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THE ATTITUDES OF UNDERGRADUATE STUDENTS TOWARDS USING E-EXAMS FOR ASSESSMENT IN JORDAN

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ABSTRACT: *The present study aimed to explore the attitudes of undergraduate students towards using e-exams for assessment in Jordan. It also aimed to identify the challenges facing Jordanian universities in using e-exams for assessment. The researcher designed a questionnaire. A purposive sample was selected from the University of Jordan. It consists from (93) undergraduate students who were selected from two sections of the (national education) course at the University of Jordan. Questionnaire forms were distributed to the sample members by hand. All the forms were retrieved. However, (87) forms are considered valid for statistical analysis. The response rate is (100% Percentages), standard deviations and means are calculated. It was found that respondents have positive attitudes towards using e-exams for assessment in Jordan. It was found that the severity of the challenges facing Jordanian universities in using e-exams for assessment is high. It was found that e-exam makes students feel less stressed than the paper-based exam.*

KEYWORDS: undergraduate, students , attitudes, e-exams, Jordan

INTRODUCTION

Today, technology plays a major role in people's lives. It is employed in all fields. It's also used in a daily manner by people. It enables people to practice their profession and duties. For instance, it is used much at medical, business, and banking institutions. It also used much at educational institutions, such as training institutions, schools, universities, and community colleges. For example, many educational institutions use smart boards, e-curricula, and computer-based models.

The increasing use of ICTs in academic institutions is attributed to several factors. For instance, employing ICTs in education shall improve the quality of education. It shall facilitate the absorption and acquisition of knowledge. It shall participate in improving the effectiveness of the process of implementing educational policies (Tinio, 2002). In this regard, it should be noted that assessment is considered an essential part of the learning process. The assessment aims at assessing students' amount of knowledge and skills. It aims at providing evidence about the student's achievement level. However, universities changed their assessment method to keep up with the latest developments and changes. (Elliott, 2008). For instance, universities today administer e-exams to assess students.

E-exam (electronic exam) refers to a computerized exam through which the student uses a computer for taking his/her exam. However, the computer has a special program for meeting this goal. E-exam usually consists from multiple-choice questions (Da'asin, 2016). It serves as an effective, unbiased, and interesting method for assessing students' academic level. Using e-

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exam for assessment shall increase the objectivity of the assessment process (Alsadoon, 2017, Nikolova, 2012).

E-exam was introduced in the 1970s. Taking e-exam requires having two main elements; software and hardware. The software is represented in the computer system and the program needed for taking the e-exams. The hardware is represented in the physical elements of the computer. E-exam can be used as an effective method for assessing one's amount of knowledge, academic performance, and problem-solving skills. It may be used as a research tool by researchers for collecting data. It may be used by trainers and educators for assessing students. It enables teachers to save their efforts when assessing students. It has been increasingly used by academic institutions worldwide. That is because it's considered an accurate assessment method. E-exam may employ audio-visual tools to collect data from students. E-exam provides more accurate results because it employs stimuli which may be in an audio, text, graphic or and kinesthetic form (Daramola, 2017).

Statement of the problem:

Assessment is a significant part of the learning process. It is carried out to obtain information about the learning outcomes of each student. The use of reliable assessment methods shall improve the quality of the educational process. It shall enable students to identify whether they have met the required academic goals or not (Alsadoon, 2017). Due to the significance of assessment, several methods are employed today for assessing students. Such methods include e-exams.

In many courses at universities, there is a great number of students who must be assessed within a limited amount of time through mid-exams and final exams. That requires using a fast assessment method that provides scores instantly. Therefore, universities seek to assess students through e-exams (Alruwais et al., 2018). E-exams are administered at many Jordanian universities –including the University of Jordan which is the most important university in Jordan. Therefore, the researcher of the present study aimed to explore the effectiveness of using e-exams for assessing undergraduate students in Jordan from their own perspective.

The Study's Objectives:

The present study aimed at

1) Identifying the attitudes of undergraduate students towards using e-exams for assessment in Jordan.

2) Identifying the challenges facing Jordanian universities in using e-exams for assessment

The Study's Questions:

This aimed to answer these questions:

Q.1. What are the attitudes of undergraduate students towards using e-exams for assessment in Jordan?

Q.2. What are the challenges facing Jordanian universities in using e-exams for an assessment?

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Limits:

Temporal limits: The present study was conducted during the second semester of the academic year (2018/2019)

Spatial limits: The present study was conducted at the University of Jordan at Amman, Jordan

Human limits: The present study targets undergraduate students in Jordan.

Thematic limits: The present study aimed to identify the attitudes of undergraduate students towards using e-exams for assessment in Jordan.

Definition of terms:

E-exams (Theoretical definition): They refer to computer-based exams that are timed. The computer used for taking the e-exam operates through a specific standardized operating system (Hillier, and Fluck, 2013).

E-exams (Empirical definition): They refer to the e-exams that are taken by undergraduate students at the national education course the University of Jordan.

Attitudes: (Theoretical definition): They refer to a set of evaluative judgments that represent one's cognitive and affective reactions to something or someone (Crano and Prislin, 2006, p.347).

Attitudes (Empirical definition): They refer to the attitudes of undergraduate students at the University of Jordan towards using e-exams for assessment.

THEORETICAL FRAMEWORK

The obstacles hindering the integration of ICTs in education

There are several obstacles hindering academic institutions from using technology in the teaching and assessment processes. Such obstacles may include a lack of financial support and computer technicians (Mumtaz, 2000). Such obstacles mays include the inadequacy of the required hardware and software, the teachers' resistance to change and the lack of proper training. For instance, teachers must be provided with adequate training courses about the way of using modern technologies and pedagogical approaches. The obstacles hindering academic institutions from integrating ICTs may include a lack of technical support (Bingimals, 2009).

It should be noted that many developing countries, especially African countries are still not providing adequate attention to the integration of ICTs in education. The obstacles hindering countries from such integration may include: facing difficulties in the development and retention of ICT human resources and suffering from brain drain. In addition, many faculty members and students have poor computer skills. These things hinder such integration (Murgor, 2015).

The obstacles hindering education institutions from administering e-exam may include the inadequacy of ICT tools, students' poor ICT skills, lack of integrity among the e-exam supervisors, and having bad software (Daramola, 2017). The obstacles hindering education institutions from ICT integration may include the inadequate number of computers at educational institutions and difficulty in accessing the internet. Such obstacles may include the

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poor technological infrastructure of the state, especially in developing states and the incapacity of using e-exam for assessing group projects. Such obstacles may include the poor computer skills of teachers (Alruwais et al., 2018).

E-exams:

E-assessment enables teachers to assess important life-skills. It provides teachers with reliable assessment results. It enables teachers to save their time. It provides students and teachers with results and feedback instantly. It motivates students to show their best because some e-exams include simulation models. It makes students feel that they are controlling their own learning process. It enables students and teachers to keep up with the latest developments (Ridgway et al., 2004).

The time saved through using e-exam for assessment can be used for holding discussions between the teacher and students. Therefore, e-exam provides greater opportunities for holding discussions (Anakwe, 2008). E-exam increases students' engagement in the learning process, because it may include games. It enables educational institutions to saves time and money (Hewson, 2012). E-exam can motivate students to learn. It directs the learning process and manages it. It identifies the problems and weaknesses that students suffer from. It serves as a flexible assessment method and provides instant feedback. The e-exam system enables academic institutions to store numerous exams efficiently. It enables academic institutions to use questions of different styles in exams due to the capacity of using multimedia (Nikolova, 2012).

Computer-based test improves the quality of the teaching-learning process. It's a convenient assessment method through which the student can be assessed at any time or place he/she chooses. It's a fast assessment method (Daramola, 2017). According to Alruwais et al. (2018), assessing students through e-exam can save the teachers' time. To illustrate more, through the paper-based exam, the teacher shall be forced to correct the paper of each student. However, through administering the e-exam, the computer shall provide the teacher with results instantly. E-exam enables teachers to track students' progress and performance. It can improve students' performance. It enables educational institutions to save the cost incurred for assessing a great number of students. E-exam is a flexible assessment method because it enables students to take the exam at any time and place. That's needed by the students living in remote areas. E-exam reduces the students' cheating acts because students shall be provided with different forms. It provides teachers with results that are more accurate than the results of the paper-based exam. It motivates students to improve their performance. It's a secure method for assessing students because each student has his/her own ID number and password (Alruwais et al., 2018).

REVIEW OF EMPIRICAL STUDIES

Chin et al. (1990) aimed to explore the impact of computer-based exam and paper-based exam on 10th-grade students' anxiety and achievement levels in Burnaby, Canada. The random sampling method was used. The final sample consists from 54 male students and 51 female 10th-grade students. The experimental group took the computer-based exams and the control group took the paper-based exam. After that, the questionnaire forms were distributed to the members of both groups. It was found that the achievement levels of students in the computer-based exam are better than the achievement levels of students in the paper-based exam. It was found that there isn't any difference between the anxiety levels of the students who took the

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computer-based exam and the ones who took the paper-based exam. It was found that the computer-based exam is perceived as easier than a paper-based exam. It was found that students prefer taking a computer-based exam more than taking the paper-based exam. It was found that the computer-based exam is perceived as being more flexible and convenient than paper-based exam because students do not have to use the eraser to change their answers. Thus, it is a fast assessment method. It was found that computer-based exam enables students to concentrate in a better manner, due to the way of presenting questions. It was found that taking the computer-based exam is less stressful for the ones who have prior experience in using the computer. It was found that students have positive attitudes towards the computer-based exam.

Tella and Bashorun (2012) aimed to explore the attitudes of undergraduate students towards taking computer-based exams in Nigeria. A questionnaire was used by the latter researchers. The sample consists from 2209 undergraduate students. Those students were selected from the University of Ilorin in Nigeria. It was found that respondents have positive attitudes towards taking computer-based exams. It was found that computer-based exam improves students' academic performance. It was found that there are obstacles hindering academic institutions from using e-exams for assessment. Such obstacles may include: having inadequate computers, teachers' lack of computer skills, and poor internet service.

Yurdabakan & Uzunkavak (2012) aimed to explore the attitudes of primary school students towards using computer-based assessment in Turkey. A 35-item questionnaire was used. The final sample consists from 784 primary school students. These students are 3rd, 4th and 5th-grade students in Turkey. It was found that students have positive attitudes towards computer-based assessment. It was found that there isn't any statistically significant difference between the respondents' attitudes which can be attributed to gender and grade. It was found that there is a statistically significant difference between the respondents' attitudes which can be attributed to school type for the favour of the ones enrolled at state schools. It was found that computer-based assessment improves cognitive capabilities and enables students to identify the things they should know. It was found that computer-based assessment improves enables students to identify their weaknesses

Da'asin (2016) aimed to explore the attitudes of students at Ash-Shobak University College in Jordan towards e-exams. A twenty-six item questionnaire was developed. The questionnaire forms were distributed to 112 students. 108 forms were retrieved and considered valid for analysis. It was found that there isn't any significant difference between students' attitude which can be attributed to GPA or gender. It was found that students have positive attitudes towards e-exam. It was found that e-exams are reliable and capable of measuring what they aim to measure. It was found that the e-exam system and the e-exam regulations are clear. However, it was found that e-exam increases students' anxiety and stress levels and makes cheating easier. It was found that the e-exam duration isn't adequate. It was found that e-exam doesn't improve students' performance.

Alsadoon (2017) aimed to explore the attitudes of students towards e-assessment at Saudi Electronic University in Saudi Arabia. Fifteen-item online questionnaire forms were distributed to 80 students enrolled at Saudi Electronic University during the academic year (2015/2016). The five-point Likert scale was adopted. 44 forms were retrieved and considered valid for analysis. Means and standard deviations were calculated. It was found that students have positive attitudes towards e-assessment. It was found that e-assessment improves the quality of the learning and assessment processes and serves as an unbiased assessment method.

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It was found that e-assessment reduces the stress associated with exams, and improves students' technical skills. It was found that e-assessment doesn't facilitate cheating. It was found that students prefer getting assessed through e-assessment instead of paper-based assessment. However, it was found that e-assessment isn't suitable for all courses.

Jamiludin et al. (2017) aimed to explore the attitudes of high school students towards taking national exams through the paper-based exam and computer-based exam in Kendari, Indonesia. Interviews were conducted and a twenty-item questionnaire was used. The questionnaire forms were distributed to 34 high school students in Kendari. All of the form were retrieved and considered valid for analysis. Through using the questionnaire, it was found that the computer-based exam is easier to read than the paper-based exam. That is because some paper-based exam forms aren't clear due to the poor quality of the printer. It was found that students prefer taking the paper-based exam more than a computer-based exam, especially for assessing their reading comprehension. Through conducting interviews, it was found that computer-based exam can provide students with valuable experiences in using technology. It was found that computer-based exam requires less time to be taken. It was found that it's more difficult to cheat through the computer-based exam. It was found that computer-based exam can negatively affect health specifically eyes, because students may need to take long exams. It was found that computer-based exam confuses respondents because respondents aren't used to taking such an exam. It was found that the available ICT tools are inadequate. Interviewees add that if the computer slows down, it shall negatively affect their concentration.

IsauAdewole et al. (2018) aimed to explore the attitudes of university students in Nigeria towards taking computer-based exams. 500 questionnaire forms were distributed to students who were selected from the Ladoke Akintola University of Technology in Nigeria. However, 400 forms were retrieved and considered valid for analysis. It was found that students have positive attitudes towards using computer-based exams in Nigeria. It was found that such exams enable students to edit their answers, and serve as a secure assessment method. It was found that students do not face problems in logging nor in opening the e-exam program.

Approach:

This study adopts a descriptive-analytical approach.

Methods of Data Collection:

The researcher used secondary data sources (i.e. books, theses and studies) and primary data sources (i.e. a questionnaire).

Instrument:

A questionnaire was used by the researcher for collecting data. It consists from 24 items and three sections. The first section collects demographic data (gender, and computer skills). The second section collects data about the respondents' attitudes towards using e-exams for assessment. The third section collects data about the challenges facing Jordanian universities in using e-exams for assessment. The second part of the questionnaire was developed based on the studies of Chin et al. (1990), Daramola (2017), Mumtaz (2000), Da'asin (2016), Alruwais et al. (2018), Hewson (2012), Alsadoon (2017), Nikolova, 2012), Yurdabakan & Uzunkavak (2012) and Jamiludin et al. (2017). The third part of the questionnaire was developed based on

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the studies of Bingimals (2009), Tella, and Bashorun (2012), Mumtaz (2000) and Bingimals (2009).

Validity:

The validity of the questionnaire was assessed by passing the questionnaire to a panel of experts. Those experts are two experts specialized in educational sciences and pedagogy. They work as full-time professors at Jordanian universities. They were asked to assess the questionnaire in terms of a) language, b) relevancy and c) clarity. None of the experts recommended deleting any item. The two experts confirmed that the questionnaire is a reliable, and capable of meeting the study's goals. However, they recommended paraphrasing some items to become clearer.

Reliability:

For measuring the instrument's reliability, the researcher calculated the Cronbach Alpha coefficient value. This value is (0.881). That means that the instrument is highly reliable and provides accurate results.

Population:

The population involves all the Jordanian undergraduate students who are enrolled at Jordanian universities.

Sample:

A purposive sample was selected from the University of Jordan. It consists from (93) undergraduate students who were selected from two sections of the (national education) course. Those students were selected from the University of Jordan. Questionnaire forms were distributed to all the sample members by hand. That was done after the respondents had their electronic mid-exam. All of the forms were retrieved. However, (87) forms are considered valid for statistical analysis. The response rate is (100%).

Methods and Criteria for statistical analysis:

The SPSS program is employed. In addition, standard deviations, and arithmetic means are calculated to identify the respondents' attitudes towards using e-exams for assessment. They are calculated to identify the challenges facing Jordanian universities in using e-exams for assessment. To identify the respondents' characteristics, percentages and frequencies are calculated. To measure the reliability of the instrument, the Cronbach Alpha coefficient was calculated. To classify means, these criteria are used:

(2.33) or less: Low

(2.34 - 3.66): Moderate

(3.67- or more): High

The respondents' characteristics

To identify the respondents' characteristics, percentages and frequencies are calculated and presented in table (1) below:

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Table (1): The respondents' characteristics

Variable	Category	Frequencies	Percentage %
Gender	**Male**	**33**	**43.68**
	Female	**49**	56.32
	Total	**87**	**100%**
Computer skills	**Excellent**	**15**	**17.24**
	Very good	**52**	**59.77**
	Good	**13**	**14.94**
	Poor	**7**	**8.04**
	Total	**87**	**100%**

Based on table (1), (43.68%) of the respondents are males, whereas (56.32%) of the respondents are females. That is because the extent of enrollment of females in Jordanian universities is greater than the extent of enrollment of males. For instance, (51.6%) of the ones enrolled in Jordanian universities in (2016) are females (The Jordanian Department of Statistics, 2018).

It was found that (15%) of the respondents have excellent computer skills, whereas (52%) of the respondents have very good computer skills. It was found that (13%) of the respondents have good computer skills, whereas 7% of the respondents have poor computer skills. Thus, most of the respondents have either very good or excellent computer skills. That may be attributed to the provision of students with computer education of high quality at schools and universities.

RESULTS AND DISCUSSION

Results and discussion related to the first question

Q.1 What are the attitudes of undergraduate students towards using e-exams for assessment in Jordan?

To answer question 1, standard deviations and means are calculated and presented in table 2 below

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Table (2): The attitudes of undergraduate students towards using e-exams for assessment in Jordan

No.	Statement	Mean	Standard deviation	Level
1	In general, I prefer taking e-exam more than taking paper-based exam	4.96	1.03	High
2	E-exam is an effective method for assessing one's amount of knowledge	4.91	0.92	High
3	E-exam is an effective method for assessing one's skills	2.28	1.32	Low
4	E-exam enables me to show a better academic achievement	2.08	0.62	Low
5	E-exam makes me feel less stressed than paper-based exam.	4.83	0.81	High
6	I concentrate more on e-exams	4.94	0.38	High
7	E-exam doesn't facilitate cheating	3.99	0.43	High
8	E-exam enables educational institutions to save cost	2.21	0.81	Low
9	E-exam enables faculty members to track students' progress	4.34	0.91	High
10	Faculty members can save time when administering e-exams	4.93	0.25	High
11	E-exam improves the quality of the teaching-learning process	3.83	0.67	High
12	E-exam serves as a flexible assessment method	4.63	0.82	High
13	E-exam enables faculty members to identify the problems and weaknesses that students suffer from.	2.09	0.64	Low
14	E-exam enables faculty members to save their efforts	4.97	1.10	High
15	E-exam serves as an accurate and reliable assessment method	4.78	0.61	High
16	E-exam is suitable for assessing students at any course	1.98	0.31	Low
17	It improves students' cognitive skills	4.97	0.51	High
18	Taking the e-exam requires less time than taking the paper-based exam	4.98	0.89	High
19	I prefer taking paper-based exam for assessing my reading comprehension	2.32	0.51	Low
	Total	3.89	0.71	High

Based on the table (2), the total standard deviation is (0.71) The total mean is 3.89. That means that undergraduate students have positive towards using e-exams for assessment in Jordan. That's consistent with the results of Tella, and Bashorun (2012) Da'asin (2016). That may be

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attributed to the fact that respondents have very good computer skills which enables them to use the e-exam system easily. It was found that respondents prefer taking e-exam more than taking paper-based exams. That is because the mean of statement 1 is 4.96. That's consistent with the results of Chin et al. (1990). That may be also attributed to the fact that students today prefer using technology more than using conventional methods. It's because using a computer for assessment shall make students feel that they are keeping up with the technology.

It was found that e-exam is an effective method for assessing one's amount of knowledge. That is because the mean of statement (2) is (4.91) That's consistent with what's suggested by Daramola (2017). That is because the one who studied well for an exam is capable of answering any question regardless of its form. It was found that e-exam is not considered an effective method for assessing one's skills. That is because the mean of statement (3) is (2.28) That's inconsistent with what's suggested by Mumtaz (2000). That may be attributed to the fact that e-exam isn't capable of assessing certain skills, such as motor skills and teamwork skills. It was found that e-exam doesn't enable students to show better academic achievement. That is because the mean of statement (4) is (2.08).

It was found that taking e-exam makes students feel less stressed than taking the paper-based exam. That is because the mean of statement (5) is (4.83). That's consistent with the results of Da'asin (2016). That's attributed to the way of presenting questions on the e-exam program. For instance, in e-exam programs, each question is usually presented on a separate page. Thus, when the student doesn't see all the questions together, he/she shall feel less stressed. It was found that e-exam enables students to concentrate in a better manner. That is because the mean of statement 6 is 4.94. That's consistent with the results of Chin et al. (1990). That's because the e-exam may include different colours, multimedia and simulation models which shall attract student's attention and keep him focused.

It was found that e-exam doesn't facilitate cheating. That is because the mean of statement (7) is (3.99). That's consistent with what's suggested by Alruwais et al. (2018). That is because there are usually various forms. It's also because students from two different courses may set next to each other while taking the e-exam. It's also because there is an exam supervisor for preventing cheating acts. It was found that e-exam doesn't enable educational institutions to save cost. That is because the mean of statement (8) is (2.21). That's consistent with what's suggested by Alruwais et al. (2018). That's because the faculty members in Jordan are not treated like the faculty members in foreign countries. For instance, in Jordan, the faculty members will not get extra money for the exam papers they correct.

It was found that e-exam enables faculty members to track students' progress. That is because the mean of a statement (9) is (4.34). That's consistent with what's suggested by Alruwais et al. (2018). That's because e-exam enables faculty members to assess a great number of students several times during the semester. That's because e-exam provides the faculty members with scores instantly without having to correct many exam papers.

It was found that e-exam enables faculty members to save time. That is because the mean of a statement (10) is (4.93). That's consistent with what's suggested by Hewson (2012). That's because the faculty member will not waste much time correcting exam papers. It was found that e-exam improves the quality of the teaching-learning process. That is because the mean of a statement (11) is (3.83). That's consistent with what's suggested by Alsadoon (2017). That's

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because taking the e-exam shall enable students to keep up with technological development through their learning process.

It was found that e-exam serves as a flexible assessment method. That is because the mean of a statement (12) is (4.63). That's consistent with what's suggested by Hewson (2012). That's because e-exam enables faculty members to test a great number of students together by holding several exam sessions during the day. It was found that e-exam doesn't enable faculty members to identify the problems and weaknesses that students suffer from. That is because the mean of a statement (13) is (2.09). That's because there are problems that require taking the paper-based exam or practical exam to be identified, such as the problems related to the technical writing skills.

It was found that e-exam enables faculty members to save their efforts. That is because the mean of a statement (14) is (4.97). That's because faculty members will not have to correct each exam paper. It was found that e-exam serves as an accurate and reliable assessment method. That is because the mean of a statement (15) is (4.78). That's consistent with what's suggested by Daramola (2017). That's because the answer in e-exam is either wrong or correct. It's also because the correction process in e-exam is performed by a computer, not by a faculty member who may be biased or not concentrating enough.

It was found that e-exam isn't a suitable method for assessing students in any course. That is because the mean of statement (16) is (1.98). That's consistent with the results of Alsadoon (2017). That's because there are courses that require using other types of exams. Such courses may include: music, and sports courses. These courses require using practice exams to test students' practical skills. In practical exams, students must perform a task to be assessed. It was found that e-exam improves students' cognitive skills. That is because the mean of statement (17) is (4.97). That's consistent with the results of Yurdabakan & Uzunkavak (2012). That's because e-exam employs multimedia and audio-visual tools.

It was found that taking the e-exam requires less time than taking the paper-based exam. That is because the mean of statement 18 is 4.98. That's consistent with the results of Jamiludin et al. (2017). That's because students will not have to use the eraser to delete an answer and write the new answer. It's also because students' do not have to show the way they reached their answer. It was found that respondents prefer taking the paper-based exam more than taking the e-exam for assessing their reading comprehension. That is because the mean of statement (19) is (2.32). That's consistent with the results of Jamiludin et al. (2017). That's because reading comprehension questions require having questions other than the multiple-choice questions.

Results and discussion related to the second question

Q.2. What are the challenges facing Jordanian universities in using e-exams for an assessment?

To answer question 2, standard deviations and means are calculated and presented in table 3 below

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Table (3): The challenges facing Jordanian universities in using e-exams for an assessment

No.	Statement	Mean	Standard deviation	Level
20	The faculty members show resistance to change in terms of integrating ICT in the assessment process.	4.95	0.19	High
21	There is an inadequate number of computers in the university	2.32	0.65	Low
22	The faculty members have poor computer skills	4.93	0.81	High
23	There is lack of computer technicians in the university	4.97	0.42	High
24	The software used by the university is not modern	4.92	0.94	High
	Total	4.41	3.01	High

Based on the table (3), the total mean is (4.41). That means that the severity of the challenges facing Jordanian universities in using e-exams for assessment is high. That may be attributed to the fact that the governments of developing countries- including the Jordanian government- do not provide adequate attention to ICT integration in the educational field. It was found that the faculty members show resistance to change in terms of integrating ICT in the assessment process. That's because the mean of statement (20) is (4.95). That's consistent with what's suggested by Bingimals (2009). That means that faculty members do not prefer employing technology in learning and assessment because they prefer adopting conventional learning and assessment methods.

It was found that there is an adequate number of computers in the University of Jordan. That's because the mean of statement (21) is (2.32). That's consistent with the results of Tella, and Bashorun (2012). It was found that the faculty members have poor computer skills because the mean of statement (22) is (4.93). That may be attributed to the inadequacy of the training courses provided to faculty members about the training courses. It was found that there is a lack of computer technicians because the mean of statement (23) is (4.97). That may be attributed to the incapacity of Jordanian universities to retain human resources. It was found that the software used by Jordanian universities is not modern because the mean of statement (24) is (4.92). That's consistent with what's suggested by Bingimals (2009). That may be attributed to the fact that employing the latest software is considered costly for Jordanian universities.

CONCLUSION

It was found that undergraduate students have positive towards using e-exams for assessment in Jordan. It was found that the severity of the challenges facing Jordanian universities in using e-exams for assessment is high. It was found that e-exam is an effective method for assessing one's amount of knowledge. It was found that e-exam makes students feel less stressful. It was found that e-exam enables students to concentrate in a better manner. It was found that e-exam reduces the extent of committing cheating acts by students. However, it's not suitable to use e-

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exam in all courses. It was found that the faculty members have poor computer skills and show resistance to change in terms of integrating ICT in the assessment process.

Recommendations

The researcher recommends:

Providing faculty members and undergraduates at Jordanian universities with courses about the way of using e-exam systems. Such courses must also promote knowledge about the significance of e-exam

Developing strategies by the Jordanian Ministry of Higher Education for promoting knowledge about the significance of using e-exam as an assessment method in Jordanian universities.

Providing Jordanian universities with funds by the Jordanian Ministry of Higher Education to procure adequate ICT tools and the latest software

Conducting similar studies with investigating the relationship between such attitudes from one hand and academic performance and gender from another hand

Increasing the number of computer labs at Jordanian universities.

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Appendices:

Appendix (1): Example of an e-exam log in-page

The researcher presented below a screenshot for an example of an e-exam log in-page

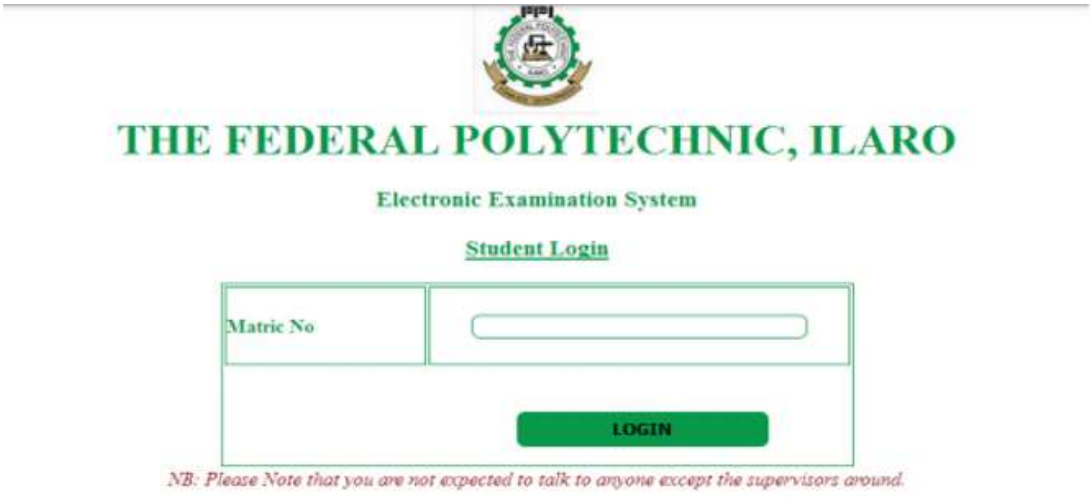

Figure: 1: Example of a user log-in page of an e-exam
*Source: Oduntan and Ojuawo (2018)

Appendix (2): Example of an e-exam question page

The researcher presented below a screenshot for an example of an e-exam question page

Figure 2: Example of an e-exam question page
*Source: Oduntan and Ojuawo (2018)

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