Opinion of Teaching staff and Students' Toward Implementation of E-exam

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Abstract

Electronic Exam System improves examination security, testing practice and reduces examination costs. This study was aimed to assess opinion of teaching staff and students' toward implementation of e-exam in Faculty of Nursing at Sohag University. The study subject consists of (**11**) teaching staff; one lecturer; four assistant lecturer and six instructors and (**140**) student. Data collected through personal interview by using the teaching staff opinion questionnaire and students' opinion questionnaire. **Results:** The most of both teaching staff and students had agreed that e- exam saves time; saves material costs of printing and other papers and provides self-assess for student. **Conclusion:** e- exam saves time and material costs than paper exam. As a result and in the light of the findings, the **Researchers Recommended That;** teaching staff should be trained and assisted to adapt the new technology, students should be assisted to acquire basic skills in computer that will help them during the conduct of e-examinations, and provides adequate computers

Keywords: Technology, e-Examination & Electronic Exam

Introduction

Electronic examination system is a way of carrying out the examination for the students at the computer which known (e- exam). The exam is often in the form of multiple choice tests. The application of the exam is a separate program that increases the use of multiple media and other forms such as randomly selecting of questions or measuring the time available for each question (**Cranney, et al., 2009**).
Bieniecki et al., (2009) writes that, as a result of the rapid development of internet technology, electronic exams are applied as applications published on the public telecommunications network with the internet browser based on the limits of each user. The electronic exam section is often part of the e-learning system used in private and public schools, training centers, and institutions. The main objective of the electronic exam is to apply it in the actual reality of the exam. This requires presenting a synthetic intelligence and knows the computer to gain skills in the system and understand the images.

 Fazio, et al., (2010) sited that; The electronic marking (e-marking) are a new concept in the teaching field The computer system for e-marking gives the examiner an opportunity and save the time of checking and marking the answer sheets directly on a computer screen rather than reading paper documents. The system may be prepared for automatic checking of exam assessments and safe distribution the assessments to examiners
There are many advantages of the e-marking system: grouping of the examination session better, improvement the security of whole process of

examination and additional constructions as statistical analysis process and visualizing of the results (**Congleton, & Rajaram, 2010**).
The quality of the exam can be improved by providing a neutral and impartial assessment procedure. Overcoming the influence of halo effect is the lack of influence of the student's relationship to the method of evaluation. Minimize the spread of potential errors and examiners are randomly assigned to ensure neutrality and fairness (**Chan, 2010**). For review the influence of changes in the process of evaluation quality has shown that; if this change does not involve exam preparation, it cannot keep its novel accuracy but increase its reliability (**Zaromb, & Roediger, 2010**).
There are many advantages of e-exam; electronic-evaluation is easier and can simply compare the result with the model answer directly. But in the paper exam system, the paper is scanned to identify some of the marks or shapes that the student places in the exams' paper. Open-ended questions are more difficult because their answers are endless and the incomplete and incorrect answers lead to a lower rating (**Szaleniec & Weziak-Bialowolska 2008**).
The test through the computer increases the efficiency and speed of evaluation of the exam and thus reduces the time required to show the degree of the exam. The examiner can enter the exam score electronically and online with a special code number and security for each person (**Rohrer, et al., 2010**).
Testing by computer is consistent with the standards of the Profitable Testing Program. These programs

can be programmed to improve the student level and reach higher levels and can be maintained for a long time at the minimum or average level **(Bieniecki et al., 2010)**.

Online testing can reduce the costs of conducting large-scale testing, including materials, tools, and personnel. In these tests, auditing, testing, modification, and updating are performed automatically every moment **(Butler, 2010).** The standard electronic test provides a scheduling advantage because the time taken for this test is less than the time spent on paper tests. This makes the test more available in full-time or full-scale schedules. The schedule can be compressed and the test can be repeated more than once a year. As test scores emerge, examiners can prepare the plan for corrective steps after the exam **(Szaleniec & Weziak-Bialowolska, 2008)**.

There are many benefits of the e-Exam to students as follow*:* make it easier for students to have a wider range of study and can choose the best time for their exam, provide many books and scientific references, prepare the exam properly, and test the readiness of computers for the exam **(Lyle, & Crawford, 2011).**

In addition, there are many advantages of electronic exam system as; This system increases the security, examination and practice of the exam also reduces the cost of the exam as it makes the examination process quick and free of difficulty and the teacher can add questions, information, and pictures of the exam taking into account the evaluation and grade of assessment **(Hautakangas, 2009)**

Significance of the study

Most universities around the world tended to develop their evaluation systems and they import to e-learning and e- exam. This study can help the faculties and universities to develop the way of learning and examination, and help student to become more qualified in using new ways for exams. Also, this study is important because there are no sufficient studies about implementation of e-exam in faculty of nursing in Egypt.

Aim of the study

This study aimed to assess opinion of teaching staff and students' toward implementation of e-exam in Faculty of Nursing at Sohag University.

Research Questions

- What are opinions of teaching staff and students' toward implementation of e-exam?
- Is E-exam more effective, and reduce the cost and time than paper exam?

Research Methodology

Study Design Quasi-experimental study design was used to carry the study.

Setting

This study was conducted at Faculty of Nursing at Sohag University.

Population & Sample

The study population consisted of all first year students of faculty of nursing (2014) (N=144) {participate in the study (140) and refuse (4)} and all teaching staff working with them (N=11: 1lecturer; 4 assistant lecturer and 6 instructors).

Data Collection Tools

Two different tools were used to collect study data include the following:

Students' Opinion Questionnaire

It is developed by researchers after reviewing the available literatures **(Francis, 2012 & (Matti, et al., 2014).** It includes 43 items divided into **3** dimensions:

- Items related to characteristics of the exam (18).
- Items related to exam program (20).
- Items related to exam preparation (5).

The response to each item was on a three points Likert scale ranging from; (3 = agree; 2 = don't know; and 1= disagree).

Teaching staff Opinion questionnaire

It is developed by researchers after reviewing the available literatures, **(Francis, 2012 & (Matti, et al. 2014).** It includes 37 items related to teachers' opinion divided into; 3 dimensions:

- Items related to characteristics of the exam (12).
- Items related to exam program (23).
- Items related to exam preparation (2).

The responses were on a three points Likert scale ranging from; (3 = agree; 2 = don't know; and 1= disagree).

Operational design

Preparatory Phase

After reviewing the available literatures concerning related to the topic of the study, developing of the study tools was done. The exam prepared through electronic exam system **(Quiz Creator Program)** and training for students and teaching staff about how to use this program and answer the exam easier was done. This phase took about five months from April to August **(2014).**

Validity & Reliability

Jury for the study tools was done by five experts' professors from Assiut and Cairo universities. Necessary modifications were done; this phase took about two months from September to October, **(2014).** A pilot study was fulfilled to test feasibility, and reliability of the study tools. It was carried out on (5) teaching staff and (5) students not included in the study sample. Data collected from the pilot study were analyzed, reviewed and used in making

necessary modifications prior to the final application of the study tool. The duration of this phase took about fifteen days, through **November, (2014)**. The reliability of the study tools was done which (0.89) for teaching staff tool and (0.81) for students tool.

Filed Work

After ensuring the clarity of the tools, and application of e-exam, the actual data collection from students and teaching staff by personal interview with each participant in the study was carried out. Each interview took about 15 minutes, started with clarifying the aim of study and interpretation if needed. The whole duration of data collection took about fifteen days after applied the exam through December **(2014).**

Ethical Considerations

Participants received explanation about the purpose, confidentiality of the study. In addition, participant informed about their right to accept or to refuse to participate in this study through the oral informed consent.

Statistical analysis

Data entry and statistical analysis were done using SPSS 19.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables. Statistical significance was considered at p-value <0.05.

Results

The aim of this study was assessing opinion of teachers' and students' toward implementation of e-exam in Faculty of Nursing at Sohag University

A- Teaching staff opinion for E exam

Table (A1): Personal characteristics of teaching staff (n=11).

Personal characteristics	No	%
Job		
Instructors	6	54.5
Assistant lecturer	4	36.4
Lecturer	1	9.1
Experience		
< 2 years	0	0.0
2 - < 4 years	5	45.5
4 - < 6 years	2	18.2
> 6 years	4	36.4

Table (A2): Opinion of teaching staff for exam characteristics (n=11)

No	Items	Agree		Don't know		Disagree	
		No	%	No	%	No	%
1	The time allotted for the exam enough	11	100	0	0.0	0	0.0
2	Exam linked to the practical study	9	81.8	2	18.2	0	0.0
3	Exam measures how students acquire skills	9	81.8	2	18.2	0	0.0
4	Exam covers a large part of the curriculum and well distributed.	10	90.9	1	9.1	0	0.0
5	Questions focused on the practical side	10	90.9	1	9.1	0	0.0
6	Degree allocated for the exam was enough	10	90.9	1	9.1	0	0.0
7	Exam encourages students to employ technology in the educational process and evaluation	9	81.8	2	18.2	0	0.0
8	There is transparency in the grading and distribution	9	81.8	0	0.0	2	18.2
9	The time allotted for each question appropriately	10	90.9	0	0.0	1	9.1
10	Exam was organized and well-sequenced and clear	7	63.6	2	18.2	2	18.2
11	Images that contain the exam and clear colors and backgrounds slides inconsistent	6	54.5	2	18.2	3	27.3
12	Degree allocated for the exam was fair and uniform measurement	10	90.9	0	0.0	1	9.1
	Total	9	**81.8%**	1	9.1%	1	9.1%

Table (A3): Opinion of teaching staff about exam program (n=11).

No	Items	Agree		Don't know		Disagree	
		No	%	No	%	No	%
1	E exams easier than paper exam	7	63.6	1	9.1	3	27.3
2	E exam saves time	11	100	0	0.0	0	0.0
3	Prefer to use this program in all examinations	8	72.7	1	9.1	2	18.2
4	Paper exam more easily	4	36.4	1	9.1	6	54.5
5	Prefer paper exams	4	36.4	3	27.3	4	36.4
6	Do not speak of dealing with computer	3	27.3	2	18.2	6	54.5
7	Prefer electronic exams	7	63.6	3	27.3	1	9.1
8	Abbreviated effort for the student and teacher	10	90.9	0	0.0	1	9.1
9	Abbreviated time when preparing and writing the questions and correct	9	81.8	0	0.0	2	18.2
10	Reduces the chances of fraud largely	7	63.6	1	9.1	3	27.3
11	saves material costs of printing and other papers and Provides self-assess student	11	100	0	0.0	0	0.0
12	Improves communication between teacher and student across the Web	8	72.7	1	9.1	2	18.2
13	The use of technology in the evaluation	6	54.5	3	27.3	2	18.2
14	The program helps you formulate questions on the exam a variety of ways	10	90.9	0	0.0	1	9.1
15	The program is interesting for the teacher to create questions and answer them with get feedback immediately	10	90.9	1	9.1	0	0.0
16	The program is easy to deal with it	10	90.9	1	9.1	0	0.0
17	Exam reduces the pressure on the student	7	63.6	3	27.3	1	9.1
18	The program helps to retain records for a long time with not taking a place into where in the educational institution	5	45.5	2	18.2	4	36.4
19	The program allows you to train the student to the test more than once	11	100	0	0.0	0	0.0
20	The program allows you to sophisticated database to save and store questions with answers	7	63.6	2	18.2	2	18.2
21	The use of electronic exam improves the educational process	10	90.9	2	18.2	0	0.0
22	E exam improves a student's ability to make decisions	9	81.8	2	18.2	0	0.0
	Total	8	72.7	1	9.1	2	18.2

Table (A4): Opinion of teaching staff for exam preparation (n=11).

No	Items	Agree		Don't know		Disagree	
		No	%	No	%	No	%
1	Places prepared for the exam appropriate to the nature of the examination and calm (lighting - ventilation - the chair and the computer's table comfortable)	9	81.8	2	18.2	0	0.0
2	Computers are good and not by malfunction	8	72.7	3	27.3	0	0.0
3	Exam was announced early	9	81.8	1	9.1	1	9.1
4	Been trained on how to use the program well setup	9	81.8	1	9.1	1	9.1
	Total	9	81.8	2	18.2	0	0.0

Table (A5): Relation between total score & job for teaching staff (n=11).

No	Items	instructor	Assistant lecturer	lecturer	P- value
1	**Exam characteristics**	33.66 ± 1.63	32.25 ± 4.39	36.00 ± 0.00	P= 0. 520
2	**Exam program**	58.16 ± 3.25	59.50± 8.06	60.00 ± 0.00	P= 0. 912
3	**Exam preparation**	6.00 ± 0.00	5.25 ± 0.95	60.00 ± 0.00	P= 0. 187
	Total	97.83 ± 3.37	97.00 ± 12.51	102.00 ± 0.00	P= 0. 881

Table (A6): Relation between total score & experience for teaching staff (n=11).

No	Item	2- < 4 years	4 - < 6 years	> 6 years	P- value
1	**Exam characteristics**	33.60 ± 1.81	35.00 ± 1.41	32.25 ± 4.34	P= 0. 577
2	**Exam program**	58.00 ± 3.60	66.00± 4.24	560.25 ± 4.11	P<0. 04*
3	**Exam preparation**	6.00 ± 0.00	5.50 ± 0.70	5.50 ± 1.10	P= 0. 491
	Total	97.60 ± 3.71	106.50 ± 4.94	94.00 ± 9.27	P= 0. 145

Table (A7): Correlation between items of score (n=11).

Items	Exam characteristics	Exam program	Exam preparation	Total
1 - Exam characteristics	- -	R =0.592 p< 0.04*	R = 0.651 p< 0.03*	R = 0.849 p< 0.001**
2 - Exam program	R =0.592 p< 0.04*	- -	R =0.167 P= 0.623	R =0.926 p< 0.000***
3 - Exam preparation	R = 0.651 p< 0.03*	R =0.167 P=0.623	- -	R = 0.454 P = 0.160
Total	R = 0.849 p< 0.001**	R =0.926 p< 0.000***	R = 0.454 P = 0.160	- -

B - Students' opinion for E exam

Table (B1): Opinion of students' for exam characteristics (n=140).

No	Items	Agree No	Agree %	Don't know No	Don't know %	Disagree No	Disagree %
1	The time allotted for the exam enough	103	73.6	15	10.7	22	15.7
2	Questions specific and clear	99	70.7	29	20.7	12	8.6
3	Exam linked to the practical study	114	81.4	20	14.3	6	4.3
4	Exam measures how students acquire skills	93	66.4	32	22.9	15	10.7
5	Exam questions objectively.	96	68.6	31	22.1	13	9.3
6	Exam covers a large part of the curriculum and well distributed.	79	56.4	40	28.6	21	15.0
7	Questions variety	101	72.1	34	24.3	5	3.6
8	Questions focused on the practical side	86	61.4	36	25.7	18	12.9
9	Degree allocated for the exam was fair and uniform measurement	90	64.3	32	22.9	18	12.9
10	Exam encourages students to employ technology in the educational process and evaluation	95	67.9	34	24.3	11	7.9
11	There is transparency in the grading and distribution	105	75.0	23	16.4	12	8.6
12	The time allotted for each question appropriately	99	70.7	24	17.1	17	12.1
13	Exam was organized and well-sequenced and clear	103	73.6	28	20.0	9	6.4
14	Images that contain the exam and clear colors and backgrounds slides inconsistent	94	67.1	28	20.0	18	12.9
15	E exam less stressful than the paper exam	104	**75.7**	20	14.3	16	11.4

No	Items	Agree		Don't know		Disagree	
		No	**%**	**No**	**%**	**No**	**%**
16	The exam was administered properly	92	65.7	35	25.0	13	9.3
17	Exam was terrifying to you as a student	60	42.9	44	31.4	36	25.7
18	I was fully aware of the nature of the exam	65	46.4	54	28.6	21	15.0
	Total	**93**	**66.5**	**31**	**22.1**	**16**	**11.4**

Table (B2): Opinion of students' for exam program (n=140).

No	Items	Agree		Don't know		Disagree	
		No	**%**	**No**	**%**	**No**	**%**
1	E exams easier than paper exam	105	75.0	19	13.6	16	11.4
2	E exam saves time	106	75.7	19	13.6	15	10.7
3	Prefer to use this program in all examinations	84	60.0	33	23.6	23	16.4
4	Paper exam more easily	50	35.7	42	30.0	48	34.3
5	Prefer paper exams	39	27.9	46	32.9	55	39.3
6	Do not speak of dealing with computer	36	25.7	44	31.4	60	42.9
7	Prefer electronic exams	71	50.7	41	29.3	28	20.0
8	Been training on the use of the program before the exam enough time	66	47.1	43	30.7	31	22.1
9	Training before the exam helped to deal easily with the program	97	69.3	25	17.9%	18	12.9
10	E exam provides a effort for student	95	67.9	26	18.6	19	13.6
11	Exam reduces the chances of fraud significantly	113	80.7	20	14.3	7	5.0
12	E exam provides a self-assess for student	101	72.1	32	22.9	7	5.0
13	Improves communication between teacher and student across the Web	86	61.4	40	28.6	14	10.0
14	E exam is employing technology in the evaluation	96	68.6	31	22.1	13	9.3
15	The program is interesting for the student to the questions and how to answer them with rapid access to the result immediately	100	71.4	30	21.4	10	7.1
16	Patch- electronic and Messaging through the program ensures credibility and transparency in the patch	105	75.0	23	16.4	12	8.6
17	Been taking into account the accuracy of the display screen and the emergence of the questions clearly.	98	70.0	31	22.1	11	7.9
18	The program provides equality between students and the accuracy of the assessment	105	75.0	28	20.0	7	5.0
19	Direct analysis gives you as a student to the level of your performance in the test	102	72.9	32	22.9	6	4.3
20	E exam improves the ability to make decision	89	63.6	37	26.4	14	10.0
	Total	**87**	**62.1**	**32**	**22.8**	**21**	**15,1**

Table (B3): **Opinion of students' for exam preparation (n=140)**

No	Items	Agree		Don't know		Disagree	
		%	**No**	**%**	**%**	**No**	**%**
1	Places prepared for the exam appropriate to the nature of the examination and calm (lighting - ventilation - the chair and the computer's table comfortable)	115	82.1	18	12.9	7	5.0
2	Computers are good and not by malfunction	93	66.4	33	23.6	14	10.0
3	The announcement of the exam in place available to all students	91	65.0	35	25.0	14	10.0
4	Exam was announced early	96	68.6	30	21.4	14	10.0
5	Been trained on how to use the program well setup	78	55.7	38	27.1	24	17.1
	Total	**95**	**67.8**	**31**	**22.2**	**14**	**10.0**

Table (B4): Total score of items for students (n=140).

No	Items	No	%	Mean	SD
1	Exam characteristics	54	38.6	18.0 – 54.0	45.96 $\pm$ 7.08
2	Exam program	60	42.9	20.0 – 60.0	49.47 $\pm$ 7.71
3	Exam preparation	15	10.7	5.0 – 15.0	12.85 $\pm$ 2.34
	Total	**129**	**92.2%**	**43.0 – 129.0**	**108.29 $\pm$ 15.84**

Table (A1): Describes that, personnel characteristics of teaching staff the highest percent of them have instructors (54.5%) and year of experience from two to less than four years (45.5%).

Table (A2): Shows that, opinion of teaching staff for exam characteristics, all of them agreed that, the time allotted for the exam enough(100%), and the most percent of them agreed that exam covers a large part of the curriculum and well distributed, questions focused on the practical side, and degree allocated for the exam was enough (90.9%) for all.

Table (A3): Declares that, opinion to exam program for teaching staff, all of them agreed that e- exam saves time, saves material costs of printing and other papers and provides self-assess for student, and the program allows you to train the student to the best more than once (100%) for all. And most of them agreed that, abbreviated effort for the student and teacher, the program helps you to formulate questions on the exam and verity of ways, the program is interesting for the teacher to create questions and answer them get feedback immediately, the program is easy to deal with it, and the use of electronic exam improve the education process, (90.9%) for all.

Tables (A4): Shows that, exam preparation for the teaching staff majority of them agreed that, places prepared for exam appropriate to the nature of the examination and calm(81.8%), and reported that exam was announced early, and been trained on how to use the program well setup(81.8%) for all.

Table (A5): Shows that, There are no statistically significant differences between total score and job for teaching staff (total p=0.881).

Table (A6): Declares that There is statistically significant difference between exam program score and experience for teaching staff (p<0.04).

Table (A7): Describes that, correlation between items of score, there were high statistical significance differences among exam characteristics (total p<0.001) with exam program (total p<0.000).

Table (B1): Clarified that, opinion to exam characteristics for the students, the highest percent of them agreed that, the time allotted for the exam enough, exam linked to the practical study, there is transparency in the grading and distribution, exam was organized and well sequenced and clear, and exam less stressful than paper exam (73.6% - 81.4% - 75.0% -73.6% & 75.7%) respectively. And about quarter of them disagreed that exam was terrifying to you as student (25.7%).

Table (B2): Show that, opinion of students for exam program, highest percent of them agreed that, e-exams easier than paper exam, e-exam saves time, exam reduces the chances of fraud significantly, patch- electronic and Messaging through the program ensures credibility and transparency in the patch, and the program provides equality between students and the accuracy of the assessment (75.0% -75.7% - 80.7% - 75.0% &75.0%) respectively.

Tables (A4 and B3): Shows that exam preparation for the students, majority of them agreed that, places

prepared for exam appropriate to the nature of the examination and calm (82.1%).

Table (B4) Shows that, mean of total score items of opinion for students was (43.0 -129.0), and SD was (108.29± 15.84).

Discussion

The e-exam is promoting more flexible exam practices, which is part of the University's broader strategic objectives of supporting flexible modes of study. The present study was implemented in an attempt to assess opinion of teaching staff and students' toward implementation of e-exam in Faculty of Nursing at Sohag University. The study subject was **(11** teaching staff; one lecturer; four assistant lecturer and six instructors**)** and **(140)** students.

Ongoing the present study result clarified that; opinion of teaching staff for exam characteristics, the highest percent of them agreed that, the time allotted for the exam enough, exam covers a large part of the curriculum and well distributed, questions focused on the practical side, and degree allocated for the exam was enough, **Table (A2).** This result may be due to this exam prepared by some of them after attended training program for quiz creator program and the exam was for practice.

From the study finding regards to opinion to exam program for the teaching staff all of them agreed that e- exam saves time, saves material costs of printing and other papers and provides self-assess for student, and the program allows you to train the student to the best more than once. And most of them agreed that, abbreviated effort for the student and teacher, the program helps you to formulate questions on the exam and verity of ways, the program is interesting for the teacher to create questions and answer them get feedback immediately, the program is easy to deal with it, and the use of electronic exam improve the education process. This result in agreement with **Adegbija et al., (2011),** they reported that E-examinations can save time especially when the university has enough questions in its item/question banks and enough learning materials and resources. And about third of teachers and students disagreed that, don't speak of dealing with computer, prefer paper exam, and paper exam more easily **Table (A3, B2)**. This result may be due to most teaching staff and students like dealing with computer and prefer it, and they prefer changing the traditional method of exam.

From the study finding regards to exam preparation for the teaching staff and students, majority of them agreed that places prepared for exam appropriate to the nature of the examination and calm, and the majority of teachers reported that exam was announced early, and been trained on how to use the program well setup. **Tables (A4 & B3)** this result may be due to this exam implemented in the prepared computer lab for university.

As regards to relation between total score and experience of teaching staff, there was a high statistical significance difference among exam program with experiences of teaching staff. **Table (A6)**

As regards to correlation between items of score there were high statistical significance differences among exam characteristics with exam program and exam preparation. **Table (A7)**

On the same line for students all of them at first year (2014) in Faculty of Nursing at Sohag University. Ongoing the present study result clarified that; opinion to exam characteristics for the students, the highest percent of them agreed that the time allotted for the exam enough, exam linked to the practical study, there is transparency in the grading and distribution, exam was organized and well sequenced and clear, and exam less stressful than paper exam. And about quarter of them disagreed that exam was terrifying to you as student**, Table (B1).** This result may be due to this exam was for practice and most of student like deal with computer.

From the study finding regards to opinion to exam program for the students, majority of them agreed that, e- exam easier than paper exam, e- exam saves time, exam reduces the chances of fraud significantly, provides self-assess for accuracy of the assessment, and direct analysis gives the teaching staff as a student to the level of the performance in the test. This result in agreement with, **Adegbija et al. (2011)** they reported that e-exam save the time**,** and provide self-assessment.

Conclusions
In the light of the study results, the following conclusions can be drawn

- The most of both teaching staff and students had agreed that e- exam saves time; saves material costs of printing and other papers than paper exams, and it provides self-assess for student.

- And now there are some departments applying e-exam as; medical surgical department first and second-year students; obstetric department third-year students and nursing administration department fourth-year students.

Recommendations
Consequently based on such results, the following recommendations were desirable:

- Teaching staff should be sensitized about their changing roles in the conduct of e-examinations. They should be trained and

assisted to adapt to the new technologies through workshops, seminars, conferences, etc.
- Students should be assisted to acquire basic skills in computer that will help them during the conduct of e-examinations.
- The provision of adequate computers is strongly recommended if e-examinations are to meet global standards.

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