

An Investigation of Satisfaction Regarding Electronic Exams among KSA Nursing Students: A Multi-University Study

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Technology can be an important method for learning transformation. It can help to strengthen and foster relationships between educators and students, to re-create learning and collaborative approaches, to narrow long-standing gaps in equity and accessibility, and to adapt learning experiences to meet the needs of all learners. to investigate student nurse's satisfaction regarding electronic exams in selected KSA universities. A descriptive exploratory research was used with a convenience sample of all available students (1574) from Qassim, Umm AL-QURA, Taiba, Jizan, Bisha, Hafr Al Batinand Shaqra universities. One tool divided into two main parts; demographic data, and

student's satisfaction tool regarding using electronic exam. The majority of the students had higher mean score of satisfaction regarding electronic exams at Umm al-Qura (82.3 %), Qassim (80.5%), Shaqra (74.3%), Tiba (72.3%) than the students in other universities with statistically significant difference ($p < 0.001$). The majority of the students ranged from strongly agree to agree in level of satisfaction to all items of satisfaction regarding electronic exams. It is imperative for students to maintain and receive regular, periodic in-service computer skills courses. Maintaining and improving learning environments facilitated with technologies is seen in the quality of learning, availability of training and education, and cost-effectiveness of education.

Key words: *Satisfaction, electronic exams, KSA nursing students*

Introduction

As a result of the digital transformation experienced by Saudi Arabia in the 2030 Vision, the Ministry of Education's interest in the use of modern technology within educational organisations of all departments has increased. (Alyahya & Almutairi., 2019). Technology can be an important method for learning transformation. It can help to strengthen and foster relationships between educators and students, to re-create learning and collaborative approaches, to narrow long-standing gaps in equity and accessibility, and to adapt learning experiences to meet the needs of all learners (King & South., 2017). E-learning has become a necessary tool in higher education institutions around the world (Islam, Beer, & Slack., 2015).

The online examination conducting system is very useful for educational institutes to schedule a complete exam, and saves the time it takes to review papers and schedule the marking sheets. The e-examination system can allow educational institutes to test students and improve their skills. However, the drawbacks of the e-examination program are that it takes longer time for the user to prepare for use, for the first time. The successful use of the e-examination program helps supervisors to use this method to establish tests as their criteria and to produce better results in less time (Albazar , 2020).

There are technical limitations that will serve as a barriers to e-learning within the faculty and the geographical context. For instance, Attardi & Rogers., 2015 describe technical issues such as poor internet connectivity as barriers to live lecture transmission at their Canadian institution. It is therefore critical that training institutions, medical schools, and their educators are aware of the obstacles and solutions to the creation and implementation of the form of learning and the need for a culture that seeks to encourage and facilitate the use of online learning among staff (O'Doherty et al., 2018).



For achieving satisfaction, materials used in e-learning and content must give students an opportunity for interaction, synchronous or asynchronous, and different methods of interaction must be given for student-instructor interaction. In order to maximise satisfaction, attention should be given to student preparation, students should be able to use technology effectively, and activities that improve student motivation should be created and used regularly during the course. Administrators and teachers should better understand the resources that can be used to make the learning process more effective and productive, the value of student-teacher interactions, the effect of encouragement, and the desire to achieve academic achievement. It would also be possible to provide improved organisational support, teaching and learning environment, student support, instructor support, better quality assessment, and evaluation. (Topal, 2016).

The electronic assessment (EA) method is not a new concept in the field of education and is expanding rapidly. E-examination programs have been used to deal with objective evaluations in the past few years. Nearly all of the world's top universities use general-purpose/customised software to administer e-examination programs such as SAP, Oracle, and Blackboard (Qureshi& Rizwan., 2015). The success of the electronic examinations can be measured based on student satisfaction, in addition to rigorous assessments, assignments, and presentations. Therefore, this study aims to identify the satisfaction regarding electronic exams among students in KSA universities

Justification of the problem:

The number of internet users with e-learning models offered in higher education institutions has increased rapidly since the beginning of this century. However, with the rising number of higher education institutions, the learner needs more flexibility to attend lectures and easily take part in communication. Therefore, e-learning is one of the ways that provide accessibility and flexibility for learners to overcome transportation difficulties and efficiently use their time which raises student satisfaction. (Tawafak et al ,2019)

Research Questions

1. What is the satisfaction levels regarding electronic exams in relation to the academic level of students in the studied universities?
2. What are the most satisfactory areas regarding electronic exams among nursing students in KSA universities?



Subjects and Methods

A descriptive exploratory research design was utilized aiming to investigate the level of satisfaction of nursing students towards utilizing electronic exams in the nursing colleges of the Kingdom of Saudi Arabia. The target population of the current study is the enrolled students in various universities at different districts of the kingdom.

Field work:

The current study took place at seven public universities located at different districts of the kingdom. These universities are: Qassim, Umm Al-Qura, Taiba, Jizan, Bisha, Hafr Al Batin and Shaqra university. The selected universities are the greatest within the district they belong to. Data was collected during the second semester of 2019/2020. The sample was selected based on the accessibility of students. Sampling for participants used the fullness sampling method, using all students email addresses at these nursing colleges. The fullness sampling method is usually applied in nursing colleges (department) as it reduces coverage fault, as every participant is requested to join in (Sue & Ritter, 2007). Therefore, all students whose emails were listed on the databases of the targeted universities received the invitation email encompassing a given link that students can follow to fill out the online questionnaire. As a result, 1574 students completed the online survey.

Distribution of the studied students according to the University the total number is 1574 distributed as follows: Umm AL-QURA university (611), Hafr Al Batin university (321), Jizan University (199), Taibah University (181), Qassim university (176), Bisha (58) , Shaqra (28).

Distribution of the studied students according to their academic level as follows: level 1(17.9%),level 2 (25.8%) , level 3 (10.7%) , level 4(15.4%),level 5 (2.4%) , level 6(10.4%) , level 7 (2.8%) , and level 8(14.7%).

Data collection Tools:

The tool for current study was divided into two main parts; demographic data and student's satisfaction tool for using electronic exam. Items related to the satisfaction scale (22 items) and were derived from the literature. This questionnaire aims to identify the views of students in Saudi universities towards electronic exams in light of the precautionary measures of Covid-19 pandemic. To measure the 22 items, a five-point Likert scale has been used, that includes the measures strongly agree (5), agree (4), neutral (3), disagree (2), and strongly disagree (1). Furthermore, reliability affirmation of the satisfaction tool is important and is an assumed necessity for the extent validity; therefore, interior reliability was studied through

the point of Cronbach's alpha coefficient, with its value of 0.88 representing reliability of the student satisfaction scale (Bryman, 2012; Pallant, 2011).

Smart survey (www.smartsurvey.co.uk) was used to organise and perform the online survey and to collect the data. This kind of survey is identified as a web-based survey, and it is designed as a web page and located on a host site where site visitors can access it. The online study tool was available in Arabic language.

Analysis Procedures

The Statistical Package for Social Sciences (SPSS v.22.0 package) was utilised in the current study. The presumptions of parametric procedures counting normality, independency, and homogeneity were tested to certify that they were not disrupted. The researchers sent an invitation email to each participating student and the students completed the process of data collection through the given link. The sample size in the present study set the presumptions of normal distribution (Carver & Nash, 2012; Connolly, 2007; Field, 2009). The result was significant for ($<.05$).

Results

Table (1) illustrates a total of 1574 students participated in the study, distributed according to academic level. 25.8% of the students were in second year and 17.9 % were in first year. Additionally, the highest number of participating students were from Umm al-Qura university (611,38.8%) followed by (321,20.4%) from Hafr Al-Batin, and(199,12.6%) from Jizan.

Table (2a, 2b, 2c, 2d) illustrates the comparison between student satisfaction regarding electronic exams between universities. The majority of the students had strongly agreed to agree level of satisfaction to all items of the satisfaction regarding electronic exams.

As indicated in **Table (3)**, a significant statistical difference was found using the reported overall satisfaction level regarding electronic exams among different universities.

Figure (1) compares overall percentage scores of satisfaction regarding electronic exams between the different universities. It shows that students had higher mean score of satisfaction regarding electronic exams at Umm al-Qura 82.3%, Qassim 80.5%, Shaqra 74.3% and Tiba University 72.3% than the students in the remaining universities with statistically significant difference ($p < 0.001$).

Table (4) Shows comparison of total mean overall satisfaction scores regarding electronic exams in relation to the academic level of students in the studied universities. It indicates that

first and second year students had higher mean score of satisfaction regarding electronic exams than the other academic levels with statistically significance at($p < 0.001$).

Table (5) indicates the most common students' satisfactory areas regarding electronic exams in different universities. it shows that the majority of students had higher mean score of satisfaction (84.50%,80.53%,78.68%,78.59, 76.37)respectively about sufficient guidance prior to the online test, tests announcement on the university website, students from the same group are able to timely obtaining their results, exam questions cover all parts of the course content, non-discrimination in the treatment of female students by panel members teaching with more than three quarter percentage in overall student satisfaction levels regarding electronic exam in different universities while the mean score in overall satisfaction level was 75.38 and SD 20.47 of the student.

Table (1):Distribution of students studied according to the academic year level and Universities (n = 1574)

academic year level	No.	%
level 1	281	17.9
level 2	406	25.8
level 3	168	10.7
level 4	243	15.4
level 5	37	2.4
level 6	163	10.4
level 7	44	2.8
level 8	232	14.7
University		
Tiba	181	11.5
Shaqra University	28	1.8
Jizan	199	12.6
Bisha	58	3.7
Umm al-Qura	611	38.8
Qassim	176	11.2
Hafr Al-Batin	321	20.4

Table (2a): Comparison of student satisfaction regarding electronic exams between universities (n =1574)

Q	Student satisfaction element		Umm al-Qura (n =611)		Hafr Al-Batin (n = 321)		Jizan (n = 199)		Tiba (n =181)		Qassim (n = 176)		Bisha (n =58)		Shaqra (n = 28)		χ^2	P
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
1	Distance learning provides equal opportunities and does not distinguish between female students assessment and exams	Strongly agree	282	46.2	116	36.1	50	25.1	89	49.2	60	34.1	8	13.8	12	42.9	269.173*	<0.001*
		Agree	294	48.1	89	27.7	84	42.2	53	29.3	41	23.3	26	44.8	7	25.0		
		Natural	14	2.3	54	16.8	33	16.6	12	6.6	31	17.6	17	29.3	5	17.9		
		Disagree	18	2.9	35	10.9	25	12.6	9	5.0	25	14.2	0	0.0	2	7.1		
		Strongly disagree	3	.5	27	8.4	7	3.5	18	9.9	19	10.8	7	12.1	2	7.1		
2	I have knowledge of different assessment methods for distance learning	Strongly agree	275	45.0	94	29.3	52	26.1	70	38.7	58	33.0	7	12.1	11	39.3	162.022*	<0.001*
		Agree	292	47.8	126	39.3	82	41.2	64	35.4	80	45.5	30	51.7	14	50.0		
		Natural	26	4.3	48	15.0	33	16.6	27	14.9	25	14.2	8	13.8	1	3.6		
		Disagree	15	2.5	35	10.9	28	14.1	11	6.1	7	4.0	10	17.2	1	3.6		
		Strongly disagree	3	0.5	18	5.6	4	2.0	9	5.0	6	3.4	3	5.2	1	3.6		
3	Distance learning allows students to obtain their results in the same group in a timely manner	Strongly agree	272	44.5	150	46.7	63	31.7	82	45.3	68	38.6	13	22.4	12	42.9	79.777*	<0.001*
		Agree	268	43.9	108	33.6	89	44.7	63	34.8	73	41.5	24	41.4	13	46.4		
		Natural	48	7.9	30	9.3	33	16.6	23	12.7	21	11.9	13	22.4	2	7.1		
		Disagree	20	3.3	17	5.3	11	5.5	3	1.7	5	2.8	4	6.9	0	0.0		
		Strongly disagree	3	.5	16	5.0	3	1.5	10	5.5	9	5.1	4	6.9	1	3.6		
4	Distance learning enables non-discrimination in the treatment of female students by panel members Teaching	Strongly agree	278	45.5	123	38.3	61	30.7	73	40.3	84	47.7	15	25.9	13	46.4	114.853*	<0.001*
		Agree	242	39.6	89	27.7	78	39.2	65	35.9	76	43.2	22	37.9	10	35.7		
		Natural	64	10.5	50	15.6	37	18.6	18	9.9	12	6.8	10	17.2	3	10.7		
		Disagree	21	3.4	30	9.3	16	8.0	12	6.6	0	0.0	5	8.6	2	7.1		
		Strongly disagree	6	1.0	29	9.0	7	3.5	13	7.2	4	2.3	6	10.3	0	0.0		
5	Equal opportunity and fairness of the electronic tests encourage female students	Strongly agree	276	45.2	132	41.1	57	28.6	79	43.6	75	42.6	10	17.2	14	50.0	138.875*	<0.001*
		Agree	246	40.3	101	31.5	90	45.2	55	30.4	57	32.4	23	39.7	9	32.1		
		Natural	70	11.5	45	14.0	37	18.6	17	9.4	24	13.6	8	13.8	2	7.1		
		Disagree	16	2.6	24	7.5	11	5.5	7	3.9	12	6.8	11	19.0	3	10.7		
		Strongly disagree	3	.5	19	5.9	4	2.0	23	12.7	8	4.5	6	10.3	0	0.0		

χ^2 : Chi square test *: Statistically significant at $p \leq 0.05$

Table (2b): Comparison of student satisfaction regarding electronic exams between universities (n =1574) "continue"

Q		Umm al-Qura (n =611)		Hafr Al-Batin (n = 321)		Jizan (n = 199)		Tiba (n =181)		Qassim (n = 176)		Bisha (n =58)		Shaqra (n = 28)		χ^2	p	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
6	College takes into account the needs and desires of female students when scheduling examinations online	Strongly agree	273	44.7	96	29.9	58	29.1	69	38.1	80	45.5	13	22.4	13	46.4	221.043*	<0.001*
		Agree	247	40.4	78	24.3	64	32.2	56	30.9	71	40.3	16	27.6	6	21.4		
		Natural	67	11.0	47	14.6	36	18.1	17	9.4	16	9.1	8	13.8	3	10.7		
		Disagree	18	2.9	42	13.1	28	14.1	12	6.6	7	4.0	9	15.5	3	10.7		
		Strongly disagree	6	1.0	58	18.1	13	6.5	27	14.9	2	1.1	12	20.7	3	10.7		
7	Schedule of the exams will be announced at an early and appropriate date	Strongly agree	269	44.0	79	24.6	51	25.6	80	44.2	92	52.3	14	24.1	12	42.9	253.795*	<0.001*
		Agree	259	42.4	92	28.7	69	34.7	53	29.3	66	37.5	21	36.2	8	28.6		
		Natural	58	9.5	49	15.3	43	21.6	20	11.0	13	7.4	7	12.1	5	17.9		
		Disagree	19	3.1	36	11.2	23	11.6	13	7.2	4	2.3	5	8.6	3	10.7		
		Strongly disagree	6	1.0	65	20.2	13	6.5	15	8.3	1	0.6	11	19.0	0	0.0		
8	The results of the tests will be announced on the websites	Strongly agree	281	46.0	159	49.5	75	37.7	87	48.1	81	46.0	15	25.9	14	50.0	63.032*	<0.001*
		Agree	264	43.2	114	35.5	80	40.2	63	34.8	61	34.7	37	63.8	10	35.7		
		Natural	46	7.5	24	7.5	29	14.6	22	12.2	17	9.7	2	3.4	2	7.1		
		Disagree	15	2.5	8	2.5	10	5.0	4	2.2	9	5.1	3	5.2	2	7.1		
		Strongly disagree	5	.8	16	5.0	5	2.5	5	2.8	8	4.5	1	1.7	0	0.0		
9	Online exams are times for you and your opinion to betaken	Strongly agree	271	44.4	89	27.7	58	29.1	79	43.6	100	56.8	12	20.7	13	46.4	253.145*	<0.001*
		Agree	259	42.4	82	25.5	69	34.7	38	21.0	62	35.2	24	41.4	5	17.9		
		Natural	59	9.7	60	18.7	37	18.6	22	12.2	12	6.8	9	15.5	3	10.7		
		Disagree	18	2.9	38	11.8	24	12.1	15	8.3	2	1.1	5	8.6	4	14.3		
		Strongly disagree	4	0.7	52	16.2	11	5.5	27	14.9	0	0.0	8	13.8	3	10.7		
10	Time set for the online test is sufficient	Strongly agree	262	42.9	59	18.4	24	12.1	73	40.3	72	40.9	3	5.2	9	32.1	384.012*	<0.001*
		Agree	252	41.2	73	22.7	53	26.6	42	23.2	67	38.1	10	17.2	5	17.9		
		Natural	67	11.0	61	19.0	46	23.1	18	9.9	22	12.5	8	13.8	3	10.7		
		Disagree	22	3.6	55	17.1	40	20.1	17	9.4	8	4.5	13	22.4	3	10.7		
		Strongly disagree	8	1.3	73	22.7	36	18.1	31	17.1	7	4.0	24	41.4	8	28.6		
11	Online testing methods vary, and suit female students	Strongly agree	266	43.5	100	31.2	46	23.1	59	32.6	104	59.1	4	6.9	12	42.9	210.171*	<0.001*
		Agree	276	45.2	114	35.5	84	42.2	62	34.3	62	35.2	26	44.8	8	28.6		
		Natural	45	7.4	51	15.9	49	24.6	27	14.9	5	2.8	14	24.1	5	17.9		
		Disagree	18	2.9	27	8.4	8	4.0	17	9.4	3	1.7	8	13.8	0	0.0		
		Strongly disagree	6	1.0	29	9.0	12	6.0	16	8.8	2	1.1	6	10.3	3	10.7		

χ^2 : Chi square test *: Statistically significant at $p \leq 0.05$

Table (2c): Comparison of student satisfaction regarding electronic exams between universities (n =1574) "continue"

Q			Umm al-Qura (n =611)		Hafr Al-Batin (n = 321)		Jizan (n = 199)		Tiba (n =181)		Qassim (n = 176)		Bisha (n =58)		Shaqra (n = 28)		χ^2	p
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
12	Sufficient guidance was provided to female students prior to the online exam	Strongly agree	567	92.8	206	64.2	119	59.8	139	76.8	127	72.2	24	41.4	21	75.0	483.657*	<0.001*
		Agree	0	0.0	0	0.0	0	0.0	0	0.0	26	14.8	0	0.0	0	0.0		
		Natural	14	2.3	75	23.4	52	26.1	24	13.3	13	7.4	30	51.7	5	17.9		
		Disagree	0	0.0	0	0.0	0	0.0	0	0.0	4	2.3	0	0.0	0	0.0		
		Strongly disagree	30	4.9	40	12.5	28	14.1	18	9.9	6	3.4	4	6.9	2	7.1		
13	A pilot test was done for the students to be trained in electronic exams	Strongly agree	285	46.6	111	34.6	50	25.1	85	47.0	110	62.5	11	19.0	15	53.6	252.460*	<0.001*
		Agree	255	41.7	83	25.9	66	33.2	42	23.2	57	32.4	21	36.2	7	25.0		
		Natural	44	7.2	35	10.9	30	15.1	31	17.1	5	2.8	6	10.3	2	7.1		
		Disagree	18	2.9	45	14.0	25	12.6	9	5.0	4	2.3	12	20.7	3	10.7		
		Strongly disagree	9	1.5	47	14.6	28	14.1	14	7.7	0	0.0	8	13.8	1	3.6		
14	Online questions are clear and appropriate to the course and its evaluation method	Strongly agree	274	44.8	88	27.4	58	29.1	73	40.3	91	51.7	6	10.3	14	50.0	216.858*	<0.001*
		Agree	263	43.0	100	31.2	76	38.2	44	24.3	71	40.3	20	34.5	9	32.1		
		Natural	46	7.5	66	20.6	43	21.6	31	17.1	9	5.1	14	24.1	1	3.6		
		Disagree	23	3.8	39	12.1	15	7.5	15	8.3	3	1.7	10	17.2	1	3.6		
		Strongly disagree	5	0.8	28	8.7	7	3.5	18	9.9	2	1.1	8	13.8	3	10.7		
15	Exam questions do not exceed the content of the announced course	Strongly agree	263	43.0	105	32.7	62	31.2	71	39.2	62	35.2	10	17.2	15	53.6	157.541*	<0.001*
		Agree	277	45.3	103	32.1	90	45.2	48	26.5	55	31.3	21	36.2	10	35.7		
		Natural	45	7.4	53	16.5	27	13.6	19	10.5	34	19.3	13	22.4	0	.0		
		Disagree	20	3.3	30	9.3	9	4.5	20	11.0	15	8.5	4	6.9	0	.0		
		Strongly disagree	6	1.0	30	9.3	11	5.5	23	10.7	10	5.7	10	17.2	12.7	3		
16	Exam questions cover all parts of the course content	Strongly agree	272	44.5	126	39.3	60	30.2	74	57.1	74	42.0	11	19.0	40.9	16	94.058*	<0.001*
		Agree	272	44.5	124	38.6	98	49.2	58	25.0	78	44.3	34	58.6	32.0	7		
		Natural	45	7.4	49	15.3	27	13.6	23	3.6	20	11.4	9	15.5	12.7	1		
		Disagree	19	3.1	9	2.8	7	3.5	13	7.1	4	2.3	1	1.7	7.2	2		
		Strongly disagree	3	0.5	13	4.0	7	3.5	13	7.1	0	0.0	3	5.2	7.2	2		

χ^2 : Chi square test *: Statistically significant at $p \leq 0.05$

Table (2d): Comparison of student satisfaction regarding electronic exams between universities (n =1574) "continue"

Q			Umm al-Qura (n =611)		Hafr Al-Batin (n = 321)		Jizan (n = 199)		Tiba (n =181)		Qassim (n = 176)		Bisha (n =58)		Shaqra (n = 28)		χ^2	p
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
17	Method for assigning grades to test questions is appropriate	Strongly agree	264	43.2	124	38.6	52	26.1	73	40.3	74	42.0	12	20.7	12	42.9	130.902*	<0.001*
		Agree	272	44.5	105	32.7	85	42.7	60	33.1	82	46.6	29	50.0	4	14.3		
		Natural	51	8.3	45	14.0	39	19.6	23	12.7	14	8.0	9	15.5	3	10.7		
		Disagree	17	2.8	23	7.2	11	5.5	11	6.1	5	2.8	2	3.4	2	7.1		
		Strongly disagree	7	1.1	24	7.5	12	6.0	14	7.7	1	0.6	6	10.3	7	25.0		
18	Online test contains parts that measure skill of thinking, analysis, and design	Strongly agree	254	41.6	103	32.1	44	22.1	40	22.1	75	42.6	5	8.6	11	39.3	181.360*	<0.001*
		Agree	283	46.3	124	38.6	92	46.2	50	27.6	67	38.1	31	53.4	8	28.6		
		Natural	47	7.7	60	18.7	45	22.6	64	35.4	18	10.2	13	22.4	5	17.9		
		Disagree	22	3.6	17	5.3	10	5.0	13	7.2	13	7.4	4	6.9	1	3.6		
		Strongly disagree	5	.8	17	5.3	8	4.0	14	7.7	3	1.7	5	8.6	3	10.7		
19	I prefer electronic exams than the traditional method	Strongly agree	274	44.8	163	50.8	75	37.7	87	48.1	89	50.6	16	27.6	13	46.4	129.281*	<0.001*
		Agree	255	41.7	67	20.9	55	27.6	45	24.9	58	33.0	17	29.3	5	17.9		
		Natural	46	7.5	38	11.8	31	15.6	25	13.8	13	7.4	11	19.0	4	14.3		
		Disagree	26	4.3	21	6.5	20	10.1	6	3.3	11	6.3	5	8.6	1	3.6		
		Strongly disagree	10	1.6	32	10.0	18	9.0	18	9.9	5	2.8	9	15.5	5	17.9		
20	The online test is characterised by diversity in the difficulty of the questions and taking into account individual differences	Strongly agree	249	40.8	93	29.0	37	18.6	71	39.2	85	48.3	10	17.2	10	35.7	170.540*	<0.001*
		Agree	280	45.8	114	35.5	76	38.2	64	35.4	66	37.5	25	43.1	11	39.3		
		Natural	50	8.2	63	19.6	59	29.6	23	12.7	22	12.5	14	24.1	3	10.7		
		Disagree	26	4.3	30	9.3	17	8.5	8	4.4	1	0.6	4	6.9	0	0.0		
		Strongly disagree	6	1.0	21	6.5	10	5.0	15	8.3	2	1.1	5	8.6	4	14.3		
21	The course professor answered your questions before and after the probationary period	Strongly agree	258	42.2	102	31.8	62	31.2	73	40.3	84	47.7	9	15.5	12	42.9	184.443*	<0.001*
		Agree	290	47.5	99	30.8	79	39.7	55	30.4	75	42.6	22	37.9	10	35.7		
		Natural	33	5.4	54	16.8	38	19.1	24	13.3	12	6.8	12	20.7	3	10.7		
		Disagree	22	3.6	34	10.6	14	7.0	9	5.0	4	2.3	10	17.2	0	0.0		
		Strongly disagree	8	1.3	32	10.0	6	3.0	20	11.0	1	0.6	5	8.6	3	10.7		

χ^2 : Chi square test *: Statistically significant at $p \leq 0.05$

Table (3): Comparison between the different universities according to overall satisfaction regarding electronic exam (n =1574)

Q	Student satisfaction element		Umm al-Qura (n =611)		Hafr Al-Batin (n = 321)		Jizan (n = 199)		Tiba (n =181)		Qassim (n = 176)		Bisha (n =58)		Shaqra (n = 28)		χ^2	MC _p
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
22	In general, you are satisfied with the experience of electronic exam	Very satisfied	268	43.9	136	42.4	69	34.7	83	45.9	103	58.5	15	25.9	14	50.0	176.256*	<0.001*
		Satisfied	234	38.3	79	24.6	58	29.1	51	28.2	44	25.0	10	17.2	7	25.0		
		neutral	0	0.0	0	0.0	0	0.0	0	0.0	3	1.7	0	0.0	0	0.0		
		not satisfied	11	1.8	15	4.7	11	5.5	7	3.9	1	0.6	4	6.9	1	3.6		
		Not very satisfied	10	1.6	19	5.9	15	7.5	17	9.4	1	0.6	8	13.8	3	10.7		
		To some extent	88	14.4	72	22.4	46	23.1	23	12.7	21	11.9	21	36.2	3	10.7		
		OK	0	0.0	0	0.0	0	0.0	0	0.0	3	1.7	0	0.0	0	0.0		

χ^2 : Chi square test

MC: Monte Carlo

*: Statistically significant at $p \leq 0.05$

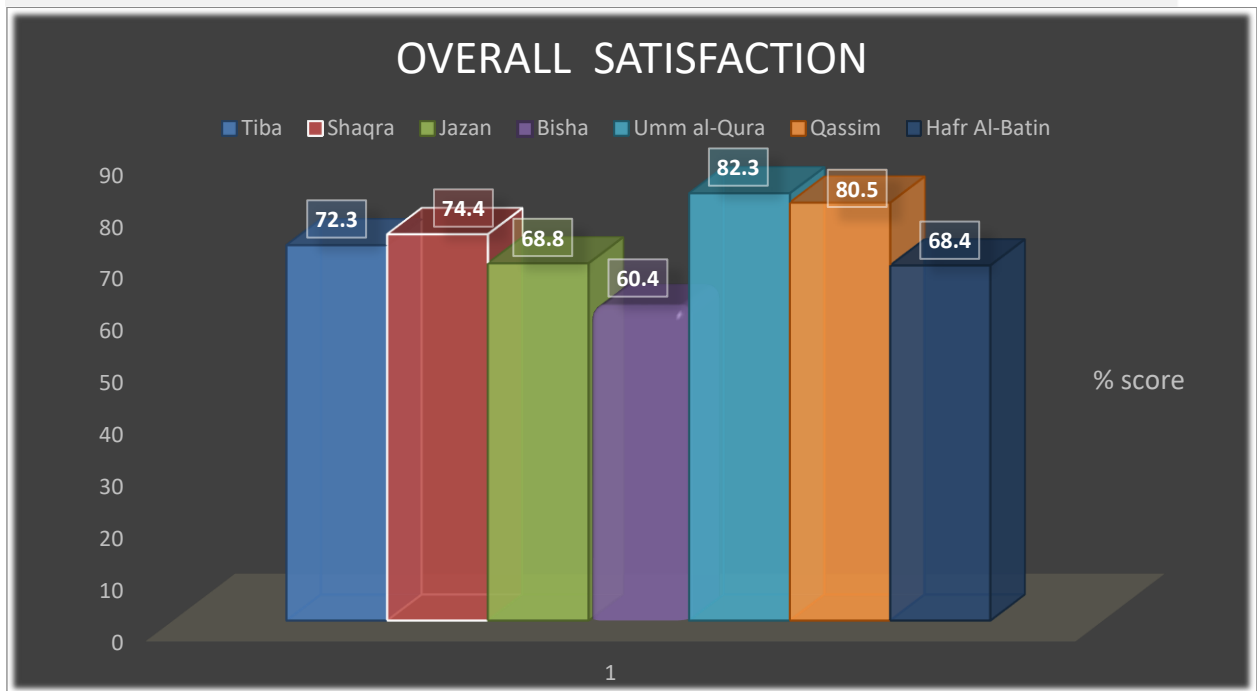


Figure (1): Comparison between the different universities according to overall % score of satisfaction (n =1574)

Table (4): Comparison between the academic year level of student according to total score of satisfaction (n =1574)

Overall satisfaction	Total score
	Mean± SD
Academic year level	
level 1	98.29 ± 13.29
level 2	83.68 ± 12.92
level 3	79.96 ± 13.78
level 4	81.91 ± 14.71
level 5	78.03 ± 23.31
level 6	79.98 ± 19.24
level 7	75.75 ± 12.45
level 8	79.88 ± 21.40
F	40.953*
p	<0.001*

F: F for ANOVA test

*: Statistically significant at $p \leq 0.05$

Table (5): Most common student's satisfactory areas regarding electronic exams indifferent universities (n =1574)

Q	% Score	Mean	SD	Rank
1	Distance learning provides equal opportunities and does not distinguish between female students assessment and exams	74.59	28.09	12
2	I have knowledge of different assessment methods for distance learning	75.84	24.87	9
3	Distance learning allows students to obtain their results in the same group in a timely manner.	78.68	24.0	3
4	Distance learning enables non-discrimination in the treatment of female students by panel members Teaching.	76.37	26.48	5
5	Equal opportunity and fairness of the electronic tests encourage female students	76.32	26.33	6
6	The college takes into account the needs and desires of female students when scheduling examinations Online.	71.93	30.47	20
7	The schedule of exams has been announced at an early and appropriate date	72.82	29.51	19
8	The results of the exam will be announced on the websites	80.53	23.08	2
9	The online tests are at your convenience, and your opinion will be taken	73.30	29.47	18
10	The time set for the online exam is sufficient	65.47	33.43	21
11	Online exams methods vary, and suit female students	75.17	26.57	11
12	Sufficient guidance was provided to female students prior to the online test	84.50	30.60	1
13	A pilot test was done for the students to be trained in electronic tests	74.38	29.87	14
14	Online questions are clear and appropriate to the course and its evaluation method	74.51	27.30	13
15	Exam questions do not exceed the content of the announced course	73.76	28.22	17
16	Exam questions cover all parts of the course content	78.59	23.28	4
17	The method for assigning grades to test questions is appropriate	76.14	26.10	8
18	The online test contains parts that measure skill of thinking, analysis, and design	74.29	25.20	16
19	I prefer electronic tests than the traditional method	76.24	28.98	7
20	The online test is characterised by diversity in the difficulty of the questions and takes into account individual differences	74.36	25.98	15
21	The course professor answered your questions before and after the test period	75.21	26.91	10
	Overall	75.38	c	



Discussion

Searching for appropriate ways for measuring university student's satisfaction regarding online courses is considered as the corner stone for attention. Davis and Kentucky, 2014. The concept of e-learning is very imperative in higher education because it provides another way to build up students' knowledge, skills and attitudes using up-to-date technologies, allow learning to be apprehended at anytime, anywhere and help students to achieve greater control over their learning. (Larbi-Siaw and Owusu-Agyeman 2016).

E-learning is a technological method intended to enhance knowledge, individual learning and organizational performance goals. Furthermore, the speedy increase of e-learning use has encouraged educational organisations and researchers to question the advantages of using this method among students. (Abbad & Jaber, 2014)

Hence, there is a great deal research that studies the effects of communication and information technology (IT) on student's level of achievements and their satisfaction. Innovative techniques are still being explored with the aim of establishing active and tailored learning environments wherein learners are able to practice learning in a motivating approach with the use of various tools and information technology. (Alkharang, 2014)

In relation to sociodemographic characteristics of studied samples, the present study revealed that about one quarter of students were in the second year and below one quarter were in the first year of college of nursing. Also, nearly half of the students were from Umm al-Qura university followed by Hafr Al-Batin, and Jizan.

Regarding student's satisfaction rates towards electronic exams between universities, the current study revealed that the majority of the students had strongly agree to agree level of satisfaction to all items of the satisfaction regarding electronic exams. While there is a statistically significant difference found according to overall satisfaction regarding electronic exams in the perceived satisfaction with the experience of electronic exam reported by the students. Unfortunately, these findings are counter with (Topal, 2016) who concluded that there was not a significant difference found among students' satisfaction regarding both exams and homework as assessment tools, or content of pdf and text documents as content tools.

On the other hand, Overall percentage scores of satisfactions regarding electronic exam between different universities revealed higher mean score of satisfaction regarding electronic exam at Umm al-Qura, Qassim, Shaqra, Tiba universities with statistically significant difference. In relation to the most common students satisfaction areas regarding electronic exams in different universities, the majority of students had higher mean score of satisfaction regarding items related to enough guidance previous to the online test, tests published on the websites, allowed students to get their results in, in a timely manner, Exam questions enfold all parts of the course

content, equity in the treatment of female students by board of members teaching with added three quarter percentage in generally student satisfaction levels regarding electronic exam in diverse universities . Additionally, these findings agree with (Tawafak et al ,2019) who found in their study positive facts with student satisfaction on e-learning models.

In contrast, (Garratt-Reed et al, 2016) reported that the group presentation assessment was associated with differences in grades and accompanied by student dissatisfaction. Withholding rates were lesser in online exams, signifying the need for advanced research to extend efficient strategies to enhance online retention rates.

In KSA, (Elfaki, et al,2019) a significant difference in learning outcomes as well as positive attitudes between online and traditional students was revealed, which can be a workable alternative learning method for higher education. It also contributes to the recent literature in the area of online instruction and e-learning.

In Turkey, (Topal ,2016) reported a high satisfaction rate among students because of strong relationships between teachers and learners alongside a suitable environment and appropriate teaching strategies, tools and content, which allowed student's to be more comfortable and fulfilled. Whilst interaction and communication tools such as virtual classrooms, forums, chat, e-mail, web pages, animation, videos, graphics and images, as content tools, and questionnaires, as assessment tools, were used, there was a variation in student satisfaction and satisfaction was higher in these courses.

In Iran, Khorashad et al, (2014) highlighted undergraduate medical students' satisfaction levels and discovered there was no significant correlation between their level of satisfaction and their age, marital status, or lack of previous experience with this type of exams. Recently, (Hermannsetal, 2020) pointed out that exam preparation was better as a result of online teaching. As a solution, a new course concept for the time after the Corona virus crisis that suits all students is outlined in the viewpoint.

In Bosnia and Herzegovina Puška et al, (2020)concluded that their meta cognitive strategies variable affects the students' satisfaction directly when using e-learning, while students' self-efficacy and goals are variables mentioned as environment design and preparation which indirectly affected the satisfaction rate.

Regarding relationship of student's overall satisfaction scores and their academic level, the current study indicated that first and second year students had higher mean scores of satisfaction regarding electronic exams than the other academic levels at the university with statistically significant difference. In this regard (Caliskan et al, 2017) revealed that students have satisfaction in distance education courses. Additionally,(Simon et al ,2016) clarified that there



are specific factors that affect exam performance, such as learning effectiveness and course design.

While El-Ebiary et al, (2019) necessitated on that and encompasses technology usage e-learning in assisting and improving learning using different ways, especially when it involves students as the use may affect their educational well-being and does not fully support students' needs.

Conclusion & Recommendations:

The majority of the students had ranged from a strongly agree to an agree level of satisfaction to all items of the satisfaction regarding electronic exams. A significant difference between the different universities was found according to overall satisfaction scores regarding electronic exams. It is imperative for students to receive regular, periodic in-service computer skills courses. There is an obvious need for designed electronic exams information quality, enjoyment, and environment preparation. Further studies are needed to study the factors that influence university students' embracing and use of e-learning exams.



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