Satisfaction of Students about Educational Process through E-Learning during COVID-19 Pandemic at Qassim University, KSA

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Background: The COVID-19 pandemic has wreaked havoc on a variety of troubles around the world, including learning and university. Many surveys have focused on expected learning outcomes and student satisfaction toward e-learning as a result of the transition to online education since the COVID-19 pandemic. **Research Aims:** assess the students' satisfaction related to e-learning during COVID-19 pandemic at Qassim University **Methodology:** A cross-sectional research design was utilised at May 2020 after 2nd trimester at Qassim University. Convenience sampling included 400 students. An online survey was conducted by using a Survey website form, which contains four parts (characteristics and satisfaction scale) **Results:** revealed that more than two thirds of studied subjects were at practical faculties and more than one quarter of them at fourth year. More than three quarters of studied students were satisfied about virtual classrooms and tests, information, sources and importance of the electronic course and obstacles that the student faces during e-learning. **Conclusions:** the current study concluded that more than three quarters of studied subjects were satisfied while less than one quarter of them was unsatisfied in relation to e-learning during the COVID-19 pandemic. Also, theoretical college, increasing graduate year and grade point average had high frequency positive effect on students' satisfaction about e-learning at p value < 0.01**. While, female gender had a slight positive effect on students' satisfaction about e-learning with p value < 0.05.

Key words: *E-learning, Satisfaction, Students, COVID-19.*

Introduction

The COVID-19 pandemic has resulted in schools being shut all across the world. Many universities across the world had postponed or cancelled academic events such as examinations, conferences, seminars etc. As a result, education has undergone significant transformations, with the advent of e-learning, in which teaching is done remotely and through interactive platforms (Dhawan, 2020). According to research, online learning increases knowledge retrieval and consumes less effort, implying that the modifications created by the coronavirus are here to last (Aliyyah et al., 2020).

Online learning refers to an electronic learning environment where, unlike traditional learning, there are no physical peer learners and there is freedom of time and space (Adnan & Anwar, 2020). However, e-learning makes learning flexible and provides an alternative for those who cannot attend traditional classrooms for any reason. With the growth of technology and the Internet, e-learning has secured a good position in an academic world. At times e-learning is included in the category of distance education (Verawardina et al., 2020).

The COVID-19 pandemic has impacted negatively on education in a number of universities (Barouki et al., 2021). Traditional face-to-face classes had to be cancelled in several countries, including Saudi Arabia, to certify the safety of teachers, lecturers and patients. To lessen the effect of lockout, the university had to come up with a new way to educate students. Luckily, advances in technology enabled electronic learning (e-learning) to become the standard mechanism of imparting knowledge during the COVID-19 pandemic (Algahtani et al., 2021).

E-learning is a learning system that is focused on formalised instruction but uses electronic tools. Although teaching may take place in or out of the classroom, e-learning is mostly focused around the use of computers and the Internet (Algahtani et al., 2021). There are many factors influencing the performance of e-learning, including usability, the use of suitable tools, internet speed, availability of computer lab, course material, technical skills, evaluation requirements, students factors and skills of lectures. In addition other factors have been described to impact the overall learning experience of students (as defined by their satisfaction and level of perceived learning) (Quispe-Prieto et al., 2021).

Although e-learning in educational institutions is the new standard and inevitable, given the aforementioned circumstances, such a rapid change has raised concerns about the consistency of the implementation, infrastructure preparation adequate preparation, sufficient training etc. (Lei & So, 2021 and Chaturvedi et al., 2021).

Aims

This study aimed to assess the students' satisfaction related to e-learning during COVID-19 pandemic at Qassim University.

Research questions

- What is the students' satisfaction related e-learning during COVID-19 pandemic at Qassim University?

-What are factors affecting students' satisfaction related e-learning during COVID-19 pandemic at Qassim University?

Methods

Research Design: A cross sectional research design was utilised at May 2020 after 2nd trimester.

Research Setting: The study was carried out at Qassim University which is a public university in the Al-Qassim Province of Saudi Arabia. Qassim University has over 38 Colleges, offering 17 PhD, 62 Master and 731 Bachelor and Diploma Programs.

Subjects: Convenience sample included the students who were available and enthusiastic to participate at the study regardless of their age, gender, college, last grade point average (GPA) and graduate year. 409 students participated in the online survey and 9 students were excluded due to incomplete online survey, so the total student number was 400.

Related to the principles and rules of social distancing to limit the spread of COVID-19, we used an online survey and email, Facebook, Whatsapp and telegram services to collect the data from the subjects. Survey website form https://survey.qu.edu.sa/index.php/467769?lang=ar permits questionnaire design, collection of data, descriptive analysis of results, and data download through excel spreadsheet for extra analysis.

The instruments

The study instrument was designed by the researchers based on a literature review related to e-learning during COVID-19 lockdown (Tang et al., 2021; Rehman & Fatima, 2021).

Part I: Characteristics of the students such as gender, college, graduate year and last GPA.

Part II: A satisfaction scale related to e-learning was used to assess students' satisfaction related to e-learning during COVID-19 pandemic. It contain 31 items enrolled at six domains as information, sources and importance of the electronic course (6 items) as "the requirements for passing the course were clear to me and implementation of the electronic course and the things I was asked to do were consistent with the course's outlines" etc. The level of interaction of faculty members with e-learning (3 items) as "the faculty member was enthusiastic about what he taught using the electronic courses" etc. The level of student interaction using e-learning (6 items) as "I was encouraged to ask questions and develop my own ideas through discussions and teaching using e-learning helped me do my best" etc. Virtual class room and tests (3 items) as "the evaluation of my assignments and tests was fair and appropriate" etc. Advantages of learning in electronic courses (8 items) as "sending and receiving educational materials electronically was unimpeded and I feel comfortable doing some electronic correspondence for the science posts" etc. The obstacles that the student faces during e-learning (5 items) as "the computer devices available at the university are not suitable for using the internet and the speed of the internet connection inside the university is inappropriate" etc.
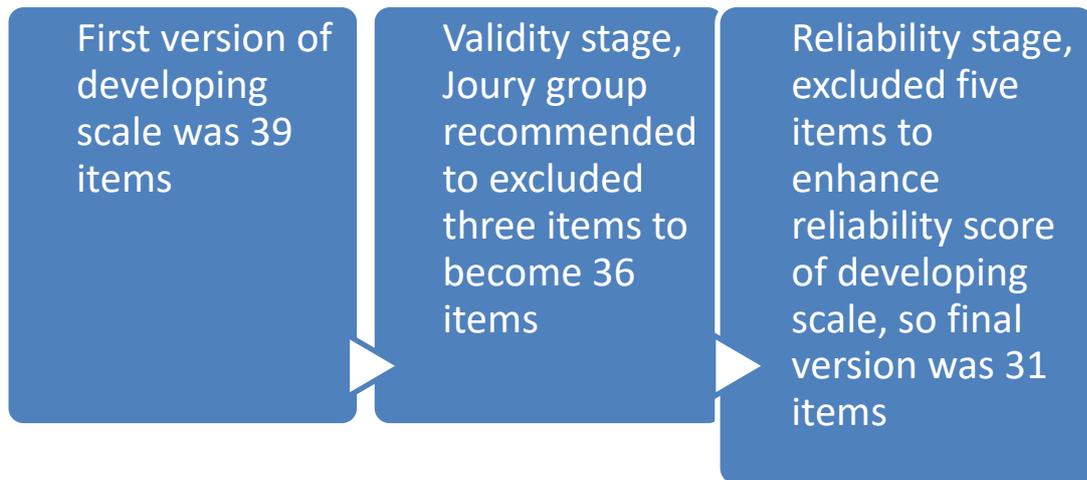
Scoring system

Each item was scored with Likert 5-point scale strongly disagree, disagree, sometimes, agree and strongly agree with scores 1, 2, 3, 4, 5 respectively for positive items and vice versa for negative items and total score divided to satisfaction if score 70% or more and unsatisfaction if score < 70%.

Pilot Study

The pilot study was conducted with 40 students who represent 10% of total sample at the previously mentioned settings in order to test the applicability of the constructed tools and the clarity of the included tools. Also, to assess the reliability and validity of developing tools before using them in the study. The pilot also served to estimate the time needed for each subject to fill in the questionnaire.

A group of experts in the medical, surgical and administration departments ascertained the content's validity; their opinions were elicited regarding the format, layout, consistency, accuracy and relevancy of the tools. Reliability testing was carried out to test the reliability using Cronbach's Alpha; the coefficient was 0.886 after deletion of five items to improve reliability of the scale.

First version of developing scale was 39 items	Validity stage, Joury group recommended to excluded three items to become 36 items	Reliability stage, excluded five items to enhance reliability score of developing scale, so final version was 31 items

Data collected from the studied sample was revised, coded and entered using a Personal Computer (PC). Computerised data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 24. Data was presented using descriptive statistics in the form of number and percent. Pearson Correlation Coefficient was used to measure the linear correlation between two sets of data. A linear regression model is a linear approach to modeling the relationship between a scalar response and one or more explanatory variables.

Ethical consideration

The research ethics committee revised and approved the study. The submission of the online answer to the questionnaire was considered as consent to take part in the study. Confidentiality of the study students' data was sustained throughout the study by making the students' data nameless.

Results

Table 1 revealed that 68.3% of studied subjects were at practical faculties and 29.7% of them at fourth year. Also, it showed that 67.7% of studied subjects were female and 38.75% of them had last GPA ranged between 3.75 and 4.50.

Table 1: Distribution of studied students according to their characteristics (N=400)

Items	N	%
College		
Practical faculties	273	68.3
Theoretical faculties	127	31.7
Graduate years		
Second-year	76	19
Third-year	81	20.3
Fourth-year	119	29.7
Fifth-year	105	26.3
Sixth-year	19	4.7
Gender		
Male	129	32.3
Female	271	67.7
Last GPA		
< 2	13	3.25
2 – 2.74	46	11.5
2.75 – 3.74	138	34.5
3.75 – 4.50	155	38.75
> 4.5	48	12

Table 2 reported that 82.3% of studied students were satisfied about advantages of learning in electronic courses, 80.5% of them were satisfied in relation to interaction of faculty members with e-learning, 79.3% of studied students were satisfied about virtual classroom and tests, 78.5% of them were satisfied about information, sources and importance of the electronic course and 77% of them were satisfied in relation to the obstacles that the student faces during e-learning.

Table 2 Distribution of studied students according to their satisfaction related e-learning during COVID-19 pandemic (N=400)

Domains	Satisfaction		Un satisfaction	
	n	%	n	%
Information, sources and importance of the electronic course	314	78.5	86	21.5
The level of interaction of faculty members with e-learning	322	80.5	78	19.5
The level of student interaction using e-learning	309	77.3	91	22.7
Virtual class room and tests	317	79.3	83	20.7
Advantages of learning in electronic courses	329	82.3	71	17.7
The obstacles that the student faces during e-learning	308	77	92	23

Figure 1 revealed that 78.5% of studied subjects were satisfied while 21.5% of them were unsatisfied in relation to e-learning during COVID-19 pandemic.

Figure 1 Percentage distribution of studied students according to their satisfaction related e-learning during COVID-19 pandemic (n=400)
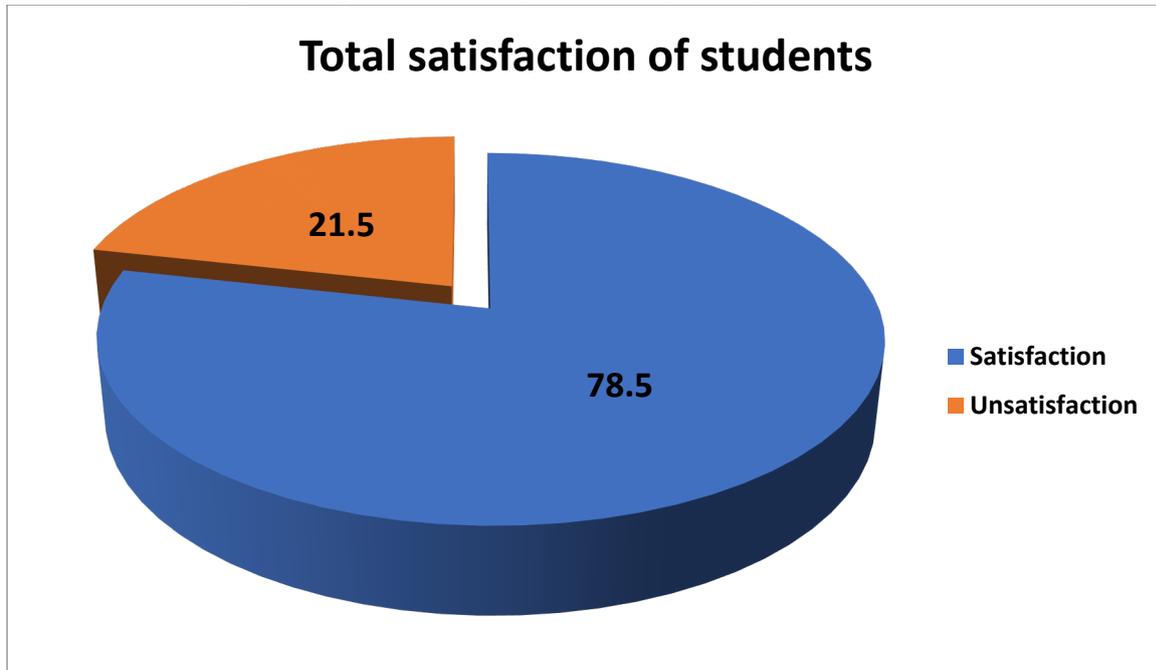

Table 3 revealed that there was high positive correlation between information, sources and importance of the electronic course domain and the level of interaction of faculty members with e-learning domain, the level of student interaction using e-learning domain, advantages of learning in electronic courses, and obstacles that the student faces during e-learning with p value < 0.01**. Also, it detected that there was high positive correlation between the level of interaction of faculty members with e-learning and level of student interaction using e-learning with p value < 0.01. While there was slight positive correlation between virtual class room with information, sources and importance of the electronic course, advantages of learning in electronic courses and obstacles that the student faces during e-learning with p value < 0.05.

Table 3 Correlation between domains of satisfaction tool

		1	2	3	4	5	6
Information, sources and importance of the electronic course	R P.		0.599 <0.01**	0.633 <0.01**	0.354 <0.05*	0.711 <0.01**	0.317 <0.05**
The level of interaction of faculty members with e-learning	R P.			0.855 <0.01**	0.746 <0.01**	0.611 <0.01**	0.569 <0.01**
The level of student interaction using e-learning	R P.				0.265 <0.05*	0.802 <0.01**	0.608 <0.01**
Virtual class room and tests	R P.					0.290 <0.05*	0.298 <0.05*
Advantages of learning in electronic courses	R P.						0.648 <0.01**
The obstacles that the student faces during e-learning	R P.						

Table 4 stated that high significant model detected through F test value was 9.516 with p value 0.002. This model explains 48% of the variation in students' satisfaction about e-learning detected through R2 value 0.48. Also, it explained that theoretical college, increasing graduate year and GPA had high frequency positive effect on students' satisfaction about e-learning at p value < 0.01**. While female gender had slight positive effect on students' satisfaction about e-learning with p value < 0.05.

Table 4: Multiple Linear regression model for students' satisfaction about e-learning

	Unstandardized Coefficients		standardized Coefficients		
	B		Beta	T	P. value
College "theoretical"	0.287		0.201	5.883	0.006**
Graduate years	0.229		0.176	4.998	0.009**
Last GPA	0.325		0.247	6.105	0.003**
Gender "female"	0.125		0.093	2.968	0.034*
ANOVA					
Model	R^2		**F**	**P. value**	
Regression	**0.48**		9.516	0.002**	

a. Dependent Variable: students' satisfaction about e-learning
b. Predictors: (constant): College "theoretical", Graduate years, Last GPA and Gender "female"

Discussion

Student satisfaction is a critical variable in determining the success or failure of online learners, courses and programs (Al Awamleh, 2020). Designing and implementing an effective and efficient education environment, which satisfies students, is a complex process which involves many factors including instructor support, student interaction and collaboration, and student autonomy (Landrum et al., 2020).

The current study revealed that more than two thirds of studied students were from practical faculties and more than one quarter of them at fourth year. It also mentioned that about two thirds of studied subjects were female and more than one third of them had last GPA ranged between 3.75 and 4.50. These results are consistent with Nambiar (2020) who conducted the study on 407 students in India and stated that the majority of studied students were female. While inconsistent with the qualitative study by Mukhtar et al., (2020) that conducted it on 12 students in Pakistan and found that half of students enrolled at basic sciences.

Related to the satisfaction scale related to e-learning during COVID-19 pandemic, the present results demonstrated that the majority of studied students were satisfied about advantages of learning in electronic courses, more than three quarters of them were satisfied with the interaction of faculty members with e-learning domain, virtual classroom and tests domain, information, sources and importance of the electronic course domain and obstacles that the student faces during e-learning domain. Also according to the total scale, more than three quarters of studied students were satisfied in relation to e-learning during COVID-19 pandemic. These results were explained as the availability of computers in colleges and good internet speeds. Preparing training courses for students on e-learning. Also, training courses for faculty members on how to prepare electronic curricula and electronic communication with students.

These results disagree with the study by Nambiar (2020) who detected that more than three quarters of studied students do not take online classes seriously, three quarters of them show lack of interest and involvement during online classes and more than half of them disagree that online classes are more effective than the classroom mode. While this current study is supported by Baber (2020) who performed a study on 100 students from South Korea and India who reported that there was moderate satisfaction toward online education. Also, similarly with the study performed by Lee et al., (2021) about student learning during COVID-19: "It was not as bad as we feared and detected that students have been more resilient than is often assumed and more than two thirds satisfied with online education". In addition consistent with Jiang et al., (2021) who conducted a study in China with sample size of 928 students and stated that student satisfaction is of great significance in online learning.

Regarding to the correlation between domains of satisfaction tool, the current study mentioned that there was high positive correlation between information, sources and

importance of the electronic course domain and the level of interaction of faculty members with e-learning domain, the level of student interaction using e-learning domain, advantages of learning in electronic courses, and obstacles that the student faces during e-learning with p value < 0.01**. Also it detected that there was high positive correlation between level of interaction of faculty members with e-learning and level of student interaction using e-learning with p value < 0.01. These results are consistent with the study by Ding et al., (2018) in Georgia with sample size 12 students and found that technical issues and skills of teachers had positive effect on students' interaction during online session. Also, the study was supported by Muthuprasad et al., (2021) in India through an online survey of 307 students and found that there was positive correlation between student's interaction and faculty member interaction with p value < 0.05.

Related to multiple linear regression model for students' satisfaction about e-learning, the current study mentioned that theoretical college, increasing graduate year and GPA had high frequency positive effect on students' satisfaction about e-learning at p value < 0.01**. While female gender had slight positive effect on students' satisfaction about e-learning with p value < 0.05. These results are explained as practical faculties faced high limitation during learning new skills due to applying it through online classes was impossible. These results were irrelevant with the study conducted by Prifti (2020) titled "Self–efficacy and student satisfaction in the context of blended learning courses" and stated that self-efficacy had a positive impact on students' satisfaction about e-learning and gender had no significant relation with their satisfaction and interaction during e-learning with p value > 0.05. On the other hand, these results are consistent with the study performed by Chung et al., (2020) with sample size of 399 students and found that there was high significant relation between gender and students' satisfaction.

Conclusion

To conclude our study, more than three quarters of studied subjects had satisfaction while less than one quarter of them had unsatisfaction related e-learning during COVID-19 pandemic. Also theoretical college, increasing graduate year and GPA had high frequency positive effect on students' satisfaction about e-learning at p value < 0.01**. While female gender had slight positive effect on students' satisfaction about e-learning with p value < 0.05.

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