, S, Ameko, E., Kutsanedzie, F., Alhassan, S. & Ganaa, F. (2012). Concerns on issues of examination malpractices. A case study of Accra polytechnic. *Savap Journal*, 3(2), 145-154.
- Akunne, L., Chigbo-Obasi, T. & Iwogbe, E. (2021). Perceived strategies for curbing examination malpractice among secondary school students in Nigeria. *Asian Journal of Education and Social Studies*, 8-17.
- Asante-Kyei, K., & Nduro, K. (2014). Inclining factors towards examination malpractice among students in Takoradi Polytechnic, Ghana. *Journal of Education and Practice*. 5(22), 1-9.
- Aworanti, O. A. (2012). Quality, assurance in business education. 24th Annual National Conference organized by the Association of Business Educators of Nigeria at Federal Polytechnic, Nekede Owerri, Imo State.
- Bennett, R. E. (2002). Inexorable and inevitable: The continuing story of technology and assessment. *Journal of Technology, Learning, and Assessment*, 1 (1). Retrieved from <http://www.jtla.org>.
- Black, P. J. & Williams, D. (2018). Inside the black box: Raising standards through classroom assessment. Retrieved from http://www.pdkintl.org/kappan/kbla_9810.htm
- Chen, D. H., & Kee, H.L. (2005). A model on knowledge and first annual

- conference of the Faculty of Endogenous Growth World Bank Policy Research Working Paper 3539.
- Curran, K., Middleton G. & Doherty, C. (2011). Cheating in exams with technology. *International Journal of Cyber Ethics in Education* 1(2), 54 - 62.
- Edeh, M. O. (2019). Opportunities and challenges of use of mobile phone technology in teaching and learning in Nigeria: A Review. *International Journal of Research in Engineering and Innovation*, 3(6), 352-358. Retrieved from <http://doi.org/10.36037/IJREI.2019.3601>.
- Emeke, E. A. (2012) A Proactive Approach to Stemming the Tide of Examination Malpractice: The Place of Personality Types, 5th International EDULEARN Conference, Valencia, Spain.
- Fayomi, O. O., Amodu, L, Charles K. A, Idowu, O. R., & Francis O. I. (2015). E-invigilation: Panacea to examination malpractice in Nigeria, *Proceedings of ICERI, Conference 16th-18th November, Seville, Spain*.
- Goodluck, I., Happiness, M. O., Julie, I. & Ifeakachuku, O. (2015). Emergence of hi-tech examination malpractices in Nigeria: Issues and Implications, *International Journal of Education and Research*, 3(3), 113-122.
- Ibrahim, I. A. (2016). Grading system and effects of examination malpractices on falling standard of education and job performance. *International Journal of Modern Education Research*, 3(6), 46-54.
- Iluobe, I.O. (2021). Management of examination malpractice with information and communications technology (ICT). *Nigerian Journal of Educational Research and Evaluation*, (20), 79 – 87.
- Isiugo – Abanihe, I.M., Ugwoke, M.E., & Iluobe, I.O. (2019). Investigating the effectiveness of biometric and electronic processing of results in curbing impersonation and double scripts submission in national business and technical certificate examinations in Nigeria. A paper presented during 37th annual conference of AEEA held in Transcorp hotel Abuja, Nigeria.
- Iyi, U. & Collins, A. O. U. (2019). Impact of information and communication technology on examination malpractice at the West African senior school certificate examination in Nigeria. *International Association for Educational Assessment*. Retrieved from <http://www.iaea.info./document>.
- Kizlik, B. (2010). How to write an Assessment Based Document on Behaviorally Stated Objective. Retrieved from <http://www.adprima.com/assessment>
- Li, L. (2013). Technology designed to combat fakes in the global supply chain. *Business Horizons*. 56(2), 167-177.
- Njoku, N. C, & Njoku, D. I. (2016). Curbing examination malpractice in secondary schools in Nigeria through moral education. *Research on humanities and Social Sciences*, 6(18), 161- 169.
- Nnam, M. U., & Inah, A. F. (2015). Empirical Investigation into the Causes, Forms and Consequences of Examination Malpractice in Nigerian Institutions of Higher Learning. *International Journal of Novel Research in Humanity and Social Sciences*, 2(1): 52 – 62
- Ogunjobi, O. P., Adedara R. O, Ogunleye, W. A. (2021). E-invigilation as a means of curbing examination malpractice in colleges of education in Nigeria. *International Journal of Recent*

- Technology and Engineering*, 10(4), 84-88.
- Oko, S. U. & Adie, R. I. (2016). Examination malpractice: Causes, effects and possible ways of curbing the menace. A study of Cross River University of technology. *International Journal of Management Studies and Research*, 4(1), 59-65.
- Omebe, C. A. (2014). Curbing examination malpractices in West African senior school certificate examinations in Nigeria. *International Journal of Scientific & Engineering Research*, 5(6), 1006-1011.
- Onyibe, C. O., Uma, U. U. & Emmanuel, I. (2015). Examination malpractice in Nigeria: Causes and effects on national development. *Journal of Education and Practice*, 6(26), 12-17.
- Petters, J. S. & Okon, M. O. (2014). Students' perception of causes and effects of examination malpractice in the Nigerian educational system: The way forward for quality education. *Procedia-Social and Behavioral Sciences*, 1(14), 125-129.
- Shaibu L., Ogwu, H. I. & Edegbo, C. (2019). Innovations in curbing examination insecurity in public secondary schools in the east education zone of Kogi state. *BSUJEM* 1(2) 13-26.
- Solomon, J. A. (2014). Trends in examination malpractice in Nigeria educational system and its effects on the socio-economic and political development in Nigeria. *Asian Journal of Humanities and Social Sciences* 2(3), 1-8.
- Udoh, N. A. (2011). Remote causes and counselling implications of examination malpractice in Nigeria. *Student Pulse*, 3(10). Retrieved from <http://www.studentpulse.com/a?id=585>.
- Vendlinski, T., & Stevens, R. (2002). Assessing student problem-solving skills with complex computer based tasks. *Journal of Technology, Learning, and Assessment*, 1 (3). Retrieved from <http://escholarship.bc.edu/jtla/vol1/3>
- Walde, G. S. (2016). Assessment of the implementation of continuous assessment. *European Journal of Science and Mathematics Education*, Vol. 4, No. 4, 534- 544.