E-Assessments Systems: A Comparison of the Views of Samples of Students and Professors

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Abstract

The research has two folds; firstly, it aims to compare the different views of trends between two sample groups of professors and students who used assessments system at the University, and secondly it aims to investigate the uses of e-assessments systems in other universities in the region. The Personal trends are about the relationship between the availability of supplies needed to carry out or take e-assessments and to what extent it has been implemented successfully. In previous research, descriptive analytical methods have been used on two samples that consisted of (44) professors and (246) students from (5) colleges. The research tool was composed of many variables for measuring the relationship influenced among them. The research concluded that there is a relationship effect between the availability of supplies and the success of the implementation process of the electronic examinations system. In addition, there is a difference in the perspectives of members of the research sample on any of the variables. The researchers observed that the variation in personal trends differed for the research variables where the results indicated that there is variation in personal trends about one variable, when there is no variation on other variables. In previous study done on students, there was a variation in the attitudes about all the variables. Results indicated that there is a difference in professors' attitudes about the problems facing the implementation process and the variations on indicators of the success of the implementation process.

Key words: E-assessments; E-learning; Assessments trends; Internet and communications technologies; Questionnaires analysis

INTRODUCTION

In recent years, many educational institutes around the globe have begun the utilization of information technology for the development of electronic applications for use in education. These developments have become important pillars from which the concept of E-learning has evolved. Many universities in the developed countries have made great strides in this area and now have sophisticated and well-established E-Systems (Burgess, 2003; Servonsky, Daniels, & Davis, 2005; Dougiamas & Taylor, 2003), such prompting many universities in the Arab world, including the Hashemite Kingdom of Jordan, to engage in this area. Several State and Private Universities in the Kingdom are adapting E-learning and e-assessments to be able to compete among universities in the Arab world in particular and the rest of the world in general (Vendlinski & Stevens, 2002; Birenbaum et al., 2006; Scalise & Gifford, 2006; Jurczyk, Benson, & Savery, 2004).

Student assessments methods or assessment systems are one of the important topics, which occupies a major place in the concerns of State and Private Universities due to the increased numbers of students admitted to universities. In addition, the paper-based methods may not guarantee justice and objectivity in evaluation, in addition to the costs borne by universities to provide paper-based examination requirements. Online systems have provided a method for professors to conduct exams through the course website based software specializing in E-learning

and E-assessments, such as Blackboard, WebCT and Moodle. This approach would benefit the interest of students, professors and the University, as an easy and objective evaluation and ensure that students get the result instantly.

The utilization of the electronic examinations system is considered a good indicator of the development of methods used to evaluate the performance of students in the universities. The utilization of electronic examinations at Isra University is performed using Moodle (Modular Object Oriented Dynamic Learning Environment), an open source course management system that supports a modern social constructionist pedagogy (Jurczyk, Benson, & Savery, 2004; Alnsour, 2011).

Two studies were conducted previously by the researchers on the views' of students and professors about the advantages and disadvantages of electronic exams (Eljinini et al., 2012; Alsamaria, Eljinini, Amawi, & Hameed, 2013). Preliminary indications point to the existence of some problems and obstacles facing the implementation process, which is needed to be studied and analyzed in depth in order to be diagnosed properly and to develop proposals and recommendations that will assist the University and faculty members to adopt it as a way to evaluate the performance of students in most subjects.

This paper has two folds: In the first part a survey of other universities in the region using e-learning systems has been shown, and in the second part a comparison between the two surveys done on students and professors is studied and presented. The first part sheds the light on the uses of E-learning systems in the region, which will be looked at in the next section.

1. PREVIOUS STUDIES (ESSAYS IN THE FIELD OF ELECTRONIC EXAM)

In this part, the researchers surveyed and studied six universities, as shown below.

1.1 The Views of Students at King Khalid University Towards Electronic Exam

An exam system has been applied to a course of "Methods and Techniques of Education" in colleges of Education and Islamic Law. Students utilized iPads in taking e-assessments throughout the course. At the end of this course, the professor carried out a survey on the students who were engaged in the experiment and the results were as follows: There is a consensus by (100%) Students of Faculty of Islamic law and theology, as well as students of the Faculty of education of the Arab language diploma-strongly agree – as well as students of the science diploma – strongly agree – and the percentage of unanimous (96%). These included the aforementioned percentages the following statements: I hope to have the opportunity to test in the rest of the curriculum, as well as to provide

the student with immediate grading, and ensures reliable evaluation strategy. Also, contribute to measuring the level of students in a realistic way without cheats. For the first time been using iPads in electronic examinations these were launched successfully as well as experience in the Faculty of medicine as an alternative to a successful technical computer labs has been performing traditional exam in classrooms successfully.

1.2 The Experience of King Abdulaziz University

King Abdulaziz University announced the unique experience opportunity for students enrolled in their test, which took place in four cities are "Riyadh and Dammam, Qassim, Abha" as the first stage in the two disciplines of the Faculty of Arts and humanities. The League's initiative to activate the exams will spare them the areas bear the hardships of travel for their exam performance. The University has done an evaluative study of this experience by soliciting the views of students. The assessment was high in terms of user satisfaction and acceptance of the new system. The navigation system was easy and clear, some students would prefer there to be a training course to learn how to use the system before the exam, some would prefer not to see the exam results at the end of time, and the other group liked it. Through these findings, the study recommended some improvements to the system, including: Giving the user more options about hiding or showing the time remaining within the program, choose to see the final grade or otherwise, and finally give students the training sessions before final exams.

1.3 A Study of Faculty of Arts, Alexandria University

College of Arts in the university has applied electronic tests on students for the first time at the level of universities in Egypt. The experiment of electronic exams for students took place in the Department of acoustics. This experiment utilized a bank of questions developed over two years. Students performed the electronic exams by answering certain questions based on the method of choosing between more than one answer and depends on understanding. This process included assessment of students across computers with full transparency and accuracy. A choice was made for the electronic system to be used in all departments in the coming year.

1.4 The Yarmouk University Experience

The Faculty of Information Technology at Yarmouk University took the initiatives of applying E-exams at the beginning of the academic year 2002/2003. Electronic examinations were conducted for English and computer pre-tests to new students. Due to the success of the experiment, the total computerization of all examinations taking place in the university language center. The student gets the result of 100 upon completion of the exam. The computerized examinations are proved to be

accurate and can be taken any time needed. Due to these results, the management of the university planned and carried out the computerization of exams in all colleges of the universities. Finally, they decided to create the computerized examinations unit in the University.

1.5 The Experience of Mu'tah University

Mu'tah University achieved in line with the directives of the university administration principle of computerized exams to achieve justice in achievement between students. Over the past two years, the number of courses using computerized exams went from 6 courses to 45 courses. In addition, the computerized exam system could reduce the number of students who apply to the unfinished examination of 200 students in the first year to 50 students in the next year. Therefore, the University has a strategic plan for E-learning, the University began to train faculty to use for E-learning system (MOODLE), the University signed an agreement with a local company to train faculty to develop content using this system.

1.6 Isra University Experience

In the academic year of 2002/2003, the university initiated the development of a custom system for electronic examinations that was implemented by the Faculty of science and information technology and was used for Arabic and English languages exams. The system has received many complements from users. Two of the most important features of the system were ease of use and efficiency. The system was used for several years. In the academic year of 2007/2008, the dean of the Faculty of information technology began to develop a strategy to take full advantage of E-learning. The work of a broad study on E-learning systems was conducted which recommended the use of the Moodle e-learning system for its many distinguished features. Besides its ease of use, professors can design substantive tests, and follow-up activities of the students for each course with high efficiency. Presently there are two servers dedicated to eLearning. The first server is mainly dedicated to the three level-exams (Computer, English, and Arabic), administered by the Faculty of Arts and Sciences. The second server serves the Faculty of information technology, College of nursing and currently contains approximately 2,000 users. The Faculty of information technology has full utilization of the system by serving academic materials and computerized examinations. Isra University has plans to have the system used by all faculties through the establishment of an independent and integrated Center for E-learning with the goals to organize training sessions for faculty members, students and setup educational bulletins and guidelines. Several research teams in the Faculty of information technology performed studies on E-learning and Moodle system at the University and some other Jordanian universities and published in their work in specialized scientific magazines (Jurczyk, Benson, & Savery, 2004; Alnsour et al., 2011; Alnsour et al., 2011)

2. THE VIEWS OF STUDENTS AND PROFESSORS ON E-ASSESSMENTS SYSTEMS: A COMPARISON

The application of electronic examination system is a good indicator of the development of methods for evaluating the performance of students in universities. The researchers observed by the first survey conducted on students and faculty members about their views on the advantages and disadvantages of electronic exam, there are preliminary indications point to the existence of some problems and obstacles facing the implementation process. These observations determined the need to be studied and analyzed in order to be diagnosed properly. The observations also showed the need to develop proposals and recommendations that will assist the University and faculty members to adopt it as a way to evaluate the performance of students in most subjects.

The main hypothesis of the second part of this research states that:

> There is no relationship statistically significant impact at a level $(0.05 \geq a)$ between the availability of supplies of electronic examination system and successfully implemented in ISRA University from the point of view of the members of a sample of students and professors.

The supplies of electronic examination systems consists of: (a) Infrastructure, such as computers, software, and networks, (b) Specialized staff responsible for the preparation and implementation of the examination system, (c) Skills and capabilities to deal with the computer and the Setup and configuration of electronic exams.

The research objectives are:

A. To provide a theoretical framework around the concept and importance of electronic examination system with a focus on the beginnings and the mechanism applied in ISRA University, reviewed the experiences of some universities in the Kingdom and some universities in the region as shown in the first part of this research.

B. Measuring the impact of each of the following points on the successful implementation of electronic examination system from the perspective of members of the sample search of students and professors:

a) Infrastructure (computers, software, and network requirements).

b) Specialized staff responsible for the preparation and implementation of the electronic examination system

c) Provide the skills and abilities of the students in using the computer and the Setup and configuration of electronic examination system.

The researchers adopted the descriptive analytical research method based on field data collection by the design of questionnaires to test the validity of hypotheses. In addition, the researchers carried out some interviews with those responsible for the preparation, implementation, and administration of the electronic examination system, as well as relying on reviewing books, scientific journals, and Internet sites to build a theoretical framework for the research.

The research sample was taking randomly from university faculties implementing the electronic examination system; these faculties are faculty of administrative and financial sciences, faculty of information technology, faculty of nursing, faculty of Literatures, and faculty of education. Two samples were collected which consisted of professors who conducted electronic exams and the students who took these electronic exams as shown in Table 1 and 2, respectively.

Table 1
Distribution of the Professors' Sample as Presented (Alnsour et al., 2011)

College name	Actual number of professors	Sample size	Number of distributed questionnaires	Number of returned valid for analysis
Administrative sciences	7	7	7	7
IT	20	20	20	20
Nursing	8	8	8	7
Education	7	7	7	7
Literature	2	2	2	2
Totals	44	44	44	44

The sample size of the professors reflects the actual number with a full total of 44 whom have conducted their exams electronically. The total was recovered fully and is valid for the analysis of which form the gain of (100%) of the research sample as shown in Table 1. As for the students who have been using the electronic exam, Table 2 shows the size of the sample and the number of questionnaires distributed, reaching the number of questionnaires recovered of 246, which formed a gain of (96%) of the amount of the sample size of 257 and (9, 4) of the research community of 2,610 students.

Table 2
Distribution of the Students' Sample as Presented (Eljinini et al., 2012)

College name	Actual number of students	Sample size	Number of distributed questionnaires	Number of returned valid for analysis
Administrative sciences	650	72	62	62
IT	400	38	38	38
Nursing	160	23	23	23
Education	900	86	86	82
Literature	500	48	42	42
Totals	2610	257	257	246

In order to analyze the research variables for each of the professors and students sample, and to test the validity of the hypotheses, the statistical application (SPSS) has been utilized. The SPSS application has also been used to extract the averages and standard deviation for each test. In addition the use of Krobach Alpha (Cranach's Alpha) to measure the stability of the questionnaire, and multiple regression analysis and sequential testing for the validity of the research form and measure the impact of the independent variables on the dependent variable and to identify any independent variables with the most influence on the dependent variable.

2. RESEARCH TESTING RESULTS

Chi square X^2 is used to test for differences in trends of the professors of the research variables, which are described in Table 3. The results indicated that there is a variation in the directions of the research sample on only the variable that states to provides the skills and capacity where the level of significance (0.04) which is less than (0.05), indicating rejection of the sub-hypothesis (availability of skills and abilities). As for their opinions about each of the following variables: (infrastructure, professional staff, and indicators of success), the results suggest that there is no variation in attitudes about these variables where the level of significance for each respectively (0.313, 0.059, 0.969, 0.545). They are all are greater than the level of significance (0.05) which confirms the validity of the assumptions for each of these sub-variables. As the results suggest that there is not a difference in the trends of research sample for the variable (supplies all its elements) where the level of significance is (0.662). The largest of (0.05), and compared these results with the results of descriptive statistics of the averages it was found the arithmetic average of the combined variable reached paragraphs (3.917) with a standard deviation of (0.45). Which confirms the validity of the hypothesis **(**Alnsour et al., 2011)

Table 3
Analysis of Chi Square Results for the Professors Answers as Presented (Eljinini et al., 2012)

Model	Infrastructure	Specialized personnel	Computer skills	All requirements	System success	System problems
X^2	24.364	16	31.682	18.727	14.227	12.818
Degrees of freedom	15	14	14	22	16	24
Level of moral	0.059	0.313	0.04	0.662	0.545	0.969

The results of analysis of X^2 test and described in Table 4 indicate that there is variation in the trends of the research sample (for students) on all variables of the sub-hypotheses which are (Infrastructure, Staff, Skills, Problems, and Indicators of Success) where the level of significance for each of them are, respectively 0.000 , 0.000, 0.000, 0.000, 0.000 is less than 0.05. The level of moral for the requirements variable combined 0.0005, which is too less than 0.05. These results also came to confirm the rejection of all sub-hypotheses relating to all research variables. There any difference in students' attitudes about all the variables and this result was different from the results of aromatic means in the descriptive statistics, which indicated an agreement in trends among them, but remains hypothesis testing is more reliable because it gives the most accurate results **(**Eljinini et al., 2012)

Table 4
Analysis of Chi Square Results for the Student's Answers as Presented (Eljinini et al., 2012)

Model	Infrastructure	Specialized personnel	Computer skills	All requirements	System success	System problems
X^2	108.927	212.244	169.415	132.61	130.024	155.610
Degrees of freedom	16	21	23	42	26	26
Level of moral	0.000	0.000	0.000	0.000	0.000	0.000

CONCLUSION

In light of the results of the analysis of data on the variables of research and testing hypotheses can be drawn the most important results of the following:

A. Results from the statistical analysis of the answers for the two samples groups, which consisted of students and professors, both have agreed that administration provided all the needed requirements. The requirements for applying the new computerized examination system consists of infrastructure (networks, software, computers), providing specialized staff responsible for the preparation and implementation of the system, in addition to the skills and abilities of the students and professors to use the system.

B. The results of answers that was provided by the sample of professors indicated that there are differing in the number and type of materials that are electronic examinations in colleges.

C. There are a general agreement in the trends of students and professors sample on the variable, which indicates the successful implementation of the system in general.

D. The results of the tests on the main hypothesis indicated a relationship exists between the availability of all of the accessories for applying the examination system and the success of the implementation process from the viewpoint of professors, which rejected the premise of nihilism is not an influence. As the results of the regression analysis of the sequential hypothesis indicated, nihilism of variables for supplies (provides specialized staff, skills and abilities). There is no relationship between the individual and variable success of theimplementation process. As the only hypothesis is rejected nihilism regarding variable infrastructure. In addition, the alternative hypothesis is that there is a relationship between the availability of infrastructure impact and success of the implementation process is accepted. The results indicated that the single most influential variable in the success of the implementation process from the viewpoint of the teaching staff. As the results of students' answers to accept the alternative hypothesis is that there is a relationship between the availability impact supplies application electronic examination system and the success of the implementation process. The nihilistic premise rejected there is no relationship between them and the effect was to confirm the findings in the answers of the teaching staff.

RECOMMENDATIONS

In light of the results reached, the researchers made the following recommendations:

A. Work to provide adequate laboratories in each college which allows colleges scheduling procedures for the electronic examinations and coordination with officials of laboratories, this becomes very helpful when rescheduling exams for students with excuses, especially for the College of Nursing which suffers from this problem.

B. Urge professors to allocate enough time to prepare a database of questions for their electronic examinations through reducing their burdens of teaching many subjects to give them an opportunity and more time to prepare the electronic exam questions.

C. Urge professors to attend the annual training courses held by the university, were the purpose of some of these courses are to gain computer skills, such as the International Computer Driver License (ICDL), and have obtained part of the assessment of the requirements of a faculty member. In addition to the ICDL, the university offers short training course, designed and implemented by the Faculty of Information Technology, which provide professors with skills to prepare and manage electronic exams efficiently. Some courses target students and prepare them on how to work with the E-learning system.

D. Set up a plan to solve the problem caused by uniting the time and date of the e-exam of all sections of a course. Giving an e-exam for all sections of a course at the same time made confusion for students and sometimes it makse conflicts with the lectures of other professors. E-exams should either be on the same date of the lectures as much as possible were times do not conflict with the lectures of teachers and students in a way that does not cause the absence of students and faculty for lectures and confuse the course schedule.

E. Resolve technical problems for the network by converting the examination system from the public Internet to the Intranet of the university to ease the pressure on the Internet bandwidth allocated to the University, which at the peak of usages becomes a bottleneck.

F. Customize the E-exam system to give students the ability to go back and review solved questions. In addition, it would be very useful for the system to give worming when the student leaves some questions unsolved.

G. Establish a special unit as part of the future E-Learning Center, to ensure fair and objective examinations for all students. This special unit should manage all E-exams through coordination with all faculties in the University. The development of the e-exams is consolidated through special committees in each department in every faculty, which their job is to coordinate E-exams at the level of the department.

H. Modern E-exam systems offer many features that must be reviewed and taken fully utilized.

I. Increase the number of materials conducted by electronic examinations to encourage students and faculty to deal with modern technology and software systems, especially in the colleges of humanity.

J. While it seems that E-exams takes much shorter time for the student to complete. The students should be guided to take their time and not to choose their answers randomly.

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