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**STUDENTS' ATTITUDE TOWARDS E-EXAMINATION
IN FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGERIA**

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Abstract

This study investigated students' attitude towards e-examination in Federal University of Technology Minna, Nigeria. It was a survey type of research and a total of 280 respondents were sampled for the study. 40 (20 male and 20 female) first year students were selected from each of the seven undergraduate schools in the institution using stratified, purposive and simple random sampling procedures. E-examination Attitudinal Questionnaire (EAQ) which was validated by three computer experts and two test and measurement experts was used for data collection. Three research questions were raised while two hypotheses were tested. Data gathered from the administration of the questionnaire were analysed using mean, standard deviation and Kruskal-Wallis H test non-parametric statistic. Findings of the study revealed that students have positive attitude towards e-examinations in Federal University of Technology Minna (average mean=2.61 out of 5); there was no significant difference in the mean attitude score of students towards e-examinations across the seven undergraduate schools ($X^2(6) = 2.27, p = 0.89$); and there was no significant difference between the attitude of male and female students to e-examination in the institution ($X^2(1) = 0.00, p = 0.98$). Based on these findings, it was recommended that e-examinations environment should be made user-friendly in order to sustain students' positive attitude towards e-examination in the university; and more e-examination centres with adequate facilities should be developed within the University for the purpose of assessing students' academic achievements irrespective of their course of study and level.

Keywords: Attitude, Computer, Electronic Examination, Test, Undergraduates

Introduction

The application of information and communication technologies in educational environments is increasing globally because of the ease of use, flexibility, versatility and interactive nature of computer technology. For instance, there is a growing increase in the use of computers for assessment purposes within higher educational institutions globally with different nomenclature such as electronic examination, computer-based test, or web-based test, computer assessment among several others (Sim, Holifield & Brown, 2004). Ayo, Akinyemi, Adebisi and Ekong (2007) defined electronic examination (e-examination) as a system that involves the conduct of examinations through the web or the intranet. It is the process by which examinations are delivered, taken and scored electronically (Adebayo, Saliu, & Shafi'i 2011).

E-examination offers several benefits over traditional paper-based tests as it provides opportunities to measure complex form of knowledge and reasoning that is not possible to assess through traditional methods, it offers greater flexibility than the traditional approach because test could be offered at different times by students, questions can be shuffled having the same structure and level but different contents immediately, it reduces large proportion of workload on examination and grading thereby enabling the institution to release examination results in record time, it reduces the risks of human errors recorded in manual examination and creates opportunity for students to access their results (Adebayo, et al., 2011; Ayo, et al., 2007; Bodmann & Robinson, 2004; Ghanashyam, Rout, Srikanta & Patnaik, 2011). Realising the benefits of e-examinations, the management of Federal University of Technology, Minna also introduced the e-mode of examinations.

Federal University of Technology Minna (FUT Minna), a Federal Government owned University was established in 1983 to give effect to Nigeria's drive for the much needed self-reliance in Science, Engineering and especially Technology (FUT Minna, 2011). The university currently has seven undergraduate schools and each of the schools is made up of departments with interrelated scope and

disciplines. The schools are School of Agriculture and Agricultural Technology (SAAT), School of Technology Education (STE), School of Engineering and Engineering Technology (SEET), School of Environmental Technology (SET), School of Natural and Applied Sciences (SNAS), School of Information and Communication Technology (SICT) and School of Entrepreneurship and Management Technology (SEMT) (FUTMinna, 2011).

The university introduced e-examinations for all first year courses to facilitate prompt processing of results. Ayo, et al. (2007) stated that institutions are beginning to employ e-mode of examinations because paper-based examinations were marred with irregularities such as question leakage, delay in release of results, impersonations, examination malpractices and students' complaints of missing and incomplete results. Students' feeling and interest towards electronic assessment and evaluation can therefore not be considered unnecessary.

Generally, students' attitude to examinations has been reported to influence their achievements globally. While students with positive attitude to examination have greater achievements, their counterparts with negative achievement achieved lesser (Zacharias, 2003). In the light of this, knowing students' attitude towards computer-based test and examination is important in order to determine aspects where examination delivery improvement is needed (Tella & Bashorun, 2012). Zacharias (2003) described human attitude as a mental concept that depicts favourable or unfavourable feelings toward an object. Attitude towards e-examination in this study is therefore defined as favourable or unfavourable feelings of undergraduate students towards taking computer-based test.

Tella and Bashorun (2012) in a study investigated attitude of undergraduate students toward computer-based test in University of Ilorin, Nigeria. *The sample consisted of 2,209 undergraduate students selected from seven out of the ten faculties that made up the university. Data were collected through a Computer Based Test Attitudinal Survey (CBTAS) and a focus group discussion. Findings revealed that respondents have positive attitude towards computer-based test and more than average of the respondents prefer CBT to paper and pencil test regardless of their faculties and gender.* Darrell (2003) also investigated the impact of computer-based testing on students' attitudes and behaviour. Findings revealed that students' attitude was positive towards computer-based testing than towards pencil and paper testing.

In another study, Achim, Konstantin, Andreas and Jana (2011) examined medical students' preference of test format (Computer-based versus Paper-based) and influence on performance. Out of the sampled 98 students, 36 students representing 37% indicated they prefer computer-based test while the remaining 62 students, representing 63% indicated they prefer paper-based test. Gender was also reported not to have influence on students' choice and preference for either computer-based or paper-based test. Similarly, Deutsch, Herrmann, Frese and Sandholzer (2012) investigated possible attitudinal changes towards computer-based assessment in students. All fourth year medical students at Leipzig Medical School in 2008 and 2009 were subjected to a web-based mock examination. The students were asked to document their opinions concerning computer-based assessment before and after the web-based mock examination. Findings from the study revealed that students' attitudes towards computer-based test was positive.

Despite researches that have been conducted on students' attitude to computer-based assessment, no previous study (to the best knowledge of these researchers) of this nature which focuses on students' interest and feeling towards electronic assessment in Federal University of Technology, Minna could be located. Hence, this study was carried out to determine students' attitude towards e-examinations in Federal University of Technology, Minna, Nigeria.

Aim and Objectives of the Study

This study investigated students' attitude towards e-examinations in Federal university of Technology in Minna, Nigeria. Specifically, the study was carried out to achieve the following objectives:

1. determine whether students have positive or negative attitude towards e-examination in Federal University of Technology, Minna, Nigeria.
2. investigate if students' attitude towards e-examination differs across the seven schools in Federal University of Technology, Minna, Nigeria.
3. examine the influence of gender on students' attitude towards e-examination in Federal University of Technology, Minna, Nigeria.

Research Questions

1. Do students have positive or negative attitude towards e-examination in Federal University of Technology, Minna, Nigeria?
2. Does students' attitude towards e-examinations differ across the seven schools in Federal University of Technology, Minna, Nigeria?
3. Does gender influence students' attitude towards e-examinations in Federal University of Technology, Minna?

Research Hypotheses

HO₁: There is no significant difference in the attitude of students towards e-examinations across the seven schools in Federal University of Technology, Minna, Nigeria.

HO₂: There is no significant difference in the attitude of male and female students towards e-examinations in Federal University of Technology, Minna, Nigeria.

Methodology

In carrying out this study, the survey research type was used. A total of 280 respondents were randomly sampled from the total population of 13,000 for this study. Purposive sampling technique was employed to select first year undergraduate students in the schools because all first year students in the university are usually evaluated at the end of each semester using e-examination mode. Stratified sampling procedure was thereafter employed to stratify first year students in each of the schools based on their gender before simple random sampling technique was employed to select 20 male and 20 female students from each school.

A researcher-designed questionnaire titled E-examination Attitudinal Questionnaire (EAQ) which was validated by three computer experts and two test and measurement experts was used for data collection. The questionnaire consisted of two sections. Section A was used to collect demographic data of the respondents while Section B consisted of 10 items that bother on students' attitude to e-examination in the university using 4-Point Likert rating scale in which Strongly Agree was rated 4 points, Agree was rated 3 points, Disagree was rated 2 points and Strongly Disagree was rated 1 point. A decision rule was set, in which a mean response of 2.50 and above was considered as positive attitude while a mean response below 2.50 was considered as negative attitude to each item in the questionnaire.

Data gathered from the administration of the questionnaire was analysed using descriptive and inferential statistics. Research question one was answered using mean and standard deviation while hypotheses one and two were tested using Kruskal-Wallis H test (a non-parametric equivalence of one-way ANOVA) at 0.05 alpha level in SPSS version 20.

Results

Research Question One: Do students have positive or negative attitude towards e-examinations in Federal University of Technology, Minna, Nigeria?

Table 1:
Mean attitude response of students to e-examinations

S/N	Statement	N	Mean	S. Dev.	Decision
1	E-examination is attractive to me.	280	2.76	0.26	Positive
2	I easily and quickly answer my physics questions during e examinations	280	2.91	0.41	Positive
3	I prefer writing my examinations using computers in e examination centre.	280	2.61	0.11	Positive

4	I am always optimistic my result will be excellent before writing e-examinations.	280	2.28	0.21	Negative
5	My performances after e-examinations encourage me to prefer the mode of examination to paper examination.	280	2.36	0.13	Negative
6	E-examinations improve my attitude to undergraduate course	280	2.59	0.09	Positive
7	I like e-examinations because of immediate feedback and prompt release of results.	280	2.48	0.01	Negative
8	I prefer e-examination mode of assessment because it does not encourage cheating and malpractices.	280	2.59	0.09	Positive
9	I am always interested in e-examinations because answer booklets do not get lost or missing.	280	2.95	0.42	Positive
10	I like e-examinations because they improve my competence in the use of computer for other educational purposes.	280	2.52	0.02	Positive
Average Mean			2.61		

Table 1 shows the mean attitude response of students to e-examinations in Federal University of Technology, Minna, Nigeria. A total of 280 students responded to 10 items. The table shows that the respondents agreed with Items 1, 2, 3, 6, 8, 9 and 10 but disagreed with Items 4, 5 and 7. With an average mean response of 2.61 to the ten Items, the table shows that students have positive attitude to e-examinations in the university.

Research Hypothesis One: There is no significant difference in the attitude of students towards e-examinations across the seven schools in Federal University of Technology, Minna.

Table 2:
Kruskal-Wallis H test result of attitude of students to e-examinations across the seven schools

School	N	Mean Rank	df	Chi-square	P
Engineering (SEET)	40	145.61			
Agriculture (SAAT)	40	135.53			
Environmental ((SET) Sciences (SNAS)	40	142.58			
	40	142.35			
			6	2.27 ^{ns}	0.89
Entrepreneurship (SEMT)	40	135.73			
Education (STE)	40	139.13			
Information (SICT)	40	142.59			

ns: not significant at 0.05 level

Table 4.12 shows the Kruskal-Wallis H test result of attitude of students to e-examinations across the seven schools. The result indicated that there was no statistically significant difference between the two groups, $X^2(6) = 2.27, p = 0.89$ with a mean rank attitude score of 145.61, 135.53, 142.58, 142.35, 135.73, 139.13 and 142.59 for SEET, SAAT, SNAS, SEMT, STE and SICT respectively. On this basis, hypothesis one was not rejected. This implies that students have positive attitude to examinations across the seven schools in Federal University of Technology, Minna.

Research Hypothesis Two: There is no significant difference in the attitude of male and female students towards e-examinations in Federal University of Technology, Minna, Nigeria.

Table 3:
Kruskal-Wallis H test result of the mean attitude score of male and female students to e-examinations

Group	N	Mean Rank	df	Chi-square	p
Male	140	140.46	1	0.00 ^{ns}	0.98
Female	140	140.54			

ns: not significant at 0.05 level

Table 3 shows the Kruskal-Wallis H test result of mean attitude score of male and female students to e-examinations. The result indicated that there was no statistically significant difference between the two groups, $X^2(1) = 0.00, p = 0.98$ with a mean rank attitude score of 140.46 for male students and 140.54 for female students. On this basis, hypothesis two was not rejected. This implies that both male and female students have positive attitude to e-examinations in Federal University of Technology, Minna.

Discussions of Findings

The finding of this study on whether students in Federal University of Technology, Minna have positive or negative attitude towards e-examinations indicated that their attitude to this mode of examination was positive. This finding is in agreement with the earlier finding of Tella and Bashorun (2012) who found that undergraduate students in University of Ilorin have positive attitude to computer-based test. The finding is also in agreement with the finding of Darrell (2003), Achim, et al. (2011) and Deutsch et al. (2012) who found that students' attitude was positive toward computer-based testing than toward pencil and paper testing. The benefit of students' positive attitude towards e-examinations has been reported to influence their academic achievements globally. Zacharias (2003) was of the opinion that while students with positive attitude to examination have greater academic achievements, their counterparts with negative attitude achieved lesser.

The finding of this study on whether differences exist in the attitude of students towards e-examinations based on their different schools indicated that there was no significant difference in the attitude of students towards e-examinations across the seven undergraduate schools in the institution. This finding is in agreement with the earlier finding of Tella and Bashorun (2012) who found that students' attitude towards computer-based test in University of Ilorin was positive regardless of their faculties. The researchers could not locate any other previous findings to support or refute this finding.

The findings of this study on whether gender influences students' attitude towards e-examinations in Federal University of Technology, Minna indicated that there was no significant difference in the mean attitude score of male and female students towards e-examinations in the institution. This finding was supported by the earlier finding of Tella and Bashorun (2012) who found that students' attitude to computer-based test in University of Ilorin was positive regardless of their gender. However, this finding contradicts the finding of Achim et al. (2011) who found that gender influences students' choice and preference for either computer-based or paper-based test.

Conclusion

Examination is one of the best methods of evaluating students' achievement in teaching and learning process. Electronic means of assessment (e-examination) has proven to be effective and reliable more than paper and pencil method. Students' attitude towards e-examination in Federal University of Technology

was positive regardless of their gender and course of study. This mode of examination should therefore be kept friendly, appealing and interesting to students in the institutions if its' preference over paper-and-pencil examination mode will be sustained.

Recommendations

In light of the findings of the study, the following recommendations are made:

1. E-examination environment, instructions and activities should be made user-friendly in order to sustain students' positive attitude to e-examinations in the university;
2. Gender friendly examination environments, facilities and activities should be provided in universities in order to sustain both male and female students' attitude and interest towards e-examinations; and
3. University administrators and non-governmental organizations should develop more e-examination centres with adequate facilities within the University for the purpose of assessing students' academic achievements irrespective of their course of study and level.

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