

THE CHALLENGES OF MISSING RESULTS OF E-EXAMINATION IN NIGERIAN UNIVERSITIES

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Abstract

The spate of missing results as one of the challenges of e-examination system in Nigeria is quite unacceptable and condemnable. This is a situation where e-examination candidates take exams and are reported to have no results at the end of the examination. This scenario has prompted the researchers to examine the reasons e-examination results should not be instantly released which resulted into missing results. The research examined whether the menace of missing results is directly or indirectly dependent on the adequacy or otherwise of the system's database. The research also examines the dependency of candidates' performance on the appropriateness of questions and technical know-how of the system. The research at the end makes recommendations on the best way to reduce the menace of missing results and improve the performance of the e-examination candidates. The research carried out a survey by distributing questionnaires and interviewing the stakeholders involved in e-Examination. The results show that there is correlation between the responses of the selected candidates and the researchers' hypotheses. It was therefore concluded that lack of technical know-how and inadequate data storage and process invariably contribute to the menace of missing results.

Keywords: eExamination, Nigerian universities, challenges, missing results

Introduction

The introduction of web application into the computing technology has brought about a significant revolution in our social life including the traditional system of education and examination (Rout & Patnaik, 2011). Many Nigerian universities are beginning to re-evaluate their traditional methods of examining their students. This is so because it is becoming difficult to organize credible examinations devoid of challenges and get the result on time especially now that there is population explosion in our institutions. The trend now is the adoption of the web-based testing and assessment systems which facilitates greater flexibility than the traditional approach.

Basically, e-examination can be defined as a system that involves the conduct of examination through the web or the internet (Ayo, Akinyemi, Adebisi, Ekong, 2007). According to Awosiyan (2010), e-Examination would remove all human errors recorded in traditional pen and paper examination and create opportunity for students to access their results immediately. In addition, the examination would make it difficult for students to be involved in any kind of examination malpractice. It also reduces the magnitude of grading on the part of teachers/lecturers.

As good and advantageous as e-examination is, it is not without its challenges. One notable challenge observed in our study is the issue of missing results. Interestingly, the institution among other reasons, adopted the e-examination for its levels 100 and 200 students to forestall incidences of missing results which had become unbearable. There are other challenges like examination malpractice, students' computer illiteracy, inadequate ICT infrastructure, un conducive

examination halls, epileptic power supply, lack of reliable alternative to PHCN power supply, inadequate security of test materials (lack of internet system that minimise the risk of test items).

This paper, therefore, intends to examine the causes of missing results in an electronic examination approach that had been described as having the solution to all human errors peculiar to the traditional pen and paper examination.

Research Questions

- i. What is the effect of inadequate system data storage and process on the menace of students' missing results?
- ii. What is the effect of ambiguous instructions on the menace of students' missing results?
- iii. What is the effect of inappropriate questions (ambiguous questions) on the performance of e-examination candidates?
- iv. What is the effect of illiteracy/technical know-how on the performance of e-examination candidates?

Hypotheses

1. H_0 : There is no significant correlation between systems' inadequate data storage and process and candidates' missing results
2. H_1 : There is significant correlation between systems' inadequate data storage and process and candidates' missing results
1. H_0 : There is no correlation between the performance of the candidates and the adequacy of e-examination questions.
2. H_1 : There is correlation between the performance of the candidates and the adequacy of e-examination questions.
1. H_0 : There is no correlation between the performance of the candidates and technical know-how of the system
2. H_1 : There is correlation between the performance of the candidates and technical know-how of the system
1. H_0 : There is no correlation between technical know-how of the system and candidate's missing results
2. H_1 : There is correlation between technical know-how of the system candidate's missing results

Objectives

The main objective of this research work is to examine the challenges of e-examination in Nigeria with emphasis on missing results. Towards this end, the research examined:

- i. The reason why the results of e-exams should not be released on time.
- ii. The causes of missing results in the conduct of e-exams.
- iii. Whether the students' missing results depend on the inadequate data storage and process of the system.
- iv. Whether there is correlation between students' performance and standard of e-examination questions.
- v. Whether there is correlation between missing results, students' performance and system technical-know-how.

Related works

Over time, many scholars have worked on the development of e-examination system to bring about reduction in the fatigue emanating from manual examination system. This has brought great improvement to the way and manner of examining and assessing candidates in various academic exercises. Also, various surveys and inquiries into the conduct of e-examination

systems have continued to ameliorate the existing system and bring about better e-examination system.

Zhenming, et al., (2003) developed a web-based examination System as an effective solution for mass education evaluation. This system represents a novel online examination system based on a Browser/Server framework which carries out the examination and auto-grading for objective questions and operating questions, such as programming, operating Microsoft Windows, editing Microsoft Word, Excel, PowerPoint, etc. The system has since been widespread and successfully applied to the distance evaluation of basic operating skills of computer science, such as the course of computer skills in Universities and nationwide examination for high school graduates in Zhejiang Province, China.

Emary and Al-Sondos (2006) in their paper presents a software that was structured into two major modules: The first one was an online website to review and make self-test for all the materials of economic course while the second part is an online examination using a large database bank of questions through which the level of students can be evaluated immediately and some statistical evaluations can be obtained.

In his paper titled "web-based educational assessment system", (He, 2006) presents web-based assessment by applying Bloom's taxonomy to evaluate student learning outcomes and teacher instructional practices in real time. This system has shown a great performance with its experimentation in science and mathematics courses of two local high schools.

In their bid to examine the challenges of manual examination system and recommend a better system, Ayo et al (2007) proposed a model for e-Examination in Nigeria where all applicants are subjected to online entrance examination. Their findings revealed that the system has the potential to eliminate some of the problems that are associated with the traditional methods of examination such as impersonation and other forms of examination malpractices.

In their work, Al-Bayati and Hussein (2008) developed an applied Generic Software of multiple kinds of e-exams package that is oriented to Hearing Impaired (HI) persons. The examination material of this package is translated into language of HI persons like sign language and finger spelling. This generic software serves as empty templates to the teacher who would like to develop his required e-exam for various subjects (mathematics, language, science, etc.) and desired set of exam kinds (multiple choices, matching between words, fill in the blanks, etc.).

In another work, Schramm (2008) looked at e-learning web based system that could simply offer and grade mathematical questions with infinite patience. Therefore it needs the capability for input and output of mathematical formulas, the dynamic generation of plots and the generation of random expressions and numbers.

Husztai and Petho (2008) view an electronic system as a difficult part of e-learning security. Their paper describes a cryptographic scheme that emphasised needs for security consciousness and requirements, such that authenticity, anonymity, secrecy, robustness, correctness without the existence of a Trusted Third Party be embedded into e-exam system. The proposed protocol at the end of examination provides a receipt to students, a proof of a successful submission, and it is based on existence of anonymous return channels.

Ipaye (2009) in his paper discussed the process of establishing e-learning environment based on the development of e-learning in the Open University of Nigeria (Akinsanmi et al, 2010) also proposed a web-based examination system where tests in multiple choice formats will be taken online and grading is done immediately. This web application was developed on the platform of

Microsoft.net, using the ASP.NET web server, C# as the intermediate language, ADO.NET to interact with the relational database and Microsoft SQL server as the relational database.

Rashad et al, (2010) is another paper on web-based online examination system that carries out the examination and auto-grading for students exams. This system facilitates the conduct of exams, collection of answers, auto marking the submissions and production of reports for the test. The system supports many kinds of questions and was tested on the internet platform, which makes it suitable for both local and remote examination. The system is a good resource for stakeholders like lecturers, instructors, teachers and others who may wish to create new exams or edit existing ones as well as students participating in the exams.

In order to seriously tackle the associated security challenges in the e-examination system, (Adebayo and Abdulhamid, 2011) carried out a survey on the acceptability of the current e-examination system and proposed an acceptable secured-oriented e-exams system. Their study designed an online-based e-exams system with cryptographic means of encrypting and decrypting questions meant for the system with biometric means of identifying and monitoring candidates. Their system if properly implemented can help to solve most related issues in e-examination system.

Methodology

This research majorly aimed to examine the cause of missing results in a well-structured online e-examination system. In order to get accurate information, questionnaire was designed and distributed to some selected candidates. Interviews were also conducted for some other stakeholders involved in the conduct of e-examination. Three Universities were selected in the northern part of Nigeria namely Federal University of Technology Minna, University of Ilorin and Ahmadu Bello University Zaria. The results of the questionnaire were tabulated below in Table 6.1.

Sample Questions

- i. Does inadequate system data storage and process have effect on the menace of students' missing results? Yes or No
- ii. Do ambiguous instructions on the system interface have effect on the menace of students' missing results? Yes or No
- iii. Do inappropriate questions (ambiguous questions) have any effect on the performance of e-examination candidates? Yes or No
- iv. Does illiteracy/technical know-how have effect on the menace of missing result and performance of e-examination candidates? Yes or No

Table 6.1: Results obtained on the questionnaire distributed for the selected stakeholders participating in the e-examination

Hypotheses	Response			Total
	Yes (Accepted)	No (Rejected)	Indifference	
Inadequate data Storage in the Database	60	20	20	100
Inappropriate Questions	50	200	50	300
Lack of Technical Know-how	70	20	10	100
Total	180	240	80	500

Table 6.2: The expected contingency table is given below

Hypotheses	Response			Total
	Yes (Accepted)	No (Rejected)	Indifference	

Inadequate data Storage in the Database	36	48	16	100
Inappropriate Questions	108	144	48	300
Lack of Technical Know-how	36	48	16	100
Total	180	240	80	500

$$\chi^2 = 118.96 \text{ and}$$

$$r = 0.35$$

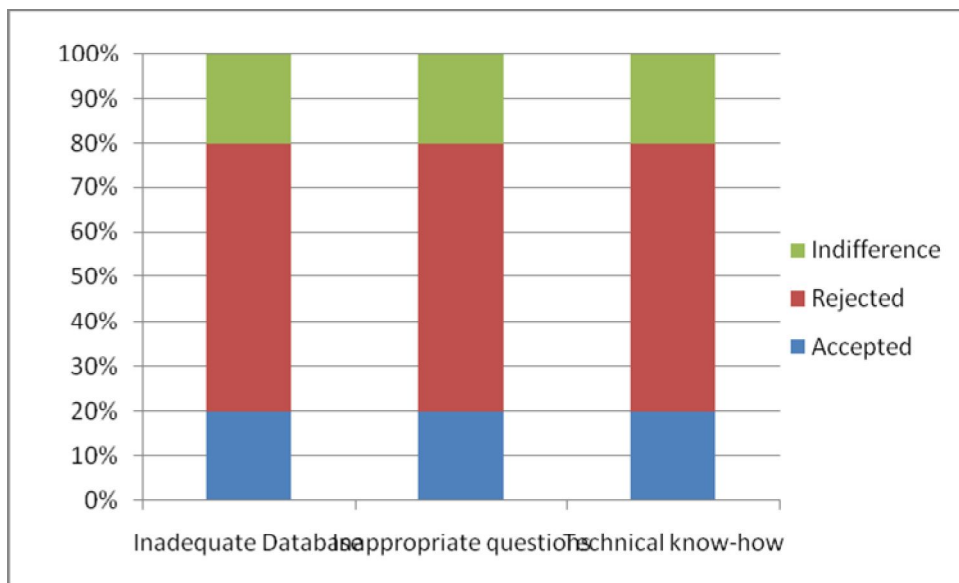


Fig. 6.1: Plot of the results of Questionnaire

Results

From the results of the table above, the Chi square is 118.96 while the contingency correlation is given as 0.35. This shows that there is correlation between the response of the selected candidates and the researchers' hypotheses.

Discussion of Results

The contingency correlation result from the table shows that there is correlation between the response of the candidates and the hypotheses of the research. Also, from the analysis of the graph, it was observed that fifty (60%) per cent of the selected candidates attested that inadequate data storage and process of the system contributes to the missing results experienced by the candidates, twentypercent did not agree while the remaining twenty per cent were indifferent. It was also observed from the graph that a large percentage of the selected stakeholders disagreed that inappropriate question contributes to the failure of the candidates. Finally, large number of stakeholders also agreed that technical know-how contributes to the menace of result missing and poor performance of the candidates while few candidates were undecided.

Based on the results of the analysis, we can therefore reject the first Null hypothesis and accept the Alternative hypothesis which states that "There is significant correlation between systems' inadequate data storage and process and candidates' missing results". We can also accept the second Null hypothesis which states that "There is no correlation between the performance of

the candidates and the adequacy of e-examination questions". On the same node we equally reject the third Null hypothesis and accept the Alternative hypothesis which state that "There is correlation between the performance of the candidates and technical know-how of the system". Finally, we reject the fourth Null hypothesis and accept the alternate hypothesis which state that "There is correlation between technical know-how of the system and candidate's missing results" base on the result.

Conclusion

We can therefore concluded based on the analysis of the results that the systems' inadequate data storage and process contributes to the menace of e-examination missing results. We also conclude that the technical know-how of the candidates is invariably contributed to the performance of the candidates and missing result but not the adequacy of the examination questions. The followings have therefore, been identified as the causes of the missing results in the e-Examination in Nigeria:

1. Many students don't usually submit their answers at the end of examination due to lack of technical know-how
2. If there is inconsistency in the storage and process of the system, it might affect result availability
3. Non release of results on time
4. Ambiguous instructions might confuse the student to do the right things which might lead to result missing.

Recommendations

The followings are the recommended best practices to have a very good e-examination system free of missing results and some other anomalies:

- i. The results of the examination should be released to the candidates immediately after the exam. Although we gather during the interview that some institutions would like to generate money by withholding the results and charge candidates fees for checking their result. Institutions should look elsewhere to generate revenue.
- ii. There should be adequate training for participants before the e-examination system.
- iii. The questions should be well-structured.
- iv. The instructions should be clearly stated.

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